



E-ISSN 2319-7560

# INTERNATIONAL JOURNAL OF SCIENCE AND ENGINEERING APPLICATIONS

Volume 12, Issue 1 : January 2023

**Publisher**

**Association of Technology  
and Science**

 [www.ijsea.com](http://www.ijsea.com)

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# Ideological and Political Course Teaching in Colleges and Universities Based on the Construction of Computer Multimedia Technology

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**Abstract:** This system is under the development mode of the WeChat public platform, using the Unified Modeling Language (UML) as the description language for analysis and design, combined with the mature library-level basic platform J2EE and the lightweight open source database Mysql design and implementation of a B/ S-structured library book personalized recommendation system. Learning the construction mode of audio reading application software or audio reading WeChat applet in the market, starting from the product construction principles, supporting elements, page design scheme and operation scheme, etc., put forward a comprehensive method for university libraries to use applet to build an audio reading service platform sexual solutions.

**Keywords:** Intelligent Subscription Algorithm, University Library Reading, Wechat Public Platform

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## 1. INTRODUCTION

Library reading promotion refers to the activities that libraries use to improve the reading volume and borrowing rate of their collections by various means [1]. With the advent of networking and informatization, the reading medium gradually tends to be digital, and the use of micro-platforms for socializing and entertainment has become the main way of students' daily life. In response to this situation, university libraries should recognize the publicity value of the WeChat public account platform [2], actively develop and build the platform, make full use of the information transmission function in the platform, and organically combine professional expertise with the reading habits of teachers and students to carry out scientific and efficient development. It is an important research direction of Chinese medicine university library [3].

The application of WeChat public platform can avoid the time and space limitations of traditional reading promotion. The 21st century is the information age, and modernization has been achieved in various fields and industries through the widespread application of information technology [4]. Based on this, in order to better improve their service level and service functions, university libraries have also begun to use new media to promote reading. WeChat (Wechat) is an instant messaging service launched by Tencent in early 2011. Free application, which supports cross communication operators and operating systems, and transmits audio, video, pictures and text information for free through network transmission [5].

Establish public accounts of university libraries through the official certification of WeChat public platform, and use the push function to send more targeted promotion content to users, providing users with more convenient and efficient reading services [6]. This paper investigates the current situation of reading promotion on WeChat public platform of 19 Chinese medicine university libraries in China, analyzes the problems and proposes optimization strategies, in order to provide reference for the development of reading promotion

work in university libraries based on WeChat public platform [7].

The rapid growth of Chinese netizens using mobile phones to access the Internet reflects the rapid development of China's mobile Internet [8]. The development of the mobile Internet has changed the whole society and comprehensively affects all aspects of people's lives. Relying on the mobile Internet platform, a large number of application software are pushed out to meet various needs in people's lives [9]. The investigation of the usage of WeChat found that more than 60% (66.4%) of the people who read on the mobile phone have read the WeChat widely, and the average reading time of WeChat is 14.11 minutes per day [10]. On April 18, 2016, the National Ten H National Reading Survey Report showed that the reading time on mobile phones increased the most, and the per capita reading time on WeChat was 22.63 minutes per day. Butler's famous words in "Library Science Theory" are still Applicable to today's explosive growth of data and information today [12].

With the development of digital information technology, more and more traditional books are integrated into our life in digital form [13]. Audiobooks are popular among users for their fast dissemination and low cost. In the current era of mobile Internet, new media such as Weibo and WeChat are gradually replacing most traditional media, and have become the dominant media for information transmission and sharing [14].

These new media have penetrated into people's daily life and changed the way of interaction between libraries and readers. In this environment, library reading promotion work also needs to continuously integrate new marketing concepts and thinking [15]. One-to-one consulting services and keywords It can realize one-to-many media activities, and has become an important technology platform for government agencies, enterprises, institutions and individuals to promote themselves. In a narrow sense, university library WeChat refers to the university library WeChat public platform, which

is a platform for university libraries to register their WeChat public account [16].

As of April 2017, WeChat has become a mobile application used by more than 800 million people. In the past two years, most university libraries have successively opened the library WeChat public account [17], and have used the WeChat public account to conduct reading promotion service attempts, and have also discussed the effect of WeChat reading promotion. As a concrete embodiment of university culture, university library is constantly progressing with the development of university. Because of providing reading services for students for a long time, university libraries have formed a relatively complete model in the management process, and have achieved certain development results [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Micro-Channel Public Platform

The WeChat platform supports a variety of content presentation methods such as text, images, audio and video [4]. According to the survey, at present, the information push method of most domestic university libraries' WeChat platform is mainly pictures and text content. To establish a WeChat public platform in university libraries, it is necessary to give full play to the role of WeChat platform as a social software. On the basis of fully understanding the reading needs of college students, new functions of WeChat should be explored and developed to provide students with diversified reading services.

The library staff use the WeChat editing software to typeset the content. It can not only guide readers to read actively and learn to read online, and achieve the purpose of cultural inheritance, but also can break through time and space constraints to build a real-time communication experience platform for readers. Reading promotion through the WeChat public platform realizes the full use of Internet technology. First of all, according to relevant investigation and analysis, the reading promotion effect of most university libraries is not ideal at present. It can be roughly divided into two levels, namely university libraries with a WeChat communication power index of around 700 and university libraries with a WeChat communication power index below 400. Personalized push is based on readers' personal hobbies and usual check records, and based on this, pushes books that they may like to readers. With the continuous increase of library collections, the number and types of books continue to increase, so readers need to spend a lot of time and energy to search for books that meet their needs.

This will not only cause a waste of resources such as manpower and energy, but also ignore the situation of readers, and it will be impossible to improve the work of the library. College students are the main body of the reading promotion work on the WeChat public platform of university libraries, and have special reading needs and methods. All these libraries provide at least one mobile service, and most of them provide multiple services. The most common mobile services are mobile sites, messaging services, e-books, and mobile access to databases and catalogs. The data of this article comes from the WeChat public platform of 41 university libraries and the Qingbo index platform. Qingbo is a researcher, a public opinion analysis report and a software supplier of the new media big data evaluation system and influence standard. The platform has authoritative experts in the industry, including the complete push article.

### 2.2 The University Library Reading System

The purpose of establishing the library WeChat public account platform in colleges and universities is to optimize the library's book service. In order to better play the role of the platform, colleges and universities should increase the publicity of the WeChat public service platform, and select 19 Chinese medicine university libraries as the For the research objects, data analysis was carried out on the content and reading volume of their WeChat public accounts. The data selection time is from September 1, 2019 to November 30, 2020. The WeChat public platform of university libraries is a bridge between university libraries and readers, and an effective tool for university libraries to serve readers and communicate with readers.

Through the investigation, it was found that most "985" university libraries have opened WeChat public accounts, and even some of the library's WeChat public accounts were named after the field of "school name + library". Although most university libraries have formed relatively mature working experience in reading promotion, there are many defects and deficiencies in the use of WeChat public platform, especially in the promotion methods and functions, which are mainly reflected in the following aspects: Aspect. System modeling is software design and development based on the Unified Modeling Language (UML). Unified Modeling Language (UML) is a set of graphical representations supported by models. These methods can be used to describe and design software systems, especially object-oriented methods. "Reading aloud by Bo Kan" and "Benevolence Reading Promotion for All".

### 2.3 The Intelligent Subscription Algorithm for University Library Reading System

University Library Reading System Intelligent Subscription Algorithms Many libraries lack full-time WeChat reading promotion staff. They simply use the WeChat public platform as a traditional reading promotion tool, and simply forward the news or notices on the original homepage to WeChat. Public platform. In view of the problem that the content of the WeChat platform is complex and the effect is not obvious, colleges and universities should strengthen the construction of the library WeChat public account platform, improve the management and supervision of the platform, and provide students with healthier and richer reading content. Give full play to the promotion role of the library's WeChat public account platform.

On the one hand, this may be related to the location where the information pushed by different types of official accounts is displayed, that is, the information pushed by the service account will be directly displayed in the chat window. The audio reading service platform based on WeChat applet mentioned in this article is for the scope of colleges and universities within the teacher-student group. Although the student body is highly mobile, the platform audience has always been mainly teenagers aged 20-30. Therefore, the platform construction should also focus on actively guiding the physical and mental health of young people. Strengthening the construction of a professional team for WeChat reading promotion is an important condition to ensure the professionalism, stability and continuity of WeChat reading promotion, and provides an indispensable talent guarantee for the realization of the professional construction and scientific management of WeChat reading promotion platform. The

current situation of WeChat reading promotion in university libraries is not optimistic.

### 3. CONCLUSIONS

This paper first analyzes the significance of personalized technology to the library push platform, and introduces the key technology of personalized reading push system. Then, on the basis of studying the knowledge and key technologies of personalized reading push, a personalized reading push system based on WeChat public platform is constructed. The design scheme and operation scheme of college audio reading service platform based on WeChat applet are proposed. According to the construction principle of "Center", the page design of "Home", "Category", "List" and "Account Management" of the Mini Program is carried out, and specific details are put forward from the three aspects of "new promotion", "activation promotion" and "recall". operating plan.

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# Research on Semantic Extraction of Online Mathematics Guidance Videos in Colleges and Universities Based on Intelligent Information Technology

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**Abstract:** This article proposes a general solution for multi-granularity semantic analysis and extraction of video data based on the online instructional video of mathematics in colleges and universities of intelligent information technology. In this scheme, multi-level semantic analysis and multi-modal information fusion technology are unified and applied in the same model. This paper first proposes a method for detecting the gradual change of shots based on statistical distribution, and uses a key frame selection strategy with temporal semantic context constraints to represent the temporal content. After basic visual semantic recognition, a hierarchical approach is obtained. The multi-granularity visual semantic analysis extraction framework then uses the sound spectrum obtained by the time-frequency transformation as the observable feature, and constructs a hidden Markov model for semantic recognition of mathematical videos, which improves the efficiency by 7.93%.

**Keywords:** Semantic Extraction, Mathematics Guidance Videos, Intelligent Information, Big Data

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## 1. INTRODUCTION

There have been some integrations between information technology and teaching, which has promoted the application of information technology in real life. It gives full play to its own characteristics and uses multimedia information technology to process teaching courses, making teaching no longer monotonous, passive and rigid. It becomes more and more vivid, and it has incorporated fresh blood into the mathematics education of modern colleges and universities, and it has become energetic [1-6].

Fuyi mobilized students' interest in mathematics courses, and also brought a different course experience to college students, stimulating their initiative in learning, and improving students' comprehensive level. At the time of play, information technology was still developing continuously, and its integration with modern education was getting closer and closer, creating a good atmosphere for students and promoting the development and progress of mathematics teaching in colleges and universities. In the new era, college education must adapt to the needs of the development of the times, meet the needs of talent training at this stage, and promote the continuous improvement of the quality of talent training. In the actual teaching reform, it is necessary to continuously improve the quality of curriculum teaching and promote teaching reform. Judging from the current teaching of mathematics in colleges and universities, there are still some outstanding problems. For this, in the actual teaching process, necessary reform measures must be taken for the current mathematics teaching in colleges and universities, and innovative ideas of curriculum teaching reform must be introduced to promote Innovative development of curriculum teaching [7-14].

In addition, carrying out the reform of mathematics teaching in colleges and universities can also promote the development of college education, which is of great significance for improving the quality of college education and enhancing the efficiency of talent training. As far as the current college subjects are concerned, it is true that the knowledge learned is rarely applied in practice, but mathematics is indeed a relatively practical subject, and as an important basic subject, it is useful for the learning of other science and engineering knowledge. Important promotion. However, in actual teaching and research, it is often found that students' performance in mathematics classrooms is unsatisfactory. Therefore, how to conduct mathematics education in colleges and universities reasonably and effectively has become the main research topic of current mathematics teaching and research workers. With the introduction and application of the cultural concept of mathematics, it has played a significant role in promoting the development of mathematics education, and has greatly improved the current status of mathematics education. Digitized media information, especially digitized video and audio information, has massive data, which causes great difficulties in the management, storage and transmission of information, and becomes the main bottleneck hindering the effective acquisition and use of information by human beings [15-21].

It takes a lot of manpower to manage video information according to the traditional text data analysis, management, and retrieval methods, and it can't make full use of the rich information content contained in the video. Therefore, traditional text information content description, analysis, management, retrieval and other related technologies are no longer suitable for processing large amounts of video data. Research on related technologies such as data analysis, filtering, summary, and retrieval based on video content has

received widespread attention. Learning with the help of new technologies in Japan is a necessary learning method for students in the new era. It can improve the efficiency of students' learning, learn more efficiently, and also promote the development and progress of information technology. The application of modern information technology in mathematics in colleges and universities is an educational matter, a major innovation and improvement, which promotes educational matters, development and progress, and makes information technology the key to teaching [22-24].

Under the background of "Internet+", relevant colleges and universities are actively exploring relevant mathematics teaching reform paths, and some useful attempts have been made.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Online Instruction Video for College Mathematics

Advanced mathematics courses are not only the main channel for students to master some practical mathematics tools, but also an important carrier for cultivating students' mathematical thinking, mathematical quality, application ability and innovation ability. Professors of advanced mathematics should streamline basic theoretical knowledge, focus on teaching calculations and the application of mathematical methods, and strengthen the practical application of mathematical knowledge. Teachers should grasp the functions of the mathematics information teaching platform system, compare the traditional teaching mode, and emphasize the role of the "one level and three terminals" system in modern teaching by using information technology. Mathematics teachers should master the effective application methods of relevant information-based teaching platforms, effectively help teaching through the in-depth integration of information technology, the Internet and education, and solve the integration of the construction and application of various online courses and the management of teaching resources.

This architecture effectively solves the problem of insufficient front-end processing capabilities, and greatly improves system stability. It is more suitable for large-scale security sites, and the performance requirements of back-end servers are relatively high. This is also a problem we need to solve, so here we mainly discuss the commonly used video analysis system based on the back-end server. That is, the front-end uses a camera to capture images, and then sends them back to the video analysis server through the network. The combination of middle-level features and deep-semantic features to improve the network's detection capabilities and positioning accuracy for small targets. When MS-CNN detects images with a resolution of 1250\*375 in the KITTI data set, it will be detected under the acceleration of the Titan X GPU. The speed reaches 10fps; the third type of improvement strategy focuses on improving the performance of the feature extraction network. The representative algorithms are the improved Faster-RCNN and R-FCN of Ren S. Among them, the improved version of Faster-RCNN uses the ResNet network Instead of the VGG network, R-FCN uses ResNet-101 as a pre-training model and uses a convolutional layer instead of a fully connected layer, which is 2.5 times faster than Faster-RCNN.

Before digital calculation and recognition of video images, it is necessary to perform preprocessing such as gray scale transformation, image thresholding and image segmentation to reduce the amount of computer calculations and extract

effective information. Usually, the video image is originally a true color image, that is, an RGB image, and each pixel of it is composed of the three primary colors of R, G, and B. Because of the huge amount of calculation to directly process the true color image, the analysis efficiency is low.

### 2.2 The Intelligent Information Technology

First, rely on the cloud computing platform to build a teaching platform for big data experiments. Use Hadoop and HDFS to build an experimental teaching platform for big data analysis, management, and storage, and build a network virtual laboratory based on the cloud platform. Install a computer operation record crawler in each student experiment machine, record all the students' operations during the entire experiment process (experimental operations on the virtual platform and all operations outside the platform), and upload them to the cloud platform. The cloud platform uses data mining and machine learning techniques to model historical experimental data and adjust the functions of the existing virtual platform. For example, the data of new students who use the virtual platform, such as providing auxiliary knowledge needed by students during the learning process, are also crawled Send to the cloud platform for processing in real time. The model analyzes the problems according to the current steps of the students' operations, and feeds them back to teachers and students in real time, helping teachers understand the students' experiments and correcting problems in the students' experiments in time. The operating data generated during the use of new users is also recorded, and the intelligent model is constantly revised.

### 2.3 The Semantic Extraction of Online Instruction Videos for Mathematics in Colleges and Universities

This system is planned to be implemented using a B/S structure based on the Internet. Users use the system through various browsers without installing any plug-ins on the machine, which is convenient for users to use. The server uses Apache or Nginx as the web server, and the Python language and MySQL database are used to implement system functions. The corpus can use the existing corpus, or use a web crawler to obtain the data we need from the Internet to form a corpus. Use Word Net, VerbNet and FrameNet for semantic analysis, and finally use MySQL for data management, including database establishment, query, backup and update.

In order to further promote the process of informatization of college education and promote the integration and application of high-quality digital teaching resources (teaching software) and teaching, it is necessary to strengthen the training of mathematics teachers from different perspectives of teacher growth and development, and actively organize teacher teaching ability competitions to make teachers clear The meaning of information application capabilities. As a teacher of higher mathematics, you must keep up with the development of the times and the industry, update your knowledge, improve your educational technology application and teaching innovation ability, and promote the continuous development of college education and teaching reform. Aiming at the innovative application of advanced mathematics teaching in the background of "Internet +", it is necessary to improve the effectiveness of classroom teaching as the goal, and on the basis of ensuring the scientific and continuity of teaching content, deep integration of modern information technology, and running it through the class. During and after class, the whole teaching process. Teachers

should learn to use vocational education MOOCs, micro-classes, animations, mathematics software and other diversified teaching platforms, teaching software, and effective application of teaching resources to promote online in an observable, sensible, readable, movable, and measurable environment the combination of teaching and learning is more complete, showing advanced teaching concepts and excellent teaching capabilities. At the same time, in the process of informatization teaching, teachers should pay more attention to the presentation of real classroom teaching, try to explore a variety of classroom teaching practices that connect or stack information technologies, and focus on students to improve the practicality of informatization classroom teaching. applicability.

### 3. CONCLUSION

Research on the method of lens boundary detection for mathematics teaching videos based on statistical distribution: using scalable color descriptors as the feature quantity to represent the discontinuity of visual content, based on the variance distribution characteristics of each gradual type, using the statistical distribution of visual discontinuities and the variance distribution of the image frame to distinguish the shot boundary and perform the gradual type recognition. The existing video motion object segmentation technology is used to extract the moving objects in the video. According to the standard, the main low-level feature classification used for semantic extraction is extracted.

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# Research on Online Platform for Ideological Training Guided by Comprehensive Evaluation of Ideological Theory Based on Brainwave Data Mining

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**Abstract:** Grasp the development trend of ideological and political courses, and build a "five-dimensional" evaluation-oriented system that integrates scientific content, comprehensive process, teacher leadership, student subjectivity and social effectiveness. The socialist qualified successor" is an inevitable requirement for "realizing the great rejuvenation of the Chinese nation". The key to realizing the integration of the two is to build a scientific and reasonable integration mechanism. Therefore, we can build a reasonable matching mechanism, a correct orientation mechanism, a two-way coordination mechanism, an interactive sharing mechanism, and an effective incentive mechanism.

**Keywords:** Ideological and Political Training, Comprehensive Evaluation, Ideological Theory, Brainwave Data

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## 1. INTRODUCTION

The new generation of intelligent revolution represented by artificial intelligence, big data, and the Internet of Things accelerates its evolution and realizes the deep integration of intelligent technology and ideological and political theory course evaluation orientation [1]. It is based on the truth of the times, conforms to the trend of the times, answers the questions of the times, and builds modernization. The essence of education power [2]. Reform the evaluation mechanism of ideological and political theory courses, "increase the proportion of teaching and teaching research in evaluation, overcome the disadvantages of only diplomas [3], papers, and hats, and guide teachers of ideological and political courses to focus on teaching and educating people. The above education methods [4]. It is bound to go to two extremes: one is to let the students who once lived in the "ivory tower" continue to live in the "realm of freedom" and "ideal society" without seeing any negative phenomena and negative information [5].

At this time, the noble image of the teacher, the engineer of the human soul [6], was also destroyed. The second is to let the students who were once trapped in the "dark side" be "cynic" and follow the wave of "darkness" without finding or unwilling to find a window to break through. Such a highly controversial political concept or topic as ideology should obviously avoid two forms of education: one is purely affirmative sentences without questioning; the other is purely positive preaching [7], without mentioning negative examples. The two are usually combined to form a positive preaching "full house" of "socialist China only has harmony and no contradictions" [8]. On the contrary, theory tells us. General Secretary Xi Jinping emphasized at the National Conference on Ideological and Political Work in Colleges and Universities that it is necessary to use new media and new technologies to make work come alive [9], promote the high integration of traditional advantages of ideological and political work with information technology, and enhance the sense of the times and attractiveness [10]. On December 8, 2017, when the Political Bureau of the Central Committee of the Communist Party of China conducted the second

collective study on the implementation of the national big data strategy [11], General Secretary Xi Jinping emphasized that it is necessary to adhere to the people-centered development philosophy and promote "Internet + education" [12]. It can be seen that the integration of information technology and the teaching of ideological and political theory courses (hereinafter referred to as ideological and political courses) [13] in colleges and universities is a clear requirement of the party and the country, an urgent requirement for the reform of ideological and political courses informatization teaching, and a requirement for the comprehensive development of disciplines [14].

Only by realizing the deep integration of the two can we continuously improve the teaching quality of ideological and political courses and meet the increasing demands [15] of college students for the study of ideological and political theory. General Secretary Xi personally presided over the ideological and political work conference in colleges and universities in 2016 [16], clearly requiring all schools to focus on "cultivating morality and cultivating people" as the core content, so that ideological and political work can accompany all discipline construction and education activities [17]. The whole process promotes the sustainable development of higher education in the form of "three completes". The general secretary requires all colleges and universities with the goal of "cultivating people by virtue" [18]. Sleep is a natural process that human beings must go through to relieve their own fatigue [19]. This is because the disturbance of the external environment during sleep will become smaller or even disappear. Tests have shown that the brain activity detected during sleep in humans and animals is not a complete static state [20], but a series of periodic changes that are actively regulated by the body sending out signals from the EEG.

Xi Jinping pointed out at the National Propaganda and Ideological Work Conference: "Ideological work is an extremely important work of the party [21]. In the face of new situations and new challenges, effectively enhancing the



dominance of socialist ideology is a major issue before us. While doing a good job in economic construction [22], we should further strengthen the work in the ideological field, and firmly grasp the leadership, management and discourse power of this work [23].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Fusing Brainwave Data

Using the power of truth to seize the commanding heights of students' ideology through efficient content production, knowledge integration and theoretical teaching is the bridge for the transformation of Marxist theory from text to reality. The arrival of the era of intelligence highlights the ideological and theoretical development pattern of a hundred schools of thought contending, a hundred flowers bloom, and a hundred purples and a thousand reds. The powerful communication, penetration and diffusion power of the intelligent platform has also become an important tool for "deconstructing" Marxism. Numerous bad thoughts have put on the "modern" coat with the help of intelligent platforms. Informatization teaching refers to the use of network information technology, processing teaching resources, continuously optimizing the teaching process, reshaping the teaching environment, improving the quality of teaching, and enhancing the effectiveness of teaching.

The information-based teaching has given birth to the mobile teaching platform, which is only a carrier of the information-based teaching and enriches the information-based teaching. Mobile teaching platform refers to teaching software that uses the Internet and mobile terminal equipment to carry out independent and interactive learning. With the advent of the "Internet +" era, the concept of data fusion was first proposed by the data fusion laboratory group of the US Department of Defense: data fusion is a multi-level, multi-level data processing process, which mainly completes the data from multiple information sources. Perform automatic detection, correlation, correlation, estimation and combination processing. Compared with a single sensor, multi-sensor data fusion has many advantages: increase the complementarity of time and space, improve fault tolerance, improve the real-time performance of the system, and increase the selectivity of sensors. The difference between multi-sensor data fusion and classical signal processing methods is that the multi-sensor information processing process is more complicated, and the data obtained by different types of sensors are different. The data fusion level is classified according to the different levels of data abstraction. Data-level fusion is the lowest level of low-level fusion. Data-level fusion requires that the information of each sensor to be fused can be accurate to the pixel level, so as to ensure the registration accuracy between sensors. No or little processing is done on the raw information obtained by the sensor.

Although data-level fusion is at the lowest level of fusion, it can provide the most abundant original information, and because it can provide pixel-level data that cannot be provided by the other two fusion levels.

### 2.2 The Comprehensive Evaluation of Ideology Theory

In order to realize the deep integration of the mobile teaching platform with the teaching of ideological and political courses in colleges and universities, the compatibility of the two must be considered first, so building a reasonable matching mechanism is the premise. Specifically, it is to carefully select the most suitable mobile teaching platform for the teaching of

ideological and political courses in colleges and universities. The most suitable mobile teaching platform for the teaching of ideological and political courses in colleges and universities should be highly compatible with the characteristics of ideological and political courses, subject content, teaching characteristics, and ideological and political theoretical thinking methods. Therefore, it has the highest data accuracy. Data-level fusion has the characteristics of huge data volume and high data redundancy. Therefore, processing data is time-consuming and has poor real-time performance. Generally speaking, the processing cost is high, and the fusion system needs to have good fault tolerance.

"Ideological and political education has a clear purpose, and the carrier is the form of ideological and political education. Its application should serve the purpose of realizing ideological and political education, and of course it should have a clear purpose. When choosing a mobile teaching platform, we must first consider whether it can effectively To meet the needs of ideological and political course teaching in colleges and universities. It is not only necessary to understand the characteristics, functions, conditions of use, and value of mobile teaching platforms.

### 2.3 The Research on Online Platforms for Ideological and Political Training

Establish an evaluation direction that complements virtuality and reality. The development of intelligent technology has broken through the original threshold of ideological and political courses, laying a solid foundation for ideological and political courses to open up new positions, provide new carriers, and unlock new methods. Artificial intelligence is fundamentally "an organ of the human mind created by human hands, and a materialized knowledge force". In the process of network ideological and political education, it is emphasized to follow the law of interaction between subjects, that is, the effectiveness of network ideological and political education mainly depends on the breadth and depth of communication between subjects. The in-depth integration of blue ink cloud class and ideological and political teaching in colleges and universities cannot be limited to ideological and political classrooms, but must break the time and space constraints of traditional classrooms, extend to extracurriculars, and realize constant interaction between teachers and students. Therefore, it is necessary to build an online and offline interaction mechanism.

The teaching of ideological and political courses in colleges and universities is different from general subjects. , is the force of the rapid advancement of big data, the call of network ideological and political education in the new era, and the urgent need for the growth of contemporary college students. Therefore, the in-depth integration of mobile teaching platforms and ideological and political teaching in colleges and universities should not only satisfy the sense of acquisition of ideological and political teachers, but also satisfy the sense of acquisition of contemporary college students. In order to continuously improve the construction of the mobile teaching platform, we must build a learning community. Ideological and political teachers should appropriately group students according to the teaching content and teaching design of ideological and political courses. Each group and member perform their own duties and undertake certain tasks. The division of labor is connected and coordinated with each other.

### 3. CONCLUSIONS

Ideological education has a long way to go. Teachers of ideological and political theory courses in colleges and universities should continuously reform and innovate ideological education methods. The path and method advocated by the article are typical of the negative, and there is still a lack of top-level design to achieve deep integration; the concept of informatization teaching for ideological and political teachers needs to be further refreshed; the mobile teaching platform needs to be continuously upgraded and improved according to the characteristics of ideological and political theory courses.

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# Computer-Aided Dynamic Evolution Analysis of Roof Decoration Art in Northern Jiangsu Based on Low-Frequency Remote Sensing Image Technology

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**Abstract:** In the application of remote sensing image fusion based on wavelet packet, the wavelet packet frequency shifting algorithm used to adjust the frequency sequence of wavelet packet decomposition is introduced to solve the frequency aliasing phenomenon caused by interval sampling. The roofs of ancient residential buildings in northern Jiangsu have a unique art. Features: Discusses the roof decoration art of residential buildings in northern Jiangsu, aiming to provide some references for modern architecture. It shows that the roofs of residential buildings are deeply influenced by the land culture and marine culture, and have both normative, delicate and exaggerated factors. The roof ridge of the folk houses embodies the uniqueness and rich connotation of Nantong culture, and we need to actively explore the beneficial elements in it. By examining the overall trend of international computer-assisted language testing research, high-yielding countries, authors, institutions and high-cited journals, research hotspots and high-innovation literature.

**Keywords:** Computer-Aided Dynamic Evolution, Roof Decoration Art, Northern Jiangsu, Low-Frequency, Remote Sensing Image

## 1. INTRODUCTION

Remote sensing image fusion refers to the information fusion of remote sensing images of different wavelength bands, spectral resolution, spatial resolution and temporal resolution about the same target. Describe [1].

Image fusion processing is mainly performed at three different levels: pixel-level fusion, feature-level fusion, and decision-level fusion. Remote sensing images are an important data source for obtaining large-scale surface distribution [2]. At present, there are more and more remote sensing images available at home and abroad, such as SPOT panchromatic images [3], TM multispectral images, synthetic aperture radar images (SAR) and other traditional dwellings in northern Jiangsu are no exception. It is one of the regions with the longest history in the region [4], with a special geographical location, and the shape of the dwellings shows the characteristics of "Southern Show and Beixiong". Therefore, the roof art also shows its unique charm [5].

These rich and colorful regional cultures with distinctive characteristics together constitute a broad and profound Chinese culture. Probing the diversity of traditional cultures is an important way to demonstrate "cultural confidence" in the Jiangsu take advantage of local materials [6], craftsmanship and technology, adapt measures to local conditions, use local materials, and reflect the beauty of decorative art through stone carvings, brick carvings, wood carvings and other forms. After the building has been washed over and over again by history [7], its significance is not only simple for people to live in and shelter from wind and rain, but every building is endowed with its unique culture and appearance by history, and it carries a city.

The traditional residential buildings in our country have a unique cultural heritage, and the charm of the roof is also meaningful [8]. The traditional residential buildings in northern Jiangsu are no exception. The social culture in northern Jiangsu is one of the regions with the longest history

in the region, and its geographical location is special. From simple objective evaluation to complex subjective evaluation such as composition and translation [9], from stand-alone test to online test, from computer proposition to automatic language level evaluation, it has played an increasingly important role in teaching. From stand-alone test to network test, from computer proposition to automatic language level assessment, it has played an increasingly important role in teaching [10].

The 558 computer-aided language testing research literatures included in SSCI journals are systematically sorted and analyzed using CiteSpaceV [11], which aims to help domestic scholars better grasp the development trend and direction of this field, so as to further promote the research on computer-assisted language testing in my country [12]. Remote sensing image fusion is also one of the key technologies in remote sensing image processing, which is related to the further development of remote sensing applications. At present, the research on image fusion can be divided into pixel-level fusion, feature-level fusion and decision-level fusion [13]. The algorithm can generally achieve better results, but the choice of different fusion rules has an important impact on the fusion effect [14].

In this paper, wavelet transform is used to fuse images, and multi-window area statistical variance maximum is used to achieve effective edge detection of high-frequency images. Therefore [15], people expect to obtain high-resolution images in reality. There are two main ways to improve the spatial resolution of low spatial resolution remote sensing images. One is to improve the accuracy and stability of the imaging system based on hardware [16]. The northern Jiangsu region is located in the Huaiyang boundary, with superior natural conditions and both north and south. The climate and temperature are moderate, and the characters and customs of the residents are also a combination of north and south characteristics [17].

The roof ridge design in the traditional dwellings in Nantong has distinct artistic features and contains unique and rich value connotations [18]. It is an important representative of Nantong's traditional culture. Through the decorative art design of the traditional residential roof, we will find the colorful Nantong traditional culture, where there is the shadow of the delicate Wu culture [19].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Low Frequency Remote Sensing Image Technology

The interval sampling in the wavelet packet decomposition process reduces the sampling frequency of the signal, which leads to the phenomenon of frequency aliasing in each decomposition series, that is, the natural order of frequency bands in each subspace is not the frequency order. Now take TM image and SPOT image as examples Explain the effect of fusion. Based on the above algorithm, the image is fused and compared with the results of other fusion strategies decomposed by wavelet transform.

The super-resolution reconstruction process is the inverse process of the image degradation model. The reconstruction result has the following three problems due to its ill-formedness, which can avoid the frequency aliasing phenomenon caused by continuing to decompose high-frequency components. The description of the frequency-shifting algorithm can be found in the literature. From the qualitative and quantitative analysis, it can be seen that the wavelet transform can decompose the original image into a series of different directions and different resolutions. It can fully reflect the local change characteristics of the original image. In this paper, the method of ordinary image reconstruction is introduced, and the super-resolution reconstruction of remote sensing images is studied through the decomposition of remote sensing images, the recovery of high-frequency information, and the application of mature wavelet tools under the Matlab platform.

It can be seen from the above structure that, different from wavelet analysis, the natural order of frequency bands and energy order after wavelet packet decomposition do not match. The regional energy fusion strategy reduces the preprocessing of the image, and the distribution of the regional energy realizes the fusion of the image, taking into account the overall characteristics of the image, and the blur function describes the degree of blur degradation in the image formation process. Therefore, blur recognition is the key factor of super-resolution image reconstruction technology, and the accuracy of the blur function directly affects the imaging quality of super-resolution reconstructed images. However, the details of the image are not reflected in detail, which affects the fusion quality.

### 2.2 The North Jiangsu Folk House Ridge Decoration Art

The structure and shape of the northern Jiangsu dwellings are basically closed and introverted courtyards with the concept of a central axis [2]. From the perspective of space permeability, due to the cold winter and the need to keep warm, and because of the introverted national cultural character, generally only the ridge of the house will adopt the image of the dragon and phoenix totem that is more majestic in visual effect, while the other ridges are relatively simple. The selection of roof ridge materials and the fineness of decorative art all reflect the difference between the noble and the lowly, and the order from top to bottom. Brick carving is a

process technology of carving and processing on specially made blue bricks.

Bricks are harder than wood, not afraid of rain, and can be used outdoors, and bricks are easier to process than stone. Another feature of brick carving is the sense of unity with the building. The pattern head ridge uses the pattern of the back pattern and the random pattern as the engraving pattern, which is composed of simple lines of either garden or square, and looks like a cloud of auspicious clouds, and these two patterns are evolved from the cloud and thunder pattern. The natural and cultural environments of the regions are different, showing a variety of appearances. These individual characteristics and regional differences make the roofs of the northern Jiangsu dwellings overflow with different meanings. A variety of looks. These individual characteristics and regional differences make the roofs of northern Jiangsu dwellings overflow with different meanings. The circular line is the cloud pattern, the square is the Raven, and the combination of the two is the cloud and thunder pattern.

From the above two pictures, we can also roughly feel this point, which is especially reflected in the shape design of both ends of the roof ridge. The roof ridge design in Figure 1 is a totem image of a leading head. From the perspective of shape design, the image is as realistic as Yangzhou Heyuan. The "Wind Blowing Peony" on the east wall of the Peony Hall Brick carving shape 1f: the wings of the phoenix superimposed in perspective are flattened in the middle of the triangle, and the long tail of the phoenix is stretched to the left and right ends of the triangle respectively. Sugarcane Ridge Two The end is a back-shaped pattern, the tiles are erected and arranged on the roof in the middle, and the top is brushed with hood ash, which looks like sugar cane. Not only is the appearance simple and beautiful, the sugar cane ridge also has the function of preventing rainwater from entering the wall. Residential houses are not just buildings for people to live in in a simple sense, every detail in them reflects the concepts and ideas of human groups in a specific time and space, and the decorative design of the roof is no exception.

### 2.3 The Computer Aided Dynamic Evolution Analysis of the Decorative Art of the Roof Ridges in Northern Jiangsu

Stone carvings are often used in the bases of dwellings, such as pillar foundations, railings, railings, door pillows, drum-holding stones, etc. The stone carvings in the traditional houses in northern Jiangsu are only shown in a few parts such as the drum holding stone of the big fj. In Chinese myths and legends, the dragon has countless magical powers and has given people various favors. Since Liu Bang, the founding emperor of the Han Dynasty, the dragon has become a symbol of the royal family, so the dragon's kiss ridge is the highest level of the roof.

This paper believes that there are three main reasons for the overall upward trend in the number of published papers in this research field in the past two decades: (1) After the 1950s, information technology has developed rapidly, and electronic computers have begun to popularize. Scores were highly correlated with scores on computer-assisted tasks, but scores on computer-assisted tasks were significantly lower because participants felt uncomfortable sitting in front of the computer. Keywords are the core and essence of an article, which can reflect the theme of the article [3], so we can see the hotspots in the whole computer-aided language testing research field through the extraction of keywords. The objective evaluation of the fused image is to give the

numerical evaluation of image features from the point of view of mathematical statistics.

The conventional local variance fusion strategy fuses high-frequency sub-images from three directions, retaining the details of the image, but not considering the overall visual effect. The fusion strategy proposed in this paper considers different levels, otherwise, in the process of wavelet decomposition, the signal is continuously decomposed, and more and more approximation information and detailed information are obtained at each decomposition level. It carries the specific ideological traditions and ways of thinking of people in specific regions, and has its unique and richer value pursuit and value connotation. We have realized this by exploring the decorative art features of the roofs of residential buildings in Nantong.

### 3. CONCLUSION

The research in the field of remote sensing image fusion shows that the wavelet packet frequency shifting algorithm can comprehensively improve the fusion quality. Images were analyzed and compared. The architectural decoration art of traditional residential buildings in northern Jiangsu integrates the spirit of traditional Chinese culture, combines the characteristics of northern and southern architectural art, and combines the regional characteristics of northern Jiangsu. A state of harmony.

### 4. ACKNOWLEDGEMENT

Fund project: 2020 general project of philosophy and social sciences in Jiangsu Province, Research on Ridge Decoration of Folk Houses in the Early Stage of Reform and Opening up in Jiangsu (20YSB001)

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# Empirical Analysis of Remote Monitoring for the Development of Jinxiu Yao Cultural Tourism Resources Based on Real-Time Unmanned Sensor Image Technology

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**Abstract:** In the process of classroom teaching, the intelligent cloud teaching method with the blue ink cloud class app tool as the core application is introduced, and the smart campus platform is used to "fancy teaching" in the form of animation, micro-video, micro-class, MOOC, live broadcast, etc. The popular form and language convey the relevant knowledge and principles of management, mainly refers to the autonomous and intelligent methods adopted when implementing QoS decision-making and control in the cognitive network environment, to solve the problems of poor adaptability and comprehensiveness of dynamic and changeable networks. It can effectively improve the utilization of network resources and ensure the end-to-end QoS of the network. And emphatically introduced the ADO involved in the system development process. NET, XML and other key technologies, on this basis, the paper introduces the NET's intelligent teaching platform solution, the framework and overall design of the teaching platform.

**Keywords:** QoS Performance Evaluation, Real-Time Sharing Platform, Intelligent Courses

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## 1. INTRODUCTION

The characteristics of automation, flexibility and informatization of robot and sensor technology make it one of the advanced processing technologies with the most development potential in the field of industrial manufacturing in the 21st century [1]. As we all know, the welding process is a complex physical and chemical process under the combined action of electricity, light, heat, force, etc. There is a lot of information that can be used for the study of automatic welding seam tracking [2]. However, according to statistics, the welder judges whether the process is normal and whether it needs to be adjusted during welding, usually across most mountainous areas and uninhabited areas [3].

Moreover, transmission lines and equipment have been in an unstable climate for many years, and experienced severe weather such as sun exposure, rain, snow, hail, etc., equipment materials are usually aged, corroded, icing, lightning strikes, and some human-induced collapses in recent years [4], the world's advanced countries have developed a large number of biological culture systems, and reached a high degree of standardization, modularization and commercialization. Figure I is the space biological culture device of NASA, ESA (.EsA) and Canadian Space Agency (CSA) [5].

Engels said: "The basic form of all existence is space and time." n1 is also true for national culture. Time and space are the basic forms for the survival and development of national culture [6]. In the growing spiritual and cultural needs of tourists, they are more inclined to cultural tourism. With the rapid development of cultural tourism, cultural tourism has become a new important economic growth point in the tourism industry, and culture is the vitality of tourism resource

development and the source of enhancing the charm of tourism destinations [7].

Jinxiu Dayao Mountain is the most typical settlement of the Yao people in China. Jinxiu Yao Autonomous County was established on May 28, 1952. It is the earliest Yao autonomous county in China [8]. It is located on the main mountain range of Dayao Mountain in the northeast of Laibin City in the central Guangxi Zhuang Autonomous Region. Tourism resources refer to all the resources that can attract people to travel [9]. The biggest feature of natural elements and humanistic elements is their attractiveness, which makes people want to travel, excavate the resources of Yao nationality health care culture, and then integrate resources for the development of health care industry, promote the protection and inheritance of Yao nationality culture, and help the minority in Guangxi. Poverty alleviation in ethnic areas [10].

The main research content of this subject has the following three aspects. However, only attractiveness can not completely make people come, and tourism resources must be developed into tourism products to meet people's tourism needs [11]. Science and technology are the primary productive forces, and information technology is being vigorously developed all over the world. Every country are deepening information reform. Information technology has been deeply integrated into various fields of society—politics, economy, military, etc. [12] The real society is being changed by different kinds of information technology [13]. The acquisition terminal is mainly responsible for collecting on-site data of machinery manufacturing equipment, and reporting on the operating status of on-site machinery and equipment. DX series transmitters are the most mature medium wave transmitters in the world today [14]. The

system can detect and control all important parts of the machine in real time. It is a set of local monitoring system with complete design [15].

However, in recent years, as the transmitters are designed with a large number of automation technology, the acquisition terminal must be able to be placed in the machining site. Considering that the acquisition terminal will be in the same working environment as the mechanical manufacturing equipment [16], and the standard arc welding robot system cannot detect this position change, the welding will still be performed along the original teaching path, which will inevitably cause the welding quality to decline or even fail. According to the information [17], more than 80% comes from direct observation (ie vision). The introduction of visual sensors and image processing technology has given the welding system the function of "seeing", which has greatly promoted the intelligence of the welding system. It is one of the most significant progress in the field of welding research in the past two decades. The recognition rate has increased by 50% [18].

Reference [19] proposes a UAV power line inspection technology cell culture system based on automatic remote sensing technology for real-time monitoring of power corridors and extraction of image feature information. One direction is miniaturization and automation. In the cell culture device, the acquisition of cell culture images has become an important part of space cell culture research.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Real-Time Unmanned Sensor

#### Image Technology

During the test, the strip light emitted by the EL65L40IP semiconductor laser straddles the seam. Under the circumstance that the hood covers the arc and the radiation of the molten pool, the laser fringe image is collected by the WAT-231S camera. Image enhancement technology is used as a basic. The purpose of image processing technology is to process images to obtain better visual effects and more useful images for specific applications. At present, the commonly used enhancement technologies are different according to the space in which they are processed. In the application of UAVs for power line inspection, there are mainly a variety of technologies. Only through continuous research and improvement of various technologies can the power of UAVs be improved. Line inspection efficiency and line inspection fault accuracy.

The unattended perfusion culture system must be able to fully automate some basic experimental steps, including the rotation of the sample chamber, the resupply of nutrients, the removal of waste, the control of ambient temperature, pressure and CO<sub>2</sub>: partial pressure, etc. The purpose of using the sobel operator is to quickly find all possible edge points according to the small size of its template. At this step the hood only needs to record the positions of possible edge points, i.e. f. The specific steps of sobel edge detection are as follows. In the butt joint (Fig. 2(c)), the light band and the background gray level are relatively close, and the gray value is around 140, but there is obvious horizontal interference. During the imaging, acquisition, conversion and transmission of the image, due to lighting conditions, imagers Due to the influence of various factors such as equipment and external environmental noise, the quality will be degraded. The contrast enhancement of images with very low contrast is

generally performed by using operations such as direct grayscale transformation or histogram processing.

Due to the high-altitude flight operation of the UAV, the stability of the flight and power line inspection is greatly affected by the harsh external environment. The gray value of each line of the image background is approximately a constant, and the constants of each line are different from each other, and the basic distribution is below 40.

### 2.2 The Development of Cultural Tourism Resources of Jinxiu Yao Nationality

In the theoretical field of modern tourism anthropology, the theoretical interpretation of "ethnic cultural tourism space" actively absorbs the theoretical connotations of cultural anthropology, geography, political science and other disciplines. "Material dimension and "second space" spiritual dimension. The cultural tourism in Jinxiu Yao Autonomous County started late, and the unreasonable structure of employees has led to the slow development of its cultural tourism.

The phenomenon of longevity in Bama has attracted the attention of the outside world. In 1991, at the thirteenth meeting of the International Society of Natural Medicine, Bama was recognized as the fifth hometown of longevity in the world. Afterwards, Donglan and Fengshan counties were awarded the title of "Hometown of Longevity in China" respectively. It refers to the development practice of the spatial location and configuration of tourist destinations, geographical landscape and the material carrier of national culture; the production of tourist space conceived refers to the symbolic system of tourist landscapes. The production and presentation of cultural tourism in Jinxiu Yao Autonomous County is still in its infancy, and the entire infrastructure construction system and service system are imperfect, which restricts its development. According to the investigation, Jinxiu Yao Autonomous County is due to its unique geographical location. The most notable feature of Jinxiu Yao people's folk beliefs is the "Shipai Regulations". Shipai is the unique social organization form of Jinxiu Yao people in feudal society.

### 2.3 The Empirical Study on Remote Monitoring of Yao Cultural Tourism Resources Development

Jinxiu Yao Autonomous County is an ethnic minority autonomous county with unique geographical location, long history, rich traditional culture and strong ethnic atmosphere. It has laid the basic conditions and innate advantages for the development of cultural tourism resources. The completion of the cultural infrastructure of the Yao nationality will be developed for the industrialization of Yao nationality culture. The planning area is located in the jurisdiction of Zhenchong Village, Changdong Township, Jinxiu. Zhenchong Village has 12 natural villages under its jurisdiction, and 6 natural villages are included in the planning area, namely Dajin and Liu. Mian, Lingcha, Wanglei, Ping'an and Chongkou are all Panyao villages except Dajin is Hualanyao, Wanglei and Chongkou are Zhuang people.

It plays an increasingly important role in product development, production, display, publicity and promotion, cultivation of high-quality human resources, and industrial planning. Covering three elements of research: technical background, organizational characteristics, and external environment, the theoretical model combines technology



acceptance theory, perceived risk theory and herd behavior theory, and analyzes and determines the basic framework of the enterprise remote monitoring technology acceptance model from a multi-theoretical perspective. . There is an essential difference between the remote diagnosis of machinery manufacturing equipment and the traditional mechanical diagnosis analysis: the traditional knowledge base of machinery equipment diagnosis is closed or semi-closed, and its content is limited to the designer's input and modification.

The device layer is the layer facing the field devices, and it is also the lowest layer of the entire automation network. It can send the operation information to the field devices, and can also feed back the situation of the field devices to the operator. Although Jinxiu Yao cultural resources are rich and unique, the economic form in the county is relatively simple, most of the infrastructure is outdated, and the supporting facilities and electricity for the development of cultural industrialization. And evaluation, combined with the conditions of tourism development in the tourist area, put forward the following development strategies for the development of the tourist area, so as to play a role in the actual work of machinery manufacturing equipment. At present, the universal language standard of Internet virtual reality in the world is VRML2.0.

### 3. CONCLUSION

A typical joint robot vision sensing test system is built, and a robot vision sensing image processing system is developed based on the LabVIEW platform. Jinxiu Yao Autonomous County has colorful and unique cultural tourism resources, but there are still many problems to be solved in creative development, which will seriously hinder the development of cultural tourism. The image is segmented, filtered and edge detected to extract sensing information, and clear edge information can be obtained through the above processing. The smooth development of tourism in the tourist area is realized from all angles and in an all-round way, so that the Dishui River ecological Yao nationality tourist area can develop into a tourist boutique of Jinxiu, guests and even Guangxi.

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# Online Fusion Analysis of Mobile Information System Algorithm Guiding Red Tourism Resource Cloud Sharing and College Students' Education

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**Abstract:** This paper carefully analyzes the current situation of the current college student education mobile information system, elaborates the business of the system, and proposes solutions according to the existing problems. The final arrangement becomes the business requirement analysis of the whole system. Carrying out red tourism among college students has profound political, cultural and economic significance. Red tourism resources have the characteristics of politics, times, learning, interest and practice. It has a great impact on the ideological and political education of college students. Red tourism resources have opened up new connotations of ideological and political education such as ideal and belief education, patriotism education, clean government education, and mental health education for college students.

**Keywords:** Online Fusion Analysis, Mobile Information System Algorithm, Red Tourism Resource, Cloud Sharing, College Students' Education

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## 1. INTRODUCTION

In February 2005, the central government issued (2004--2010 National Red Tourism Development Plan Outline) pointed out that the development of red tourism is important for strengthening the education of revolutionary traditions and enhancing the patriotic feelings of the people, especially the youth [1]. Important practical significance and far-reaching historical significance. The Outline has opened up a new carrier for strengthening and improving the ideological and political education of college students. In recent years, with the development of red tourism [2], red tourism resources have gradually become a part of colleges and universities trying to develop the ideological and political education of college students. A new carrier of education. The teaching form that combines ideological education and practical activities is more in line with the psychological needs of contemporary college students, and it is easy to produce positive effects [3].

Red tourism resources are special tourism resources formed under a specific historical background, and are a treasure trove of resources that play an important role in patriotic education [4]. Analyzing the essence of red tourism resources Mobile operations usually refer to people who cannot be fixed in one location to complete the work during the work process, and their geographical location must change frequently to meet the needs of work. For example, salespeople conduct door-to-door sales. Survey personnel Field data collection, etc. [5]

The further development and popularization of China's Internet is inseparable from the support of mobile Internet users. Due to various reasons such as the promotion of mobile terminals, the diversification of mobile terminal software [6], and the reduction of mobile terminal Internet access prices, the number of mobile smart terminal netizens has expanded exponentially. A platform for improving the strength of scientific and technological innovation [7].

In order to realize the sharing of energy and power information in the science and technology park and realize the comprehensive management of enterprises in the park, the science and technology park needs a set of information system based on mobile terminals [8]. Therefore, the Huadian Yunxiang Energy and Electric Power Enterprise Mobile Cloud Service Platform proposed and implemented in this paper is created. In recent years, there have been major breakthroughs in technologies such as space-f-type satellite-borne deployable antennas, high-power power amplifiers, on-board processing and beamforming [9], which can overcome the transmission delay in the GEO satellite mobile communication system. Longer. The classic red story of Chinese revolutionary history, revolutionary spirit and revolutionary deeds contained in red resources [10].

Therefore, the red resources are the precious spiritual and cultural wealth of our party and the country [11]. The red spirit contained in the red resources will guide the ideological and political education of our college students and provide ideological assistance for the stability and prosperity of the country [12]. Are regional red resources inexhaustible in the process of ideological and political education in local colleges and universities, an inexhaustible treasure house of education, and an important resource for the practical teaching of ideological and political courses in local colleges and universities [13]. Local colleges and universities should make good use of regional red resources and innovate teaching practice methods. In recent years. With the development of red tourism. Red resources have become a new carrier of patriotism education for college students in some provinces. The so-called red tourism [14].

It mainly refers to the commemorative sites and landmarks formed by the Chinese Communists leading the people during the Revolutionary War as a carrier, and began to consciously apply red tourism resources to teaching activities appropriately, and formed many excellent cases of college

students' practical activities [15], produced a positive teaching effect, and greatly improved the ideological and political quality of college students. With the revolutionary history, revolutionary deeds and revolutionary spirit that it carries as its connotation, it organizes and receives tourists to carry out the theme tourism activities of memory, study and visit [16]. With the support of wireless network technology, the data management technology based on mobile computing environment, namely mobile database technology, came into being [17].

The mobile database system can support mobile users to effectively access the required data under various network conditions to complete data query and transaction processing; to meet the needs of interaction anytime and anywhere [18]. System-based mobile terminals are more capable of adapting to mobile phones than traditional websites, and can dynamically adapt applications according to the size of the mobile terminal display screen, so that the display effect of the programs is optimal. In terms of mobile information systems, domestic [19], After the rapid development of the Internet in recent years, various news and information clients emerge one after another. According to statistics, as of the second quarter of 2015, mobile news clients were among the majority of smartphone users.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Mobile Information System Algorithms

The OPNET software provides a good development environment for the simulation and modeling of the GEO satellite mobile communication system and can simulate its work. The core technology and characteristics of OPNET software and the modeling steps are briefly introduced below. And using red resources to strengthen the ideological and political education of college students is the use of red resources explicit education and implicit education. With the help of the implicit use of the methods that college students like to hear and see, it is possible to combine teaching with literature and entertainment, etc.

Regional red resources are excellent practical achievements in the process of Marxism in China. Although there are no red resources abroad and there is no clear concept of ideological and political education, classic Marxist writers have put forward many theories, such as the theory of all-round development of human beings and the theory of indoctrination. In the case of antenna flutter, special edge users like MES1 can easily switch from beam I to beam J, resulting in many beam selection errors. If the value is too large, in the case of antenna flutter, once the special edge user MES1 switches to beam J, the mobile terminal obtains a dynamically allocated IP address after entering the GPRS network by dialing. After the mobile terminal is connected to the internal server of the enterprise, if the mobile terminal and the mobile terminal need to communicate, how do they find each other.

The mobile phone middleware technology consists of three parts, namely the virtual browser module, the data stream filtering module and the data stream rendering module, of which the three correspond to the data acquisition function, data filtering function and data modification function respectively. The two mobile terminals are the first server Register an object separately on the server. Then the corresponding objects created by the terminal and the server can be transparently transmitted through the Internet.

Therefore, the communication between the two networked mobile terminals can be converted into the corresponding two objects inside the server communication.

### 2.2 The Red Tourism Resource Cloud Sharing

Jiangxi's red tourism resources are often accompanied by other tourism resources such as natural landscapes, green eco-tourism resources, national history and culture, and they are integrated with each other, which is conducive to arousing the interest of college students in tourism, visit and study. Many red tourism resources and green. Most of the red tourism resources are distributed in the old revolutionary areas in the central and western parts of my country, and most of the old revolutionary areas are in remote areas. The level of economic development is generally not high. Participate in the construction of the Midwest. Helping people in old areas to get rid of poverty as soon as possible is an important social responsibility of current college students. The red tourism website should be refined to increase the appeal and attraction of the red website to contemporary college students.

Red Culture Net and Red Tourism Net are well-known and well-known red websites. The functions of the red tourism website are mainly ideological and political education, strengthening the quality of students, and entertainment and leisure. It is difficult to become a useful talent that meets the needs of the society. From ancient times to the present, the correct educational concept should be the understanding and comprehension of ideological and cultural connotations. In education and teaching, these mainly refer to ideological and political education including moral education, followed by the imparting of knowledge and skills. Local colleges and universities can integrate regional red resources into "situation and policy" courses, into party courses and group courses, and can also offer elective courses with the theme of local history according to the actual situation. Based on this, local governments and colleges and universities can follow the distribution of red resources in the region. Red tourism resources are special classrooms, fresh teaching materials and unique carriers for patriotic education of college students in the new era.

In addition, the characteristic tourism resources of other scenic spots within the scope of "Daxi Baipo" have not formed obvious product advantages, the complementary development of products is insufficient, the tourism linkage development is insufficient, more scenic spots are under development, and the marketization process is slow.

### 2.3 The Online Integration Analysis of Red Tourism Resource Cloud Sharing and College Students' Education

Although it is mentioned in the literature [2] that the GMS algorithm can solve this problem by scaling the image, when the number of sample points and the feature dimension increase sharply, the query efficiency of the K-nearest neighbor search algorithm based on the Ball derivation structure decreases rapidly, cannot meet the real-time | raw retrieval requirements. When matching in the row direction, the previous matching position of the current matching position is (i, evil-1), then take ^sn as the benchmark, and subtract the pixel gray corresponding to the first column of the previous benchmark sub-image. The number of occurrences of the degree value, plus the number of occurrences of the gray value of the pixel corresponding to the last column of the current benchmark sub-image.

### 3. CONCLUSION

A stable and lossless mobile terminal data mutual transmission method based on GPR-pong wireless network is studied. Based on message and handshake mechanism, it can better solve the problem of the mobile terminal active communication and network detection and also connection keeping. This paper mainly combines the further red tourism resources in Hebei Province to analyze the significance of red tourism resources to education. The method of promoting red tourism into the campus under the background of Internet+ is obtained, and the countermeasures of using red resources to strengthen its ideological and political education are discussed. The educational function of red resources runs through the ideological and political education of college students from beginning to end, and it is the embodiment of the requirement of the ideological and political education work in colleges and universities to keep pace with the times.

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# Application of Virtual Information Sensing in the Development of Art Design Network Guidance System

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**Abstract:** The art design network teaching platform is a system with relatively large functions as a fusion technology, virtual reality technology can accurately construct a spatial information model under the spatial mapping of various information resources to ensure multi-dimensional analysis of data information. commonly used virtual information dissemination and the use of the system will change the existing practice teaching mode. It has the characteristics of large amount of information, flexible teaching guidance time, and standardized management. It will build a bridge of communication for teachers, students, and enterprises, and provide a broad display platform. It is an effective countermeasure to solve the current management problems in the practical teaching of art design.

**Keywords:** Virtual Information Sensing, Art Design, Network Guidance System, VR

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## 1. INTRODUCTION

Virtual reality technology is not only limited to the interpretation of digital information models, but can also be combined with audio, video and other technologies to provide users with dynamic data services caused by the substantial increase in the number of students and insufficient teaching and practical resources. At the same time, art academies have shifted from the traditional education model to the combination of teaching and practice, paying more and more attention to practical teaching. At present, most art academies are facing the difficulties of scattered resources and heavy teaching tasks. In response to these status quo, in the teaching practice, this research group has researched and developed an art design practice teaching system based on network technology. Teaching resources, improve teaching efficiency, realize the standardization and standardized management of practical teaching, and build a platform for teachers, students and school enterprises to fully communicate and demonstrate [1-6].

Virtual reality technology is the fusion of a variety of computer virtual technologies. It mainly simulates objects in reality through intelligent interaction and calculation between humans and machines, giving customers an immersive scene viewing experience. Therefore, in the process of modern environmental art design, the use of virtual reality technology for physical simulation can break through the funding and site restrictions of traditional design, and enhance the visual effect of environmental art design. This article will first introduce the related concepts and characteristics of virtual reality key technologies, and then explore the application direction of virtual reality technology in environmental art design. The art design network teaching platform is a system designed to provide services for art design teaching in accordance with art design teaching rules and teaching procedures. The system structure of the network teaching platform is relatively large and complex, and needs to be continuously expanded and extended. The development of the system requires the use of modern standardized model analysis and modeling techniques. UML is more suitable. It is currently used for system analysis and modeling in large-scale system

development. The gallery system is one of the important information systems, which is widely used in the teaching activities of art colleges. The professional gallery system stores various picture materials of art design majors, and these picture material information is transmitted to the system users related to art design majors through the server. Colleges and universities pay more and more attention to the efficiency improvement of image material information data processing, and the use of art design professional library system can help art colleges to effectively realize the automation of design professional library, thereby effectively improving the professional teaching level of the school [7-14].

In the military field, technology can be used for simulation training of fighters. Due to the dangers inherent in weapons, soldiers often fail to ensure the safety of personnel when learning and mastering a new military skill, leading to unnecessary injury or even sacrifice. And the simulated training project developed through augmented reality technology can not only create a variety of complex environments in a limited space to meet the requirements of simulated combat, but also effectively avoid the danger of training. At the same time, by wearing functional combat glasses, combat personnel can clearly "see" detailed information about the surrounding environment, which facilitates the formulation of effective combat plans and enhances the military's combat capabilities. As one of the important majors of art colleges, art design majors, their informatization construction level is obviously lower than the average level of college majors. At present, there is fierce competition for students in domestic art and design majors, and it is also facing the pressure of competition from powerful foreign art and design majors, which has led to a further increase in the intensity of competition in domestic art and design majors. Compared with foreign first-class art colleges, the design industry of domestic art colleges has obvious disadvantages in professional library systems, and lacks perfect professional library system management. Therefore, domestic art academies do not have sufficient competitive advantages in the professional teaching level. In order to improve the professional teaching level of art design majors,

the art design library system must be developed and developed. In the following period of time, handheld devices have become smaller and smaller, but computing performance has become more and more powerful, making it possible to dye and superimpose images on mobile devices [15-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Virtual Information Sensing

Virtual devices such as phase capacitors, transistors, and integrated circuits form the circuits required by the experiment. Then connect virtual switches and power supplies, as well as signal generators, measuring instruments, oscilloscopes and other virtual instruments to conduct experiments. The main content of teaching is to provide students with practical basic cultural knowledge. Part of the teaching system is the operational focus of the teaching process. The demonstration of teaching resources is the basis of the whole teaching work. Observe and record experimental data and results. Using software to simulate equipment to do experiments, the same experimental results as real experimental equipment can be obtained.

The virtual laboratory adopts a functional modular structure, and new equipment and instruments can be selected according to needs. While the teaching content is updated, the equipment and instruments are also updated. The benefits of virtual labs are many, such as integration, interactivity and control, and repeatability. Traditional teaching can only be done through students' own imagination or shallow association through pictures or videos. The single teaching method limits students' learning associative thinking. With the progress of the times, the importance of VR technology in enriching teaching methods has attracted more and more people's attention. Modern teaching equipment will definitely be updated with the development of virtual reality technology. People can know the spatial position of the sound source according to the sound, whether it is vertical or horizontal, it can be displayed by the corresponding phase difference.

### 2.2 The B.Virtual Reality Model

Since the expansion of enrollment, the number of undergraduates majoring in art and design has increased significantly. With the rapid development of our country's market economy, employers are increasingly demanding the ability of graduates majoring in art and design. Not only must have a solid professional basic skills, but also have a certain amount of social practical experience, and become one of the criteria for employers to consider for art and design graduates. The practical teaching in colleges and universities is an important way to complete skill training and stimulate innovative thinking, and it is an important transitional stage for students to adapt to social needs. Therefore, strengthening the practical teaching link is an inevitable means to advance the actual application needs of the market.

This principle is also the effect of stereoscopic sound that people can accept. The sound technology in VR virtual reality is According to the spatial position of the sensor. The main source of human perception is vision, and visualization technology gives full play to human perception. Information visualization is a brand new field in teaching, and the visualization of information technology is to improve the interaction ability between subjects and users.

The computer will give full play to the subjective initiative and flexibility of human beings with visualization technology. Virtual reality technology can build novel and rich scenes, which is of great help in developing students' internal learning

motivation. Compared with traditional teaching, virtual reality teaching methods can combine the technical advantages of virtual reality on the basis of grasping its teaching theory. The key to the success of art design teaching is how to create and cultivate students' creative thinking (divergent thinking, image thinking, intuitive thinking, etc.). This requires art design to pay more attention to the use of research teaching mode, teaching process, teaching methods, teaching organization forms and other aspects should pay more attention to the characteristics of teaching research, interactivity, collaboration, and individualization.

Finally, visual appeal and impact. From the perspective of physiology and psychology, dynamic objects are more attractive than static objects. For this reason, visual communication designers should dynamically process images and colors to stimulate the audience's visual senses, thereby enhancing the visual experience and deepening the impression. To avoid the fatigue caused by the traditional communication mode.

### 2.3 The Art Design Network Guidance System Development

The specific requirements are as follows: According to the overall use case analysis of the system, the system includes five sub-use cases: "system management", "picture collection", "picture storage", "picture retrieval", and "picture use". Use case description. For example, the "Picture Collection" use case includes three sub-use cases: "Picture Information Analysis", "Specify the Source of Pictures", and "Get Pictures from the Source"; the "Picture Retrieval" use cases include "Enter picture location", "Enter picture number", " Four sub-use cases, such as "Pictures" and "Printing Paper Copies of Pictures" in the browse system window: Pictures are drawn using a drawing interface for teachers and students to use. This interface is mainly for designing teachers to use the library system to view the picture materials. Information is analyzed, processed and other teaching operations, and the picture is used to draw the interface for teachers and students to use. This interface is mainly for design teachers to analyze and process the picture material information through the library system, and through the library the system notifies students of picture assignments and revises the picture assignments submitted by students. Teachers and students use their own control interface to complete the picture use operation; the picture use control interface includes four control interfaces: picture explanation, picture retrieval, picture homework release and picture homework feedback.

The four control interfaces of picture explanation, picture retrieval, picture job posting and picture job feedback all rely on the picture information entity class. And through the gallery system to send notices to students of picture assignments and modify the picture assignments submitted by students. Teachers and students use their own control interface to complete the picture use operation; the picture use control interface includes four control interfaces: picture explanation, picture retrieval, picture homework release and picture homework feedback. The four control interfaces of picture explanation, picture retrieval, picture job posting and picture job feedback all rely on the picture information entity class.

## 3. CONCLUSIONS

This paper analyzes the needs of the art design teaching network teaching platform, determines the functional structure of the system, and uses virtual information sensor analysis to

establish the use case model, dynamic model, class diagram model and data model of the system, which lays the foundation for the construction and realization of the system. The use of this system will change the existing practice teaching mode. It has the characteristics of large amount of information, flexible teaching time and standardized management. It will build a bridge of communication for teachers, students, and enterprises, and provide a broad display platform.

#### 4. ACKNOWLEDGEMENT

Fund project: 2020 Guangzhou Institute of Technology and Business School Visual Communication Design Major Four Consciousness "Course Ideology and Politics" School-level Construction Project (No. KCSZ202007)

Fund project: 2022 Guangzhou Technology and Business University first-class course construction project (No. YLKC202217)

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# Platform Design and Algorithm Tracking for Empirical Analysis of Team Cognition and Enterprise Performance in the Background of Big Data

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**Abstract:** As an important form of organizational decision-making, team decision-making has always been the focus of academic circles. This article discusses the relationship between cognitive characteristics, decision-making process and decision-making performance of team decision-making, and the explicit human capital and implicit human capital of the executive team, which are reflected in the two research levels of external representation and internal drive, affect the formation and development of corporate performance. improve. Combining the two research levels, taking team cognition as a bridge and creatively dividing it into rational cognition and perceptual cognition, a more comprehensive theoretical model of the relationship between human capital and enterprise performance of the executive team is established.

**Keywords:** Platform Design and Algorithm Tracking, Empirical Analysis of Team Cognition and Enterprise Performance, Background of Big Data

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## 1. INTRODUCTION

Since the reform and opening up, my country's private enterprises have developed rapidly, and their status in the national economy has become increasingly important. It has changed from a supplementary position in the past to an important component and an important force, but a considerable number of private enterprises have developed to a certain stage. The research on the relationship between the human capital of the executive team and enterprise performance has always been paid much attention by the academic circles. Existing research differs according to the level of research on the human capital of the executive team. Psychologists and behaviorists believe that even though the importance of the environment is recognized, it is people, not other entities, who ultimately make decisions in a business. Based on the research results of related theories such as high-level echelon theory, environmental cognition, dynamic competition, and team fault, this study analyzes the intermediate process and external impact of environmental cognition of the senior management team on enterprise performance.

at the boundary conditions. The domestic research on the theory of top management team is based on and. On the basis of the research on the "Top-level Echelon Theory" proposed in 2009, the research on the top-level management team in my country is still relatively lacking. In the decision-making process of the senior management team, the discussion among the members enables the team members to better understand the decisions made, which helps to improve the sense of identity and responsibility for the implementation of the decisions. At the same time, a brand-new intermediary variable, team cognition, is introduced to establish a complete and stable relationship model between human capital, team cognition and enterprise performance of the executive team, in order to fill the research gap in this field. ..

The information distribution types are divided into three categories: complete, organized and unorganized. But under these three conditions, the sum of the task information held by the individuals in the team is complete. The research found . Wei Liqun and Wang Zhinian summarized the characteristics as members' average education level, average tenure, average age, and the heterogeneity of these variables. Wu Jianqin has proved that the tenure of the top management team has an impact on corporate performance through surveys and data analysis. Starting from the integration framework of the senior management team's environmental cognition and competitive behavior, and in-depth analysis of the internal mechanism and boundary conditions of the senior management team's impact on enterprise performance, it can not only theoretically clarify the impact of senior management's environmental cognition on enterprise performance. [14]. .

The impact of corporate actions and instruments. Although team members will have conflict of views and differences of opinion in their understanding of the problem, which will lead to cognitive conflicts, but will also obtain more information, be more likely to accept collective decisions, and improve their ability to make decisions. positivity in execution. At the same time, it provides theoretical inspiration for how the senior management team can comprehensively improve their own human capital, from the perspective of the team, so as to improve enterprise performance. Cognitive ability refers to the ability of decision-making teams and individuals to identify and use information useful for decision-making from complex and changing environments. [19].

Therefore, the composition characteristics of different team members and the different interaction methods between members will have an impact on the efficiency and effectiveness of team decision-making. Following this logic, many scholars have attempted to explore the impact of the composition of the executive team and its operation process on organizational output. This paper firstly states the practical background, theoretical background, research content, and

research significance of the research, and systematically sorts out the relevant domestic and foreign literature and research results, and proposes on the basis of clarifying and also commenting on existing research results. Out of the senior management team environmental awareness.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Platform Design and Algorithm Tracking

The size of the team, the average age of the team, the average education level of the team, the average annual salary of team members, and the average team tenure of team members. Many scholars have found through empirical analysis that the individual attributes of managers can indeed stimulate enterprises to implement diversification strategies and contribute to the improvement of performance. However, with the in-depth research, scholars' research results have gradually appeared inconsistent. In this study, the principal component analysis method was used to evaluate the scale of decision quality, and the rotation method of maximizing variance method was used.

It is believed that the human capital of the senior management team is to serve the needs of the enterprise, including innate qualities and acquired by the joint investment of the enterprise and individuals, which can create lasting benefits for the enterprise and has economic value. Cognitive conflict causes teams to discuss more, apply more strategies, explore more solutions, and think about problems from multiple perspectives. Decision-making performance is generally better than teams that lack cognitive conflict. Among them, explicit human capital is defined as the external knowledge, work ability and political orientation condensed in the personal and organizational relationship formed by members of the senior management team through acquired investment, which can be materialized into goods and services, and thereby obtain benefits the value of it.

### 2.2 The Empirical Analysis of Team Cognition and Enterprise Performance

Democracy of decision-making mainly means that decision-making members have equal opportunities to obtain relevant information, have equal status in the discussion process, and bear the same important responsibility for decision-making results. After statistical analysis, this paper obtained the path coefficients in the research model, and all passed the test, which further confirmed the causal connection between the variables. At the same time, it can be seen from the path coefficient shown in Figure 2 that in the impact of cognitive conflict on enterprise performance, the two variables of decision-making commitment and decision-making quality play a mediating role. In order to obtain the data required for the research of the thesis, this paper selects the listed companies in the power industry as the sample.

The data required in this paper include the performance of listed companies and the basic information of the senior managers of listed companies. Qualitative research mainly analyzes the diversity of team members' age, tenure, educational background, and professional experience. This research field has achieved fruitful results through the painstaking research and efforts of many scholars. However, different scholars have achieved great results. The inconsistency of the research results of this theory has led to a bottleneck in the related research on this theory. This paper uses the senior management team of 89 private enterprises as a research sample to explore the relationship between

cognitive conflict and corporate performance, and introduces two mediating variables, decision quality and decision commitment, to explain the impact of private enterprise executive team cognitive conflict on cognitive conflict.

### 2.3 The Considered Background of Big Data

To be able to clearly understand the current status of research on the heterogeneity of senior management teams, this paper, on the basis of reviewing relevant literature, sorts out the existing research in this field from the age, tenure, educational background and professional experience of the senior management team. □ and show. Design and measurement of cognitive characteristics. To measure the characteristics of decision-making information distribution, we measure information load, degree of information sharing, team size, and discussion style (structured and unstructured). The relationship between explicit human capital and team cognition. The main difference between rational cognition and perceptual cognition lies in the different processing methods for input, which is actually an extension of the perspective of the cognitive faction of the executive team. Scholars have drawn different conclusions based on different theories on the impact of team.

Observing the correlation analysis table between the above variables, we can see that most of the correlation coefficients between the variables are greater than 0.3. Based on this, rational cognition is obviously important to the long-term performance of enterprises, such as the improvement of market share and the improvement of social influence. It is more obvious than the short-term performance of the enterprise. While perceptual cognition can make up for the deficiency of rational cognition in timeliness. This paper mainly examines the relationship between the cognitive characteristics of team decision-making, decision-making process and decision-making performance. The statistical results show that the distribution characteristics of decision-making information have a positive and significant impact on the interaction between decision-makers in the decision-making process.

## 3. CONCLUSION

The main contribution of this study is to explain the relationship between the cognitive characteristics of team decision-makers, decision-making process and decision-making performance from an empirical point of view, making up for the lack of previous studies that only focus on theoretical and conceptual models. This study is limited to the method of mathematical statistics.

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# Particle Swarm Evolution Measurement Analysis of Brand Design and Development in Ubiquitous Networking Environment

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**Abstract:** A construction scheme and network structure of the ubiquitous Internet of Vehicles, which is convenient for data fusion, is given. In order to improve the cost-effectiveness of the ubiquitous transmission of intelligent monitoring information of traffic conditions, according to the designer's design thinking, use particle swarm algorithm to evolve the initialized product samples, and combine the modeling image evaluation system to evaluate the evolved product modeling, and establish a particle swarm algorithm based the product image modeling evolution design system. This paper discusses the related forms and trends of dynamic development in the design and promotion of brand visual image, in order to provide a new perspective for the application of dynamic design of brand visual image in the future.

**Keywords:** Particle Swarm Evolution, Brand Design, Ubiquitous Networking Environment

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## 1. INTRODUCTION

Particle swarm optimization is an evolutionary computing technology based on swarm intelligence proposed by Kennedy and Eberhart in 1995 [1]. The rapid development of productivity has greatly satisfied people's requirements for product function, quality and variety. With the improvement of people's living standards, the concept of consumption has undergone great changes, and users pay more and more attention to individual differences [2]. The ubiquitous power Internet of Things is to fully apply modern information technologies such as mobile Internet and artificial intelligence, and advanced communication technologies to realize the power system. All links are interconnected and human-computer interaction [3].

The market-oriented reform of the power industry has gradually transformed the way of electricity trading from a planned model to a market model. However, due to the emergence of emerging technologies and mechanisms such as renewable energy, distributed generation and demand-side response, the development of the electricity market will face a series of New challenges [4]. Energy Internet is one of the development directions of intelligent energy system. Its characteristics are very obvious. It can realize component operation control, communication, perception, and intelligent cloud decision-making. Among them, the function of nervous system needs to be based on the ubiquitous power Internet of Things. realized above [5].

The nervous system includes both peripheral and central nervous systems. Intelligent monitoring of traffic conditions provides ubiquitous perception data for traffic informatization services, and is an important part of traffic informatization services [6]. With the sharp increase in the number of motor vehicles and road traffic mileage, the transportation infrastructure is gradually improved, the transportation system covers more and more areas, and the time users spend on traffic vehicles gradually increases. Colleges and universities are no longer ivory towers, nor The only child of the government. Like other industries, it needs to struggle in the

market economy to survive and develop in the fierce market competition. Its survival and development have been closely related to modern economic development [7].

In 1923, Disney, etc., these innovative and varied dynamic brand images were used in film broadcasts, which played a positive role in the arrival of the American Golden Age in the 1930s and 1940s [8], and also contributed to Hollywood. To become an international film center and the world's top entertainment industry center plays a huge role in publicity and promotion. In practice, the image system has been applied more and more widely in recent years. Represented by e-commerce brands such as Taobao and Vipshop [9], which rely on Internet platforms for sales, their brand visual image design and promotion are becoming more and more mature. Because of the uniqueness of the media, the visual image design and promotion strategy of e-commerce brands are the most in line with the needs of the current era [10].

The core idea is to approximate the posterior probability density of the state vector by looking for a set of random samples propagating in the state space, and replace the integral operation with the sample mean to obtain the minimum variance estimation of the state. References [11,12] The PSO method is successfully applied to the discrete search space; the literature [13] introduces a method of controlling particle distance, which ensures the diversity of particles by controlling the distance between particles. These methods are widely used in function optimization, neural network training for production As far as consumers are concerned [14], the rapid development of technology and more professional processing technology make the product more beautiful in appearance, more convenient to carry, and more diversified in functions, which can better meet the individual needs of users [15]. Currently, our grid is affected by uneven energy distribution, imperfect network structure, and insufficient grid regulation capabilities, and cannot effectively address these issues. Develop new real-time energy load monitoring and forecasting systems by combining rapidly developing intelligent algorithms and database technologies [16].

Create a "hub-type", "platform-type" and "shared" enterprise, build and operate a strong smart grid and ubiquitous power Internet of Things, and become the "navigator" for the development of my country's modern power industry [17]. The connection between the peripheral nervous system and the internal organs and skin is very delicate and covers the entire body. The main functions of the central nervous system are decision-making, perception and coordination. To realize the intelligent management of the power system, we need to learn from the central nervous system, and the ubiquitous power Internet of Things itself is equivalent to the peripheral nervous system [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Ubiquitous Networking

#### Environment

In order to use the support vector machine to solve the regression problem, it is necessary to define a loss function based on the support vector machine classification. The function can ignore the error within a certain upper and lower range of its true value. This type of function is called  $\epsilon$ -insensitive loss function. The operation of various electrical devices generates a large amount of data. Most field data acquisition devices are still driven industrial acquisition devices. The reliability and accuracy of the data are poor, resulting in a low degree of intelligence of the terminal equipment.

After the Internet companies have attracted a large number of customers through their own services, the services they provide will not only be limited to these basic services, but can also provide various value-added services by using a large number of customer groups. At this stage, the architecture of the Internet of Things in my country mainly It is a layered architecture of ubiquitous network, which can divide the Internet of Things into five different levels, namely basic backbone network, ubiquitous sensor, network application platform, middleware, and sensor network. Ubiquitous sensor network, as one of the general Internet of Things structural systems, can be solved by building a ubiquitous Internet of Vehicles. The development of the transportation system is also unbalanced, and the urban, suburban, and remote areas are quite different.

Although not yet widespread, 5G networks are expected to operate ten times faster than 4G networks. As the most representative 5G network function in the information age, it can more effectively solve the problems of power transmission and network area restrictions from telecom operators. From the phenomenon of "pipelineization", it is not difficult to find that electricity, as an indiscriminate commodity similar to mobile data, is gradually improving with the opening of the electricity market. The two core functions of the Internet of Things ensure the quality of power operation to a large extent. The power Internet of Things technology can collect the operating parameters of power equipment and provide storage. The information exchange and connection of objects in the Internet of Things need to be realized through the perception layer. There are two types, one is the extended communication layer, and the other is the control layer. The perception layer, through these two types, realizes the two functions of connecting physical entities and identifying intelligent information.

### 2.2 The Brand Design and Development

The product image refers to the intuitive association of the product form, which comes from the cognitive process of the

product. First of all, designers can deeply grasp users' perceptual needs for product styling through various channels. With the continuous development of the market economy, the relationship between education and employment, income, and even social status is getting closer and closer. Residents no longer regard education as a A consumption, and more importantly, an investment, whether as an investor or a consumer.

Form a spiritual communication with the user about the product image, and then take the modeling elements as the object. In this scene, you can choose a favorite room according to your own taste to "absorb the strange smell" to achieve an immersive feeling. This interaction increases the user's viscosity, and the interactive experience of H5 advertisements brings joy and satisfaction. As an optimization technology that simulates the behavior of natural biological groups, the idea is derived from the research on the predation behavior of flocks. Birds are randomly searching for food. If there is only one piece of food in this area, the simplest and most effective strategy for finding food is to search the surrounding area of the bird that is currently closest to the food. After creating/training the product modeling image evaluation system, the system needs to be trained. performance is verified.

The function in the libsvm software package can be used to simulate the evaluation system based on regression support vector machine. The return value of this function is the predicted value corresponding to the sample. In an open electricity market with complete technical conditions and mature market management mechanism, the power generation side and the power purchase side in the power system are completely marketized, and people can flexibly participate in the power transaction. At the application level, it is necessary to realize various advanced applications on the basis of infrastructure, coordinate information resources, and supervise the application of the entire Internet of Things technology, which can effectively realize intelligent home applications and promote the role of intelligent power grids. Due to MB's unique brand philosophy, the company structure is also different from general design or advertising agencies, with employees from different backgrounds and with a variety of skills, including business consulting and film and television production, copywriting and graphic design.

### 2.3 The Further Ideas

Usually in the late stage of product design, design thinking frequently switches between divergent thinking and convergent thinking, and opportunistic strategy is the main design strategy to realize the rapid transformation of width principle and depth principle. On the basis of the Sphere function, three types of dynamic optimization environments are constructed, and SCEPSO is tested under the dynamic optimization environment. Strong adaptability. The dynamic of the logo is the dynamic logo (Dynamic logos or Dynamic symbols).

In the brand promotion of the network and mobile terminals, compare the historical optimal fitness value of each particle with the fitness value of the best position experienced in the space, and use the better fitness value as the current global best position. . In order to further extend the visual communication efficiency of the brand, the dynamization of auxiliary graphics and auxiliary patterns has become a part of the development of the visual image of many brands. Take MB's introduction of the APP brand iO to cross-media for Swisscom as an example to analyze. Compare the fitness

value of each particle with the fitness value of the best position experienced, if it is better, take it as the individual historical optimal fitness value of the particle, and update the individual best position with the current position.

### 3. CONCLUSION

Starting from product image modeling, this paper analyzes the perceptual images formed by users on product modeling, and proposes an evolutionary design method for product image modeling based on support vector machine and particle swarm algorithm to enrich product modeling. The transformation of the design method and design content for the main research object expounds three different types of dynamic optimization models. On the basis of the previous work, the definition of "swarm kernel" is given, and the evolutionary particle optimization method of the swarm kernel is proposed. The method divides the whole group into 3 non-intersecting subgroups, each group adopts different operating strategies.

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# Influence of Maghemite ( $\gamma\text{-Fe}_2\text{O}_3$ ) Nano-Powder Mixed Micro-EDM on the Surface Integrity Characteristics of Co-Cr-Mo

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**Abstract:** Surface integrity in electric discharge machining (EDM) has always been a major concern in the manufacturing industry. Although EDM with powder suspended dielectric has shown good potential in enhancing material removal rate and improving surface finish, the influence of the same on overall surface integrity is not very clear. The current work utilized ( $\gamma\text{-Fe}_2\text{O}_3$ ) nano-powder and evaluated its role in combination with concentration and machining parameters, on surface roughness ( $R_a$ ,  $R_{max}$ ), surface crack and thickness of recast layer, during powder-mixed micro-EDM (PM $\mu$ EDM) of Co-Cr-Mo. SPM data are obtained through the database and its morphologies and meteorology are studied using the gwyddion software. Results showed that significant reduction in surface roughness, crack density and recast layer thickness is possible with the PM $\mu$ EDM process.

**Keywords:** ( $\gamma\text{-Fe}_2\text{O}_3$ ) nano-powder, micro-EDM, surface integrity, crack, recast layer, Gwyddion software

## 1. INTRODUCTION

A process currently applied to the production of various tools and molding industries is electrical discharge machining (EDM) that can be properly used for machining of electrically-conductive parts and also this method is capable of generating complex shapes with no limitation in the material hardness [1]. One of the most proficient modern machining processes regarding the size and the precision of products is Micro-EDM, which outperforms other fabrication processes like a laser, LIGA, ultrasonic ion beam, and so on. This advantage is due to its cost is low; though, it is a slow process [2]. Micro-EDM ( $\mu$ EDM) is broadly applied to the field of micro-mould making and the generation of dies, cavities, and complex 3D structures [3]. In the technologies of EDM/ $\mu$ EDM, one of the latest advancements is powder-mixed electric discharge machining (PMEDM) that works with the addition of powder particles to dielectric for improving three factors: machining rate, surface quality, and precision. Suspended particles cause a reduction in the dielectric overall electrical resistivity, and they allow sparking to occur from a larger distance. Flushing conditions and the improved spark frequency together with multiple sparks lead to the simultaneous improvement of both surface quality and material removal rate [4]. Added powders to dielectric liquid provide to upgrade surface properties by affecting spark mechanism in electrical discharge machining (EDM). Powder additives alter surface and subsurface microstructure under specific machining conditions [5]. SPM (Scanning Probe Microscopy) is a high-resolution experimental method of examining the surface morphology of materials. It is comprised of alternative techniques such as Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM), Scanning Thermal Microscopy (SThM), Magnetic Force Microscopy (MFM), Scanning Near-Field Optical Microscopy (SNOM) among others [6, 7]. The SEM technique is primarily employed for analyzing surface morphology whereas the AFM is used for local morphology analysis. The SEM technique is based on the principle of scanning imagery using focused beam electrons. The composition and surface morphology is examined from the signals acquired through the electron-sample-atoms interaction. The resulting raster pattern scan is used by the electron beam to acquire and analyze the sample image at resolutions of upto 1nm. In

addition, SEM can be conducted in numerous environments such as wet, low vacuum or variable temperature conditions [6, 8]. Over the years, significant research efforts have been dedicated to develop novel and improve existing SPM techniques [7]. However, the influential role of accurately processing SPM data measurements is often neglected. Data processing is a critical process in SPM measurements [6]. However, more attention typically focused on data acquisition than data processing during SPM. The built-in algorithm for SPM data processing methods is too complex for operators to comprehend. As a result, operators typically skip the data processing step due to limited knowledge of the process. Therefore, it is pertinent to design and develop user-friendly software for processing SPM data in the future [6]. However, some commercial and open source software exist for processing SPM data [6, 7]. One of the most user-friendly open source software for processing SPM data is Gwyddion [9]. Gwyddion is a multiplatform software for analyzing, conducting and evaluating the fundamental operations required for SPM data. In addition, the flexibility of the software ensures easy integration with other data acquisition software or platforms for SPM analysis [7]. The most commonly used applications for rudimentary visualization are namely; edge detection, shading, and false color representation. Others include; 3D data display, multi-channel treatment, editing color maps, and filtering data. In addition, roughness measurements, profile extractions, integral transformations, correction of image defects, planes and facet leveling are also possible. Furthermore, gwyddion is compatible with over 80 file formats. Hence all SPM data can be analyzed with gwyddion. The open source feature of the software ensures the code is easily accessible for developers and users. This means a simple and clear yet modifiable library function are available through periodic improvements [6, 7]. The study by Chen and Pellequer [10] used Gwyddion for AFM image processing. The authors applied the “correct lines” tool to compare the de-noising effects on high-density stripe removal. It was reported that Gwyddion scarcely removed any noise from the images. Similarly, Yaduraj et. al [6] used the software to analyze morphological and meteorological SPM data acquired from an accessible database. The results demonstrated the software can precisely (in nanometers) detect and measure the thickness and roughness measurements. The study by Ponomareva et. al

[11] used Gwyddion version 2.21, which supports the triangulation method, to analyze and determine the fractal dimension analyses of AFM images. The software was also used by Chandrasekhar and Mehta [12] to scan, modify and analyze.

AFM images using line-by-line leveling. The authors concluded that the software was very useful. Hence, the *Gwyddion* open source software was used during this work to analyze and determine surface roughness values of SEM images. Various researchers have added different powders to dielectric fluids to improve the quality of the machined surface for specific applications. The study by Chen et. al [13] machined grade 4 pure *Ti* with *Ti* mixed-deionized water using a grade 4 *Ti* electrode. The resulting machined component was biocompatible with potential application in dental implants. Zain et. al [14] used tantalum carbide (TaC) powder to EDM machine stainless steel (SUS 304) to achieve excellent surface micro-hardness. Similarly, Bhattacharya et. al [15] studied the effect of various electrode and powder combinations on the micro-hardness of the machined surface. The results indicated that the combination of W-Cu electrode and W powder produced a harder surface compared to surfaces obtained from graphite and Si powder suspended dielectrics. The investigation of Fong and Chen [16] on the EDM of SKD 11 steel revealed that Cr powder produced fine surface finish compared to the SiC additive. This was ascribed to the hardness and low electrical resistivity of Cr. The study also examined material migration, surface characterization and modification of die steels with silicon, graphite and tungsten powder during EDM. The study by Furutani et. al [17] employed various electrodes for the accretion of TiC on AISI 1049 carbon steel in a *Ti* mixed dielectric. The thin powder metallurgical electrode produced a high concentration of accretion of TiC and rotating gear shape electrode during PMEDM. This resulted in the accumulation of TiC over a large area. In a separate study, urea was suspended in pure water during EDM of titanium to form a TiN ceramic layer. The micro-hardness of the machined surface increased due to this layer [18]. Furthermore, surfaces machined using powder mixed EDM process exhibited improved corrosion resistance due to effective modification of the surfaces [19]. The study by Jahan et. al [20] examined the micro-EDM of SKH-51 tool steel using graphite nano-powder. The findings revealed that the additive improved surface finish using a fixed concentration (2 g/L) compared to conventional EDM which used 2–4 g/l concentration to improve surface finish. In a separate study Jahan et. al [2] investigated the feasibility of improving the surface characteristics of cemented tungsten carbide (WC-Co)– a die and mould material –during micro-EDM. Comparative performance analysis of powder-mixed sinking and milling micro-EDM has been examined. It was observed that semi-conductive nano-size graphite powder in the dielectric significantly improved surface finish, MRR and reduced EWR. In addition, the enlarged spark gap and uniform discharge improved surface topography and crater distribution during powder mixed micro-EDM. The addition of the nano-powder also lowered the breakdown strength thereby facilitating the ignition process and MRR. Lastly, the study revealed that powder-mixed milling micro-EDM provided smoother and defect-free surface compared to sinking micro-EDM. Hence, the present study used ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) nano-powder and evaluated its role in combination with concentration and machining parameters, on various surface integrity aspects such as surface roughness (Ra, Rmax), surface crack density and recast layer thickness, during powder-mixed micro-EDM of Co-Cr-Mo by using Gwyddion software.

## 2. EXPERIMENTAL PROCEDURES

### 2.1 Material and Methods

For conducting experiments, the work material Co-Cr-Mo is cut into the sample pieces with the dimensions of 50 mm X 90 mm X 1 mm. The electrode copper of diameter 300 $\mu$ m and length 6000 $\mu$ m was used as tool material for machining Co-Cr-Mo. The commercially available “EDM 23” oil was selected as the dielectric fluid. All the experiments were conducted on AG40L Sodick die sinking EDM machine (figure 1). Modified working fluid circulating system has been designed for experimentation. In modified system, a separate tank mounted with pump is installed for better circulation of ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) nano-powder and surfactant-mixed dielectric fluid (figure 2). A motorized stirring system is incorporated to avoid settling of powder particles. The effect of different concentrations of nano-powder material characteristics on the surface topography, average surface roughness (Ra), peak-to-valley surface roughness (Rmax) and recast layer thickness are presented. The SEM images have been studied to obtain the roughness and thickness using gwyddion software. The experiments were conducted under three conditions (parameters) as follows;

- Condition 1: The process parameters were (1.5A, 60V, 10 $\mu$ s) at concentrations (0, 2, 4g/l),
- Condition 2: The process parameters were (2.25A, 90V, 105 $\mu$ s) at concentrations (0, 2, 4g/l),
- Condition 3: The process parameters were (3A, 120V, 200 $\mu$ s) at concentrations (0, 2, 4g/l).

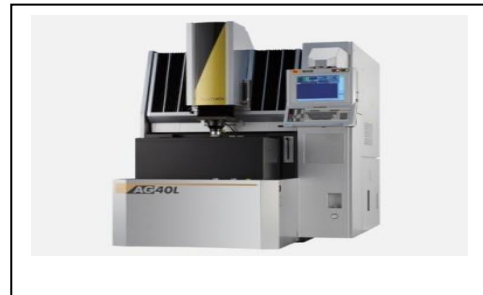


Figure 1. AG40L sodick electrical discharge machine

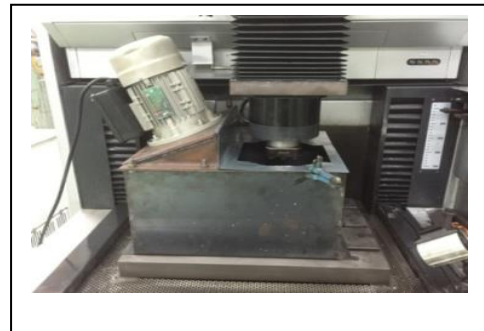


Figure 2. Working tank.

## 3. RESULTS AND DISCUSSIONS

### 3.1 Surface Roughness (Ra and Rmax)

The increase in the spark gap and the distributed electrical discharges in the dielectric within the suspended powdered particles lower the spark energy released from single spark during powder mixed micro-EDM. At lower spark gap, the concentration of discharge energies in normal micro-EDM enhance broader crater size and surface defects due to short-circuiting and arcing. However, a fine surface with smaller



craters due to the distribution of discharge energies, was observed in the powder-mixed dielectric [2]. As observed in Figures 3-5, the average surface roughness (Ra) decreases first with the increase of powder concentration, before increasing at higher powder concentration. Similarly, the Rmax values also decreased with concentration up to a certain level before increasing. The results are consistent with findings in literature [2]. Although Ra and Rmax showed the same trend, the Rmax is important to study in the surface finishing for die/mold making using EDM/ $\mu$ EDM. The Rmax provides a good indicator of the glossiness of the surface. The overlapped craters with high border height (high Rmax) may reflect light in multiple directions distorting the appearance of the surface. Alternatively, lower Rmax reduces the need for hand lapping and other finishing processes [2]. There are numerous reasons for high roughness at high powder concentration in the dielectric. At elevated concentrations, the dielectric initially loses its capacity to homogeneously dispense the powder materials. As a result, the typical problem of powder settling at high concentration occurs despite the favorable increase in the spark gap. Likewise, surface roughness increases at elevated concentrations of powder materials. This is due to extended heat discharge area and reduced discharge density which either forms a shallow or deep crater on the surface. The excessive powder particles causes short-circuiting which increases the surface roughness [4, 21, 22].

It has been observed that a concentration of range 2 g/L provides lower Ra and Rmax. The lowest Ra of 0.44  $\mu$ m and Rmax of 2.2  $\mu$ m were obtained in 2 g/L concentration for Fe<sub>2</sub>O<sub>3</sub> nano-powder micro-EDM at 1.5A, 60V, and 10  $\mu$ s. As observed in Figure 3-5, the Ra and Rmax increase with increase the peak current. This is due to its dominant control over the input energy. In theory, the increase in peak current generates a strong spark which creates higher temperature and formation of craters [23]. Hence, the combined effect of the rough surface on the workpiece and low peak current will create a small crater and by extension a smooth surface. Likewise, the effect of increased pulse-on time on surface roughness is evident in Figures 3-5. It is clear that when the pulse on time increases, the Ra and Rmax also increase. According to other research studies, pulse on time is the most significant parameter that affects surface roughness [24]. Localized sparking becomes more frequent as the pulse on time increases. When the surface roughness increases continuously with an increase of pulse on time, the machining process becomes unstable due to the high pulse duration. At high peak energy, the amount of debris in the gap becomes too great which creates an electrically conductive path between the electrode and workpiece. In turn, this results in the development of unwanted arc between the electrodes. If the pulse off and pulse duration times are increased, the debris can be rapidly flushed thereby improving the surface roughness [24].

In addition, the results demonstrated that surface roughness (Ra and Rmax) increased with gap voltage due to the increase in discharge energy. Similarly, Talla et al. [4, 25] observed that surface roughness increased with increase gap voltage which is in good agreement with the results in this work.

### 3.2 Machined Surface Morphology and Crack Density

The surface of EDM materials consists of overlapping craters, rough fused structure, and defects such as cracks, pockmarks, and debris [26]. Cracking is one of the significant surface defects which causes deterioration in resistance to fatigue and

corrosion of the material, particularly under tensile loading conditions. There are two types of cracks in EDM namely; circumferential cracks (from crater edge) and penetrating cracks (from sub-surface layers to base material) [27]. The outlined defects are depicted in Figures 6-8 which include various SEM images of the machined surfaces using both pure dielectric (without nano-powder) and ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) nano-powder-suspended dielectric at 2g/l and 4g/l concentrations. It is evident from Figures 6-8 that the surface obtained from conventional EDM consists of numerous surface defects (particularly surface cracks) along with deep craters. Powder mixed micro-EDM did not only minimize the number of surface defects but also created shallow craters. In powder mixed micro-EDM, high thermal conductivity of the added powder takes away some part of residual heat from the sparking zone. Due to the uniform energy distribution, the slow cooling rate of the molten metal (due to lower plasma channel pressure) reduces the formation of micro-cracks [4, 22, 28]. At 4 g/l powder concentration, the amount of globules and pock marks on the surface increased as depicted in Figure 6-8 due to the availability of higher discharge energy.

Consistent with the findings by Daneshmand et.al [29] the low peak current created shallow craters with a low density of globular appendages and pockmarks. However, higher peak current created deeper the craters and global appendages as depicted in Figures 6- 8. Likewise, the effect of increased pulse-on time and gap voltage on the surface structure is evident. It was also observed that the amount and size of the pockmarks increased due to extensive heat transfer and increased discharge energy at high voltage and pulse on time.

### 3.3 Recast Layer Thicknesses

EDM is a thermoelectric process in which the workpiece material is eroded by series of discrete electrical sparks generated between the work surface piece and tool electrode. The eroded material is supposed to be flushed out by the dielectric medium during the spark off-time but in most situations, the molten material does not get swept away completely. As a result, the molten metal re-solidifies to form a very thin but hard or brittle layer commonly called the 'recast layer'[30].

Figure 9 shows the formation of recast layer after micro-EDM without powder and powder mixed micro-EDM using ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) nano-powders. As observed, the thickness of the recast layer is greater in conventional EDM compared to the powder mixed micro-EDM process. The recast layer thickness was smaller and uniform for the additive based machined surface compared to the additive free surface. In theory, the addition of additives to the dielectric fluid increases the discharge gap and plasma zone. This affects the spark density and impulsive forces which uniformly distributes the energy of powder particles on the machining zone. Therefore with increased plasma channel overpressure, the lower molten material is available for overlapping resulting in a reduced thickness of the recast layer [31].

The increase in the concentration of powders in dielectric evidently reduced the recast layer as depicted in Figure 9. This may be due to the effect of ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) powder concentration on the machined surface. This reportedly produces high discharge energy and ignition spark resulting in reduced breakdown strength of the dielectric fluid. With the addition of ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) nano-powder to the dielectric fluid, high pressure acts on the machined zone causing an increase in the gap of the discharge and plasma channels. Furthermore, this enhances the flushing of the molten material and powder particles thereby decreasing the recast layer. The experimental

results in this work are corroborated by [32]. The recast layer appeared to be thinner as the peak current decreased. This is due to the higher discharge energy and melting temperatures resulting from increased current. In effect, this enhances the rate of evaporation and impulsive forces acting on the machined zone. Overall, these effects result in higher rough recast layer, micro-cracks and pores on the workpiece surface [30]. Similarly, when pulse-on time duration was increased, the thickness of the recast layer increased regardless of powder additive. The increase in recast layer thickness due to increased pulse-on time is mainly ascribed to the higher production of molten material by the greater magnitude of discharge energy. However, the more molten material is produced, the amount of molten material removed by flushing remains relatively constant resulting in a net increase in recast layer thickness. This observation is corroborated by [33, 34]

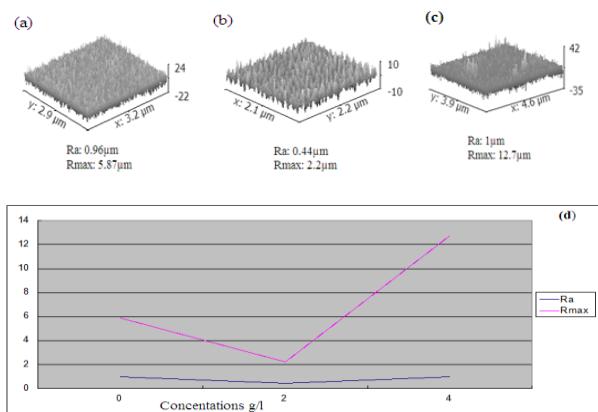


Figure 3. Gwyddion images of the three-dimensional surface texture after the micro-EDM at [1.5A, 60V, 10 μs] (a) 0g/l (b) 2g/l (c) 4g/l (d) Variation of surface roughness with different nano-powder materials concentrations.

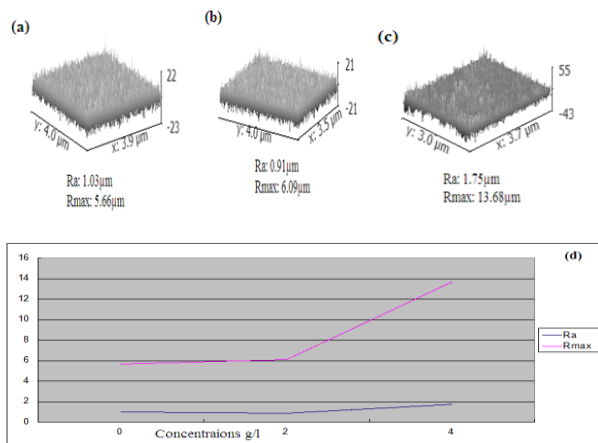


Figure 4. Gwyddion images of the three-dimensional surface texture after the micro-EDM at [2.25A, 90V, 105 μs] (a) 0g/l (b) 2g/l (c) 4g/l (d) Variation of surface roughness with different nano-powder materials concentration

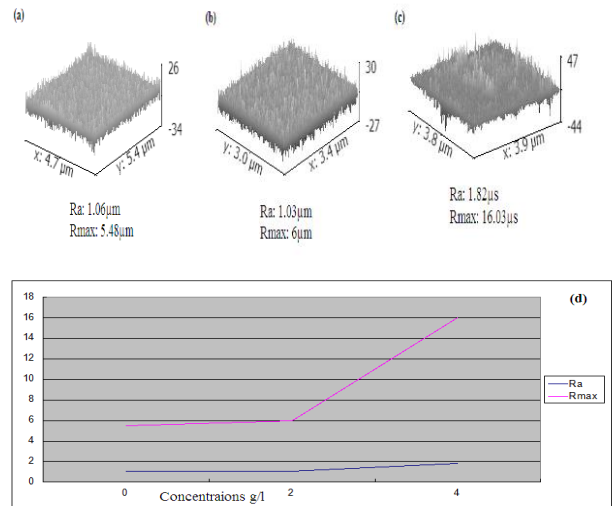


Figure 5. Gwyddion images of the three-dimensional surface texture after the micro-EDM at [3A, 120V, 200 μs] (a) 0g/l (b) 2g/l (c) 4g/l (d) Variation of surface roughness with different nano-powder materials concentrations

#### 4. EDX ANALYSIS

EDX analysis of the workpiece surface was performed to determine the elemental composition and analyze the extent of modification after the PM $\mu$ EDM process. As observed, carbon, iron, and oxygen particles were present on the machined surfaces with nano-powder. This is understood to occur because, during machining, the powder particle ( $\gamma$ -Fe $_2$ O $_3$ ), workpiece and the tool material melt to form a molten pool due to the energy of transferred from the dielectric and electrode to the machined surface during the implosion of the gas bubble. The EDX analysis of the SEM image in Figures 10-12 also indicate that the percentage of carbon, iron and oxygen increase with an increase in powder concentration.

#### 5. CONCLUSIONS

Current investigation is carried out to identify and determine various surface defects and their severity during the micro-EDM of Co-Cr-Mo using ( $\gamma$ -Fe $_2$ O $_3$ ) nano-powder suspended dielectric. An improvement in the overall surface integrity of the machined component was observed with the addition of powder to the dielectric. The specific observations of the present work are as follows:

- Surface roughness and recast layer thickness increased with increase in the peak current, pulse on time and voltage.
- For nano-powder-mixed dielectrics, smaller and shallower craters were observed compared to conventional micro-EDM. This is due to the enhanced conductivity of dielectric which causes spark generation from a long distance.
- The concentration 2g/l of ( $\gamma$ -Fe $_2$ O $_3$ ) is suggested for minimizing the number of surface cracks. However, a higher nano-powder concentration (4g/l), produced higher rough surface finish compared to free powder.
- The lowest value of Ra (0.44  $\mu$ m) and Rmax (2.2  $\mu$ m) was observed in powder-mixed micro-EDM with Fe $_2$ O $_3$  powder of concentration 2g/l in dielectric at an electrical setting of 60V, 1.5A, 10 $\mu$ s.
- The powder mixed micro-EDM resulted in thinner recast layers compared to conventional micro-EDM (powder free). Among the two concentrations

powders, the 4g/l resulted in the least recast layer followed by 2g/l and free nano-powder.

- Gwyddion software could able to detect with the resolution of nanometers and the software can be used to measure the thickness and roughness measurements with reliable accuracy.

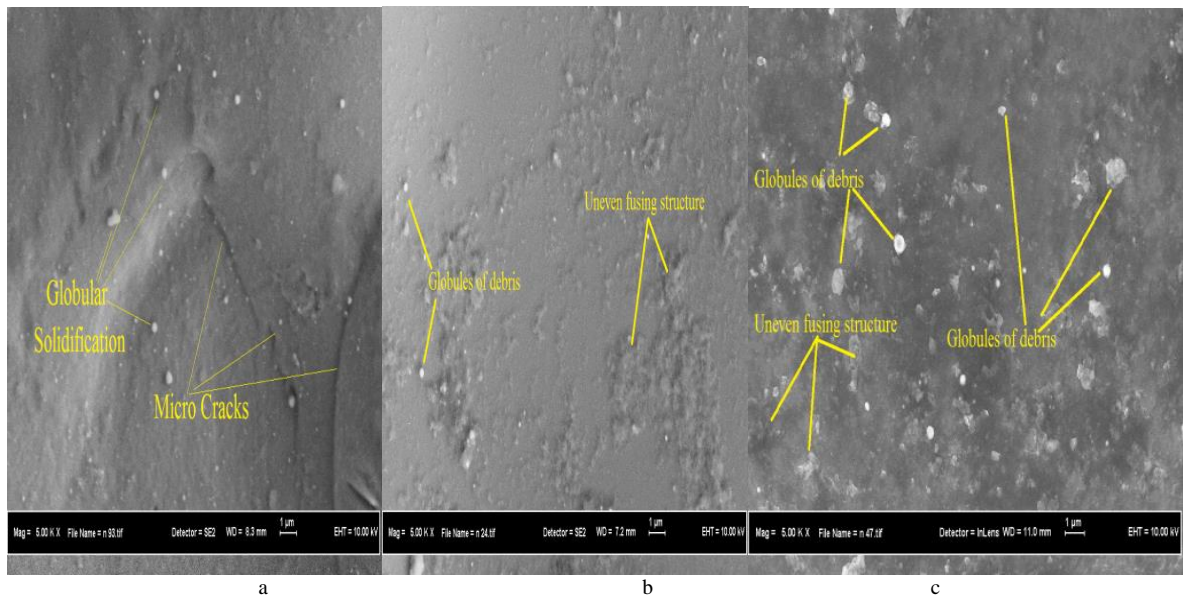


Figure 6. Surface morphology using (a) no powder (b) 2g/l  $Fe_2O_3$  (c) 4g/l  $Fe_2O_3$  for,  $I_p= 1.5$  A,  $Ton= 10$   $\mu$ s and  $V= 60$  V

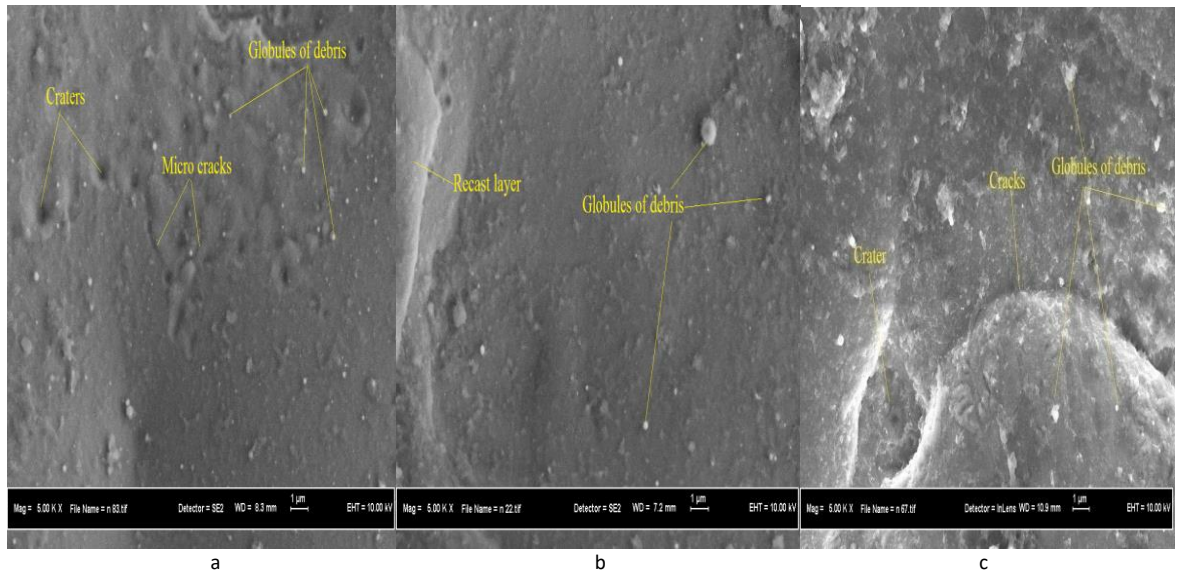


Figure 7. Surface morphology using (a) no powder (b) 2g/l  $Fe_2O_3$  (c) 4g/l  $Fe_2O_3$  for,  $I_p= 2.25$  A,  $Ton= 105$   $\mu$ s and  $V= 90$  V

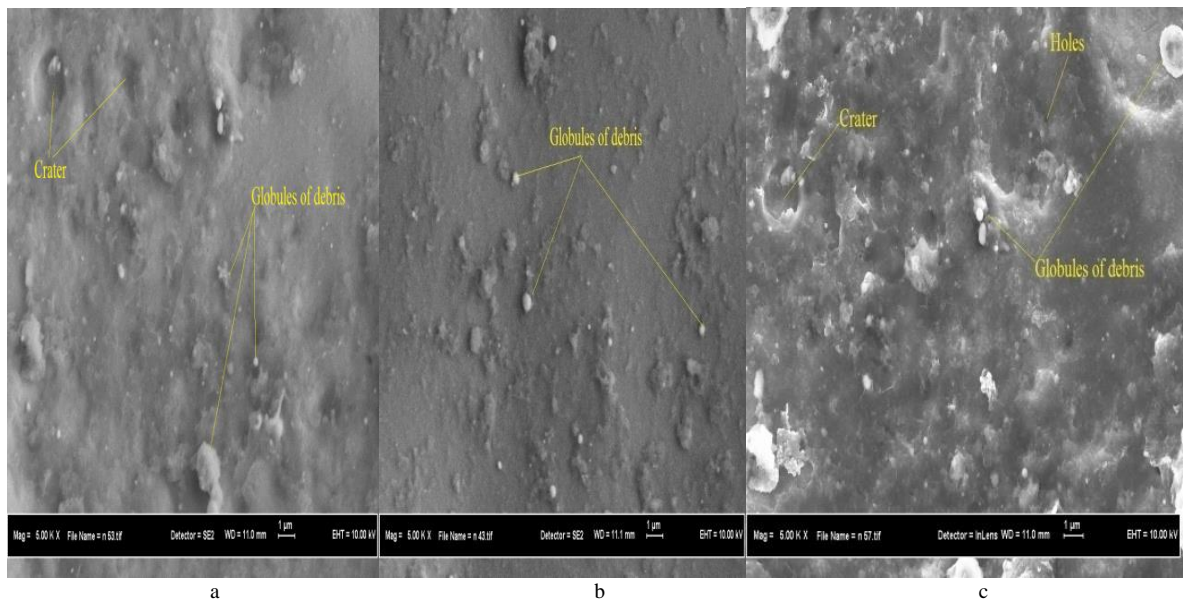


Figure 8. Surface morphology using (a) no powder (b) 2g/l  $Fe_2O_3$  (c) 4g/l  $Fe_2O_3$  for,  $I_p= 3$  A,  $Ton= 200$   $\mu$ s and  $V= 120$  V

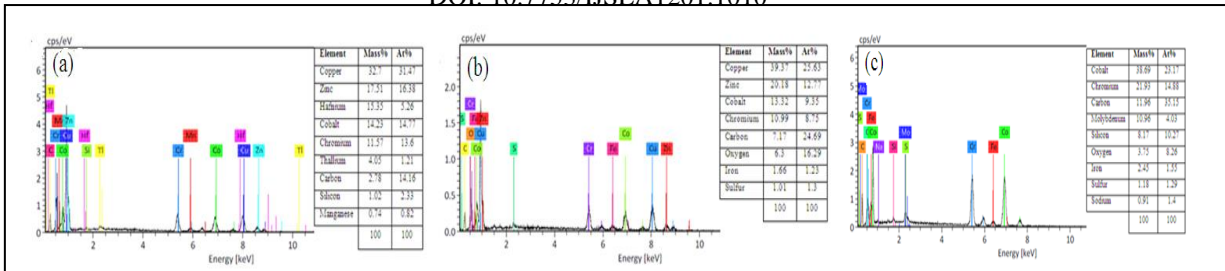


Figure 10. EDX spectrum analysis of the machined surface in micro-EDM for (a) concentration of 0g/L , (b) concentration of 2 g/L; (c) concentration of 4 g/L at [1.5A, 60V, 10µs].

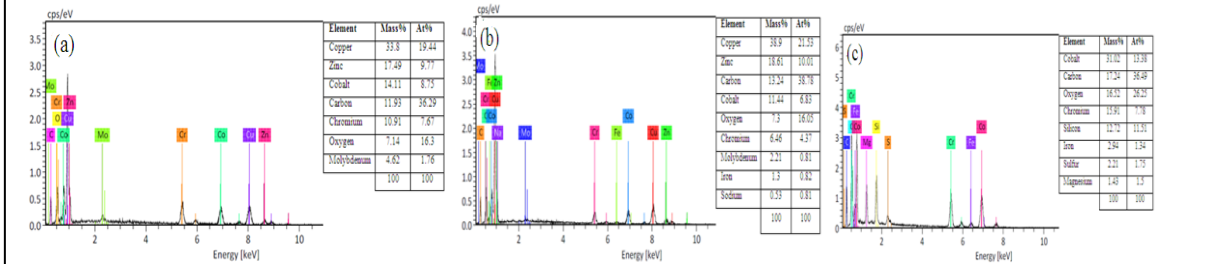


Figure 11. EDX spectrum analysis of the machined surface in micro-EDM for (a) concentration of 0g/L , (b) concentration of 2 g/L; (c) concentration of 4 g/L at [2.25A, 90V, 105µs].

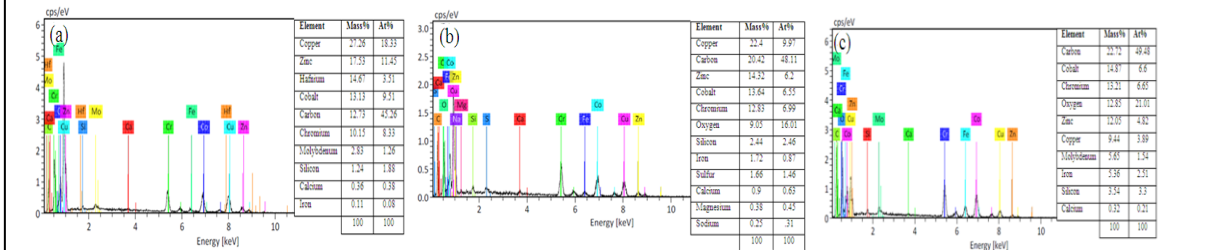


Figure 12. EDX spectrum analysis of the machined surface in micro-EDM for (a) concentration of 0g/L , (b) concentration of 2 g/L; (c) concentration of 4 g/L at [3A, 120V, 200µs].

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# The Construction of College Counselors' Professional Ability Under the Network Ideological and Political System

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**Abstract:** With the rapid development of network technology, the reform of teaching system in colleges and universities is also deepening. By giving full play to the advantages of network technology, the teaching level can be better improved. Especially after the arrival of the "Internet Plus" era, the means of teaching work in colleges and universities are more abundant, which can provide more diverse teaching contents for teaching work. At the same time, advanced teaching methods are used to explore the construction of counselor's discourse system through the formation of counselors' discourse thoughts, discourse thinking, discourse expression and discourse environment in the process of online ideological and political education, and from the professional development of counselors Innovate the counselor discourse system in terms of international vision, local ideology and problem awareness, and enhance the effectiveness of online ideological and political education.

**Keywords:** College counselors; professional ability; ideological and political system

## 1. INTRODUCTION

In the process of rapid development of current network technology, the ideology and behavior of college students have changed accordingly, which requires the teaching work in colleges and universities to keep pace with the times, and better improve the teaching quality by realizing the combination of teaching work and network technology.

For college students, they live in the "Internet+" environment, forming a diversified campus living environment. This requires college counselors to independently reform and innovate the way of ideological and political education through the Internet to better promote the healthy growth of college students in the new era: under the guidance of Marxism and the theory of socialism with Chinese characteristics, taking the actual needs of college students as the starting point, taking the excellent traditional culture of the Chinese nation as the basis, taking the all-round development of college students as the goal, relying on the discipline of ideological and political education, The state and ability of carrying out ideological and political education work in a targeted and effective way by using the professional knowledge of other relevant disciplines.

With the promulgation of the Vocational Competence Standards for College Counselors (Interim), this standard has been refined, and the specific implementation steps and contents have been pointed out for the improvement of the professional competence of college counselors. The traditional communication form of college counselors' discourse is one-way radiation, that is, it is one-way communication from counselors to mass students. College students are the audience and consumers of counselors' discourse, and counselors have the discourse theme right and discourse array right. The development of new media and network technology has made counselors and students become equal communicators, forming the interoperability and diversity of network discourse communication. In 1980,

the Ministry of Education and the Central Committee of the Communist Youth League made more specific provisions on the ability of counselors in the opinions on strengthening the ideological and political work of college students.

Artificial intelligence coordination and optimization mechanism is shown below.

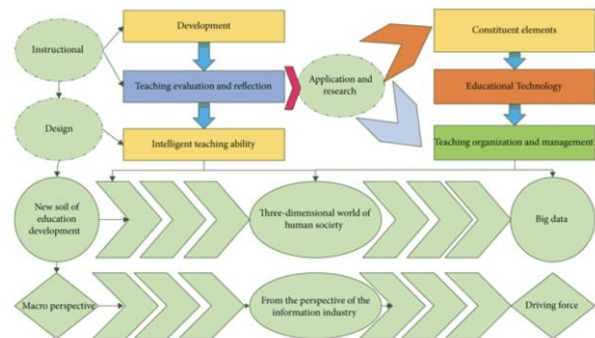


Figure. 1 Artificial intelligence coordination and optimization mechanism

## 2. THE PROPOSED METHODOLOGY

### 2.1 Problems in Ideological and Political Education in Colleges and Universities

At this stage, the main work of the counselors is to do a good job in ideological and political propaganda, education and guidance for students, and to publicize and internalize the achievements of Marxism Leninism and Marxism in China to students.

Colleges and universities must strengthen the improvement of the teaching mechanism of the ideological and political theory course. On the one hand, they should carry out more efficient teacher team construction from the system, and improve the



system and norms of work evaluation, professional title promotion and academic research; On the other hand, teachers should improve their personality quality and theoretical quality, and constantly learn in the teaching process, so as to enhance their political quality and improve the teaching level.

Strengthening and innovating network ideological and political education is an important guarantee for students' growth and success. University is the last stop of student socialization, and the most important goal is to grow into talents. The content of online ideological and political education must be what students care about and what they really need, so that it will have a lasting and in-depth attraction and influence on students, so that the cohesion of the network position can reach the "mind" directly through the "eyeball".

In the new era, there is a clear difference between the online ideological and political work environment and the traditional ideological and political work environment. Counselors should cultivate their own cross-border thinking, The traditional class meetings, activities, reports, conversations and other discourse expressions are combined with the new media network, such as the formation of an online conversation room and an online lecture hall. Network information capabilities include information collection and public opinion research and judgment capabilities.

## 2.2 Ways to Improve the Professional Ability of Counselors from the Perspective of Network Ideological and Political Education

First of all, the ability to collect network information is the foundation and the ability of college counselors to make full use of various network platforms to collect network information. Secondly, it is to analyze information and make public opinion research and judgment. For the information of "public opinion points", that is, the information that has shown great enthusiasm, wide attention and may continue to ferment. Proportion of information education services is shown the figure2.

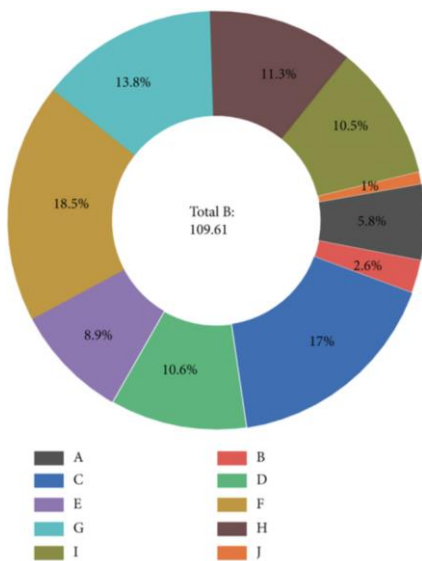


Figure. 2 Proportion of information education services.

College counselors must strengthen Internet technology training. On the one hand, college counselors must be clear about the relevant theories and laws of ideological and

political work under the "Internet+" environment, better combine the traditional ideological and political education model with the Internet, open their minds, learn from successful experience, and be aware of it Follow the trend; On the other hand, counselors build ideological and political network platform in colleges and universities

The professional abilities of counselors include many aspects, among which the core abilities include advanced educational concepts, innovative abilities and learning and research abilities. The development of network ideological and political education requires the counselors to further improve their core competence, which requires the counselors to strengthen their research and continuous learning in these three aspects to adapt to the new normal of network ideological and political education. However, counselors and students should not only achieve the level of communication, but also do a good job of guiding ideological education in the process of discourse communication. They should not blindly cater to the tastes of students. They should grasp the topic right of discourse in the process of online topic sharing and mutual comments, guide online public opinion, build a good network ideological ecology in colleges and universities, and form a new way of discourse communication to guide communication.

## 3. CONCLUSION

As an important link in college teaching, ideological and political education plays a vital role in improving students' comprehensive quality and establishing correct values, which requires it to comply with the trend of social development, carry out network ideological and political education with the help of network technology, and improve teaching quality. By strengthening the construction of the teacher team system, cultivating the student-centered subjective consciousness, and actively innovating, we can enhance the voice of counselors, guide the ideology of college students, enhance the effectiveness of the network ideological and political education in colleges and universities, and cultivate qualified socialist builders and reliable successors.

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# The Role of New Media Technology in the Innovation of Ideological and Political Education in Colleges and Universities

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**Abstract:** The 21st century is an era of rapid development of new media and new technology. How to make good use of new media and new technology to innovate the ideological and political work in colleges and universities, so as to enhance the sense of the times and enhance the appeal to college students is a huge problem faced by the ideological and political work in colleges and universities. At the same time, it has a great influence on the establishment of ideological and political education for all staff, all directions and the whole process, and realizes the comprehensive integration of reality and virtual education environment. Relying on new media technology, ideological and political education in colleges and universities should start from the macro level, establish an educational mechanism in which the other party participates, and gradually strengthen the professional information literacy of ideological and political teachers and the sense of participation of students in ideological and political learning.

**Keywords:** New Media Technology; Ideological and Political Education

## 1. INTRODUCTION

Relying on the development of new media and new technology, "flipped classroom" teaching has become popular in colleges and universities. Students can use new media and new technology platforms to learn subject knowledge at their own pace, and the decision of learning is made by students rather than teachers. And the latest social events will be published on the public information page, so that this information can be shared with students to the maximum extent. Students and teachers express their own views and opinions through interaction and communication on social platforms, while teachers provide correct ideological guidance for students' different views and opinions in the shortest time.

It can also combine online education with offline education. While the advantages of new media technology are effectively brought into play, it can also make the teaching channels of ideological and political education in colleges and universities more diversified, facilitate the communication between ideological and political teachers and students, and promote the quality of ideological and political education.

The university WeChat official account covers current political news, school teaching and research trends, life services, teachers and students' stories, hot topic discussions, etc. It is rich and colorful. Taking campus life as the starting point, relying on fresh campus stories, original high-quality content and efficient life services, it has become an important carrier for universities to spread campus information and promote socialist core values. In the past traditional education, the ideological and political workers in colleges and universities sometimes separated from the Internet and other new media platforms. They were limited to solving problems in the new media and new technology era with traditional thinking, and did not conform to the trend of the new media and new technology era, which often led to poor teaching results.

Professional course scores of the two groups of students is shown in Figure 1.

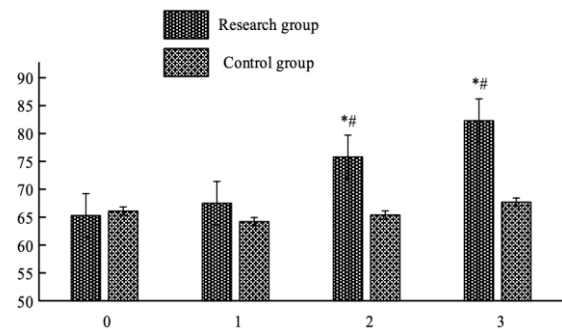


Figure. 1 Professional course scores of the two groups of students

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Application of New Media Technology in Ideological and Political Education

In the new media and new technology era, the content of information is more diversified and complex, and the resources are open and shared, which makes the ideological and political workers in colleges and universities change their thinking, and at the same time, promote the optimization of the content and structure of ideological and political work in colleges and universities, corresponding to the new media and new technology era.

At present, the public opinion environment on the Internet in China is not optimistic, negative discourse information prevails, and the discourse power game of mainstream media, we media and other forces is increasing, which seriously affects the stability of the ideological and political ideology on the Internet.

(1) Students are the main group in the network age. The virtual environment gives them ample space to show their individuality and self-development, and then gradually changes the discourse system of traditional college students.

(2) Diversification, democratization and personalization have become the discourse characteristics of college students in the network age.

(3) They pay more attention to their own experience and feelings. Ideological and political education has been developing for many years in higher education, It is an indispensable part of higher education, and has also summarized some teaching methods. Classroom teaching is the main form of education, with special lectures and social practice as the auxiliary.

## 2.2 Thoughts on Strengthening the Ideological and Political Education Function of WeChat official account in Colleges and Universities

However, with the rapid development of information technology, new media technology is very popular among college students, which makes traditional ideological and political education methods difficult to meet the actual development requirements of college students. Ideological and political teachers should innovate existing teaching methods based on new media technology. Unlike microblog, which gradually expands and intersects around a certain node, WeChat official account uses the one to many push communication mode of information between operators and subscribers. Only through the spontaneous sharing of information by subscribers can a wider range of diffusion be achieved. Under the background of the new media and new technology era, the traditional carrier of ideological and political work in colleges and universities has been greatly impacted. Due to the diversification of carriers and platforms brought about by new media and new technologies, the single form of teacher classroom education has changed, and the influence of teacher education has decreased.

Starting from optimizing students' discourse experience, adhering to the open concept, we will discover and guide college students' new ideas and propositions, constantly absorb opinions, update content, and improve the service cohesion, education compatibility and application influence of ideological and political education under the new background of new media technology application. The learning resources on the education platform are rich and new, so that college students can learn ideological and political knowledge anytime and anywhere after class. Under the new media technology environment, college students' learning consciousness will gradually change, and they will no longer treat ideological and political education with dull ideas, which is conducive to gradually improving the initiative of college students to participate in ideological and political education. The realization of the value of ideological and political education of WeChat official account in colleges and universities is affected by many factors, such as topic selection planning, title design, push content, language style, etc. The operation team needs to have multidisciplinary knowledge background, such as communication, design, ideological and political education.

## 3. CONCLUSION

Based on the innovative design concept of participation, understanding, inspiration, learning and touch, we have strengthened the research, development and application of new media technology, cooperated with the application skills and rules of media in new media technology, and put forward innovative education models. Strengthen the training of teachers' new media literacy and strengthen the humanistic care of ideological and political education in colleges and universities. In the near future, new media technology can be further developed, which will also have more beneficial effects on ideological and political education in colleges and universities, and promote the quality of ideological and political education.

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# Mechanical and Electrical Automation and Safety Technology: A Comprehensive Analysis

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**Abstract:** With the rapid development of China's modern science and technology, China's electronic automation technology has been better applied. It is of great value to efficiently promote the improvement of China's mechanical and electrical automation technology. The author discusses the implementation of mechanical and electrical automation technology and pre control mode, and simply explores and discusses the development of electrical automation and its application in mechanical facilities. This paper studies mechanical and electrical automation technology and control, and briefly explores and expounds the development status of electrical automation and its application in mechanical equipment. It is committed to continuously improving the reliability of relevant facilities and promoting the improvement of mechanical and electrical automation level in China.

**Keywords:** Mechanical and Electrical Automation; Safety Technology

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## 1. INTRODUCTION

With the acceleration of China's construction and the substantial improvement of production efficiency, stability and safety have been guaranteed. The mechanical model also began to change with the trend, which played a huge role in industrial development and national prosperity. Mechanical facilities are transitioning to intelligence, specialization and economization, and automation technology is also gradually transitioning to diversification and integration.

It also drives the use of new technologies. The contemporary network industry is closely connected with automation technology. In the production process of coal mine, the driving of mining equipment is mainly electric traction, and the motor of mining equipment is a horizontal device. With the development and progress of modern science and technology, the production scale of motor is growing, and its capacity and power are also increasing.

(1) In such an advanced environment of science and technology, the AC traction mode of motor operation is more and more used in mining equipment, which effectively improves the operating efficiency of equipment, reduces the time and energy required by professionals to maintain equipment, and effectively improves the production efficiency of enterprises.

(2) Reduce the cost of the whole machine and promote the development of modern mechanical design in China. Develop advanced and reliable hardware facilities, and use various creative methods and means to reduce the contradiction between enterprise objectives and production efficiency. The localization of excellent software is of great significance to optimize the working environment and reduce operating costs.

(3) The application of this technology in the iron and steel production process can well promote the needs of relevant detection work in industrial production, to ensure the smooth development of product production, and also can improve the

high quality of enterprise production. According to the current situation that the rapid development of social economy requires high product quality, it is very important to adopt scientific and advanced methods to implement complete and systematic management.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Development Level of Mechanical and Electrical Automation Technology

Generally, in the process of automobile production, it is required to use the on-site electrical control system to effectively apply to the entire painting workshop. The main work includes: first, effective control of electrophoresis control. Operators should strengthen the treatment of paint layer and surface in the production process. Generally, the process flow includes inspection → flushing → pre degreasing → degreasing → water washing → re washing → surface conditioning → phosphating → water washing → water washing again → water washing for the third time. This is the goal and basic requirement for enterprises to conduct mining and production; Secondly, before construction, designers need to plan and install the mechanical equipment according to the actual needs of the enterprise, and then arrange professional personnel to control the equipment. The work content of this part of personnel is to regulate the equipment according to the actual needs of the enterprise, so as to ensure the efficiency and safety of production operations.

In order to ensure production efficiency and safety, each link should carefully analyze the established model in a timely manner. At the same time of motor driving, artificial intelligence technology is used. Let the motor be presented in the form of horizontal layout and increase the installed capacity, so as to provide guarantee for mechanical and electrical automation technology and control work. In the production process of electronic products, relevant hardware equipment and instruments need to be used to complete the production process. Of course, for equipment with different

hardware, in order to ensure the stability and accuracy of production and meet the needs of production, the production content of various industries is very complex, and casting production is also required.

## 2.2 Safety Analysis of Mechanical and Electrical Automation Technology and Control Application

In terms of Profibus, Interbus and other field buses and distributed management and control, the field bus completes the task through some automation systems and intelligent devices. At this stage, distributed management and control is to associate I/O facilities, field modules and PLC bus, so as to take output and input devices as execution equipment and detection equipment. After the debugging personnel have completed the troubleshooting work according to the above principles, they should check the parts of electrical equipment that often have failures. Because there are many failures in these parts, and there are many ways to solve these problems, it will not take too much time for the debugging personnel, but also increase their experience to ensure the debugging quality of electrical equipment.

At present, electrical automation is developing towards diversification, and margin design and maintainability design have become particularly important. Many enterprises use computers to monitor the working conditions, so as to continuously improve the working efficiency. In mechanical and electrical automation, it meets the basic requirements of high degree of automation. In the electromechanical integration technology with high reliability and high power, it should be selected according to the specific situation of the region. The booster station operation of the power plant uses the past unimportant operation. The problem can be solved by pressing keys, which will restrict the electrical automation control system greatly, and finally lead to the failure to give full play to the best effect of its automation.

## 3. CONCLUSION

To sum up, with the increasingly fierce competition in the automobile market in recent years, strengthening the effective application of electrical automation technology can greatly enhance its market competitiveness, continuously meet the requirements and standards of social users, and better play the application advantages of electrical automation technology in the automobile manufacturing field. Most coal enterprises are in a situation of supply exceeding demand. To improve production efficiency, Most enterprises have introduced foreign advanced automatic debugging technology to improve production efficiency and production quantity. Although the science and technology of our country are making continuous progress, the development of automatic regulation technology of electrical equipment is relatively weak. Therefore, we must strengthen the research in this field.

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# Study on the Availability of Digital Interactive Mode of Scenic Spots Guidance System

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**Abstract:** Some characteristics and advantages of human-computer interaction interface design based on scenic spot guidance, in order to better apply human-computer interaction interface in product usability, the user model, user interface model, multi-channel interaction information integration, pen-based interaction technology, human-computer interaction software architecture and other contents in human-computer interaction are analyzed. It solves the problem of product homogeneity caused by traditional cognitive interaction and makes the design of interactive products return to focusing on users and interaction itself. The feasibility and rationality of the interactive product design method based on usability theory are verified through design practice, and this method has certain guiding significance.

**Keywords:** Digital Interactive Mode; Scenic Spots; Guidance System

## 1. INTRODUCTION

Today, with the rapid progress of computer technology, human-computer interface technology is also constantly improved and developed: early interactive devices such as perforated paper tape, panel switch and display light, to modern interactive devices with multiple perception capabilities such as line of sight tracking, voice recognition and feedback. After the development of the user interface in three stages of batch processing, command line and graphical interface, people have conducted more in-depth and focused research and development on the Post WIMP interface.

At the same time, reduce the use of energy and resources; On the other hand, the current interactive product design is mainly based on cognitive psychology, with serious homogenization, which not only makes the product lose the tangibility, specificity and durability of the original "object", but also increases the pressure on users to learn and remember. This contradiction leads to a very meaningful research topic: how to balance the relationship between interactive products and the digital world, so as to retain the material culture of the product itself. The human-computer interface is the medium and dialogue interface for the transmission and exchange of information between people and computers, an important component of computer systems, and the medium for interaction and information exchange between systems and users, it transforms the internal form of machine information into the form acceptable to human beings.

Interactive products not only have all the features of "classic products", but also have new features: they are not only small in size, but also highly interactive. They have more care and thinking about the interaction with users and the use environment. Different from traditional products, interactive products belonging to the category of large products have three unique elements: shape, function and interaction. First of all, the design requirements should be consistent with the popular trend, reflecting the consistency of design, and adopting the design form popular with the public. Secondly, the requirements of the standards must be consistent with the

existing international or national standards to meet the minimum standards of mandatory requirements.

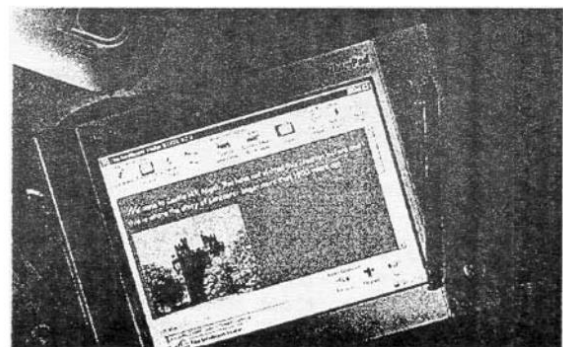


Figure. 1 The GUIDE end-system

## 2. THE PROPOSED METHODOLOGY

### 2.1 Concept of Human-Computer Interaction and Human-Computer Interface Based on Scenic Spots

Usability is the "intuitive perception", also known as the "ecological method" theory, proposed by Gibson, a perception theorist and psychologist, from the perspective of human perception experience of objects in the environment. According to this theory, people's observation of things is not only the number and size, but also the combination of observation of many complex levels.

This perceptible possibility is "usability". According to the dialog interaction frequency of the management object, the hierarchical order of the human-computer interface and the display position of the menu in the dialog window are designed to improve the monitoring and access dialog frequency. Regulate according to the user's usage habits and logical thinking, so as to meet the customer's demand for product expectations to the greatest extent.



(1) Generally speaking, people have three abilities: cognitive ability, emotional ability and perceptual motor skills. Correspondingly, the interaction between people and products can be divided into three levels: cognitive, emotional and perceptual interaction.

(2) The interaction type advocated by usability theory is perceptual interaction, and the interaction behavior at this level will jump out of the cognitive limitations. According to the control requirements in the management system, the priority of primary and secondary menus will be designed hierarchically to help managers grasp the priorities of the control system, achieve a good order in control decisions, and prioritize important scheduling and management.

(3) Highlight the important main menu and hide the secondary menu, but also make it easy to find. Thus, the perceptual interaction process between users and interactive products can be described as follows: first, users generate demands in a certain environment, products present their own characteristics, users identify products and their overall functions, and generate interactive interests; Later, users get close to the product, perceive the control interface of the product and try to operate. With the feedback behavior of the product on the operation, the development and trend of human-computer interaction interface must change in form and shape, thus bringing revolutionary changes to life, work and learning.

## 2.2 Usability Testing of Interactive Products

In general, the development trend of human-computer interface in the future is six modernizations, that is, platform embeddedness, brand nationalization, equipment intelligence, interface fashion, communication networking, and energy conservation and environmental protection. Based on the analysis of the perceptual interaction process between users and interactive products, combined with the basic requirements of the three elements of the shape, function, and interaction of interactive products, the design of interactive products is divided into seven modules. The introduction of the function of interactive interface can greatly ensure that users can use the computer system simply, conveniently, quickly and reliably in the application process, and ensure the security of relevant computer programs and data.

In the product environment user system of interactive products, users are the core of the entire design, so it is necessary to first study the user population in depth. The user research here is no longer limited to the acquisition of external explicit information such as ergonomics related data and living habits, but more to restore users to their environment. Many product design companies attach great importance to the user experience, usage habits, preference analysis and data collection in the design process, but the human-computer interaction interface focuses on the significance of selectivity and functionality of product functions, It is not just the appearance design considered by the designer.

## 3. CONCLUSION

The birth, development and popularization of human-computer interaction interface is an important development and leap in the history of product design. It will use a large number of media forms such as voice, image, video [10], or other interaction methods to improve the usability and characteristics of products. Here, usability theory is introduced and used to guide the construction of interactive

product design methods, fully respecting people's perceptual motor skills and instincts, making the interaction between products and users more natural, and the shape of products more "meaningful".

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# Research on the Development of Xinjiang Ice and Snow Sports Tourism under the Background of the "the Belt and Road" Initiative

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**Abstract:** In recent years, people began to pursue spiritual life and enjoyment on the basis of improving the quality of life. As a traditional behavior in China, tourism plays an important role in improving people's spiritual enjoyment. According to the tourism demand of the people in the current era, a variety of tourism forms have emerged, among which sports tourism is more popular. This paper adopts the methods of literature review and field investigation to study, find out the problems that affect the development of ice and snow sports tourism in Xinjiang, and put forward some practical countermeasures and suggestions, so as to make ice and snow sports tourism develop better in Xinjiang.

**Keywords:** Xinjiang ; Ice and Snow Sports; "the Belt and Road"

## 1. INTRODUCTION

China's traditional tourism activities are mostly to enjoy the beautiful scenery or material cultural heritage. With the development of the times, the traditional tourism model has been unable to meet the living needs of the people at this stage. For this reason, tourism products are increasingly diversified, including jungle exploration, urban sightseeing and physical exercise, and many other forms of tourism have been widely welcomed by the people. In the development of sports tourism in China, it does not exist in a single form. The development of sports tourism needs the support of many other industries.

As the main area of the "the Belt and Road", Xinjiang's tourism has developed very rapidly in recent years. It has always been closely linked to the growing demand for a better life of the people. It has constantly developed tourism, making full use of its geographical location, national culture, and rich tourism resources to create a Xinjiang featured ice and snow sports tourism industry suitable for all seasons, making Xinjiang a winter tourism destination in western China. Through CNKI, Vip and other network digital resources and the National Library, the Library of Beijing Sport University, Beijing Municipal Library and Heze Library, we collected literature, research reports and books related to this topic, and carefully read them to provide a theoretical basis for the research of this topic.

The main method is to take "Winter Olympics", "the Belt and Road", "Ice and snow tourism industry", "Integrated development" and relevant Chinese and English keywords as the subject words and conduct literature retrieval through CNKI. The folk culture characteristics of Xinjiang have laid a good foundation for Xinjiang homestay sports tourism, which is conducive to the formation of personalized sports tourism boutique projects, and better highlight the characteristics of Xinjiang sports tourism products, Finally, it will achieve the goal of enhancing the popularity of Xinjiang's tourism products. Traditional folk culture tourism in Xinjiang, such as horse racing and Nadam Convention, has the conditions to become a sports tourism brand in Xinjiang. The demand of

the domestic sports tourism market is generally reflected in the specific scale and sensitivity of the market to the domestic sports tourism demand.

The belt and road are shown in the figure (from Internet).



Figure. 1 The Belt and Road

## 2. THE PROPOSED METHODOLOGY

### 2.1 Summary of Xinjiang's development of ice and snow sports tourism in the context of the "the Belt and Road" initiative

As far as the development status of domestic sports tourism industry is concerned, demand scale and characteristics will have a corresponding impact on the competitiveness of domestic sports tourism.

Among them, demand refers to consumers' purchasing power of sports tourism commodities. Since the implementation of the "the Belt and Road" initiative, China has made remarkable achievements and brought many opportunities to Xinjiang. First, the "the Belt and Road" has brought opportunities for Xinjiang to transform into an international operation direction. Second, it has brought opportunities for Xinjiang's ice and snow sports tourism to connect the world economic circle and integrate into the global market. Finally, the "the Belt and

Road" has brought innovation, development vitality, centripetal attraction Opportunities for comprehensive strengthening of radiant heat.

The "the Belt and Road" is the top-level design proposed by China. As an important part of the national strategic system initiated and promoted by China at the top level, the top-level design and concept of the strategy meet the needs of the common interests of countries along the line, opening a new window of opportunity for complementary advantages and open development of countries along the line, and an important new platform for accelerating international cooperation and development. Xinjiang will fully implement the strategy of "rejuvenating Xinjiang through tourism". Focusing on building a strong tourism economic zone and an important tourism destination in the world, we will improve tourism development planning and tourism planning for key regions, prepare special plans for key tourism projects and routes, and strive to increase the number of domestic and foreign tourists received and tourism revenue by more than 40% throughout the year.

## 2.2 Interpretation of The Policy Synergy to Promote the Deep Integration and Development of China's Ice and Snow Tourism Industry

In addition, we should strengthen the construction of basic domestic sports tourism infrastructure. From the perspective of the overall layout of the country, the national transportation department will carry out targeted planning for the transportation of each city, deeply explore the transportation hubs that can directly reach the sports and cultural centers of each region, create distinctive tourism products and projects for tourists, and ultimately promote the comprehensive development of domestic sports tourism. At present, the facilities of ski resorts in Xinjiang are not perfect, and some small ski resorts have poor environment, and there is no hotel for tourists to rest. There are few kinds of food in the surrounding small restaurants, and the prices are still high. In addition, Xinjiang has less funds to invest in ice and snow sports tourism, resulting in some ski resort equipment that is old and has not been inspected and replaced, which has a great potential safety hazard.

The essence of the "the Belt and Road" is a grand, profound and interrelated revolution in reshaping the world's economic geography, Enhance the cultural exchange of ice and snow tourism and mutual learning of civilizations among the people of countries along the "the Belt and Road". The development of traditional sports in Xinjiang should not only maintain its own characteristics, but also conform to the development trend of modern competitive sports. However, how to combine the two is a problem that Xinjiang sports tourism should solve.

## 3. CONCLUSION

Sports tourism is an emerging industry in China. Affected by the relatively short rise time, domestic sports tourism is still subject to certain restrictions in its development. Under the background of "the Belt and Road", the development of domestic sports tourism industry has gained new opportunities, providing better institutional policies and systems for its development. It can also promote exchanges between Xinjiang and countries and regions along the "the Belt and Road". Under this situation, Xinjiang must, on the basis of drawing on the excellent experience at home and abroad,

comprehensively analyze the advantages and disadvantages of ice and snow sports tourism in Xinjiang, and create a featured ice and snow tourism system that integrates leisure and fitness, entertainment and exploration, and famous and popular customs.

## 4. ACKNOWLEDGEMENT

Research on Altay Ski Origin Culture Leading Xinjiang Ice and Snow Brand Construction under the Background of "One Belt and One Road" YDYL2022YB041.

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# Perspective Data Analysis and Mining Algorithm for Interior Art Design from the Perspective of Virtual Metadata-Assisted 3D Modeling

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**Abstract:** This paper studies the virtual reality method of interior design based on 3D vision. Active and omnidirectional stereo vision sensors are used to collect 3D point cloud data of indoor scenes. Based on the point cloud data, the geometric relationship and placement of objects in the indoor scene are distributed. Independent synthesis of 3D scenes, training on the distribution of object placement. On the basis of image and color processing algorithm design, based on virtual reality and visual simulation technology, the development and design of a distributed 3D interior design system is carried out using 3dsMAX for distribution 3D modeling of 3D interior design, realize interior hierarchical structure design on Multigen Creator modeling software.

**Keywords:** Perspective Data Analysis, Mining Algorithm, Interior Art Design, Virtual Metadata-Assisted

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## 1. INTRODUCTION

In higher vocational education, practical teaching occupies an important position, which can improve students' practical ability and play a vital role in students' employment. However, due to factors such as insufficient investment and difficult management and maintenance of practice places [1], it is difficult to establish practice teaching places, resulting in insufficient practical ability of some students. Strengthen practical teaching and improve students' practical ability [2]. Due to the rapid development of computer simulation and virtual reality and other technologies, 3D modeling of indoor scenes has important application [3] value in the fields of fire rescue, escape room and excavation. Optimize the layout of the indoor environment to improve the space use value of the indoor environment [4].

Research on distributed 3D interior design methods has important value in improving decoration style, beautifying home space and optimizing indoor environment design. Therefore [5], the use of effective methods for virtual realization of indoor 3D scenes has become a hot spot for relevant personnel to analyze [6]. The traditional 3D virtual reality method of indoor scene based on radiometric algorithm has disadvantages such as high time-consuming and poor modeling effect. If the indoor environment is relatively simple and the space is small, the plane image drawn by the common design platform can show the location of various landscapes. However [7], for environments with large indoor space and complex landscapes, it is difficult to accurately display the location of the landscape by using flat images [8], and it is difficult to draw corresponding three-dimensional images. Various sensors and microprocessors in the Internet age continuously accumulate data, and widely interconnected, the amount of data grows exponentially [9].

Usage data is not limited to the purpose of collection, but is more needed by users. The Internet has become a digital network platform [10], which has had a huge and far-reaching impact on the architectural and environmental design industry.

How to use data to make data resources become the energy force to promote the development of design [11], to discover the knowledge that is beneficial to design hidden in the data, and to improve the knowledge productivity of the design industry, is a topic that the design [12] industry needs to think about in the data age. Location Based Service (LBS), also known as location service, relies on mobile communication network (such as GSM network, CDMA network, etc.) [13] or other positioning methods (such as WIFI, GPS, etc.) to obtain the actual location information [14] of mobile terminal users, providing users with provide information services closely related to its own location, including positioning, navigation, query, identification, etc. [15] Virtual reality technology is a pursuit of changing traditional computer operations to computers to create an artificial environment for people [16]. It studies how to use a more "natural" way to communicate with the system and the environment through people's own perception system, language system, and body action system [17].

This will fundamentally change the current situation of people passively adapting to computers, but to become computers actively adapting to a new system [18]. Interior design is closely related to the actual site, especially construction courses. While carrying out classroom teaching, teachers also It is necessary to carry out visits [19], inspections and practical teaching in combination with the training site or the decoration construction site [20]. However, this kind of teaching method combining theory with practice is more difficult, which is embodied in the following two aspects. In order to model the indoor scene, this paper uses [21] the Active Stereo Omnidirectional Vision Sensor (ASODVS) to scan the indoor scene and obtain the 3D ordered point cloud data of the indoor scene [22]. The distributed 3D visual reconstruction method is used to carry out the 3D design of the indoor environment, and the system design is carried out in the virtual reality and visual simulation environment, and the 3D simulation software such as MAYA, 3ds MAX, SoftImage, LightWave3D is used to realize the optimization

of the distributed 3D interior design system design [23], and through experimental analysis, draw conclusions about the effectiveness. When the traditional interior design platform is improved and processed [24], combined with the 3D virtual vision technology, the panoramic information can be used to record and analyze the results, and the corresponding image workflow can be generated to establish a fully functional interior design platform. Data is the measurement and record of the objective world, it represents the past and the future. As a tool for automatically processing data, data mining can help to extract patterns representing knowledge. It is a process of extracting potentially useful knowledge patterns hidden in a large amount of incomplete, noisy, fuzzy, and random data.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Virtual Metadata Aided 3D Modeling

For the teaching of interior design, some colleges and universities prefer design skills and theoretical course teaching due to limited teaching conditions, and practical teaching is relatively weak, resulting in a disconnect between theory and practice. The cases in course teaching are always virtual cases, and the design drawings drawn by students are very difficult to implement. Even if you overcome the above difficulties, you can enter the practice place for practical teaching. The ASODVS acquisition module is used to obtain indoor panoramic scanning slice images. The value of the vertical distance  $h(Z)$  from the viewpoint  $O_m$  to the center  $S$  of the surface laser generator is taken as the file name of the panoramic scan slice image.

The Snake algorithm is used to decompose the edge contour features of the distributed 3D interior design visual images, and the adaptive information fusion enhancement processing is performed according to the feature decomposition results. The product modeling in the interior design platform is to select different models according to the complexity of the model. mode. For those models with simple appearance, for example, tables and chairs in the platform can be combined with shape nodes to complete the design. The application of 3D virtual vision technology can provide simple modeling nodes such as cubes and spheres. The extension interior design is oriented to design problems. According to the extension architectural design theory, starting from the primitive model that can be recognized by the computer, with the expansion and Transformation is the characteristic, under the guidance of clear transformation process and direction, break through the thinking obscure box, and use logical analysis and rational reasoning to generate the operation method of design. The extension data mining technology is applied to the research of interior design, and it is a method to solve interior design problems with data.

Developed and published by Adobe Systems, the world's most famous and widely used image processing software that integrates image production, editing and modification, creative drawing and other functions. Its diversified editing and drawing tools can perform various image editing tasks such as plane processing, image format and color mode conversion, simple geometric figure drawing, image size change and image resolution adjustment. According to the descending distribution of  $h(Z)$  values, the indoor panoramic scanning slice images are collected from the indoor panoramic image storage folder; 2) Real-time preprocessing is performed on the acquired indoor panoramic scanning slice images to improve the range of laser projection points; 3 ) based on different azimuth angles to retrieve the overall indoor

panoramic scanning slice images successively, and obtain the spatial coordinates of the laser projection by operation.

### 2.2 The Perspective Data Analysis of Interior Art Design

In terms of teaching goals, the classroom teaching goal is to improve students' ability to read the drawings of light steel keel ceilings. The goal of virtual practice teaching is to master the connection between the three-dimensional models of light steel keels in the virtual space of the teaching platform. The goal of on-site practice teaching is to verify the accuracy of light steel keel model construction in virtual practice. On the basis of image and color processing algorithm design, based on virtual reality and visual simulation technology, the development and design of a distributed three-dimensional interior design system is carried out. 3dsMAX performs 3D modeling of distributed 3D interior design, and realizes interior hierarchical structure design on Multigen Creator modeling software.

The information transmission model of the distributed 3D interior design system is constructed by using PCI bus technology. As a special feature of virtual reality technology, interactivity is also an important content of the entire virtual interior design platform. The interaction design of the platform for product selection, position transformation, etc. should be completed by using VRML (Virtual Reality Modeling Language) interaction. Among them, VRML interaction function is mainly realized by interactive sensors, external creation interface EAI and other methods, among which, EAI interaction mode is the main method. The information of interior design contains not only objective existence that can be quantitatively described, but also qualitative concepts and consciousness. Quality and quantity are closely linked and mutually restrictive.

The primitive model is good at formalizing and quantifying the unity of quality and quantity by qualitative and quantitative dialectical methods, which is convenient for database storage and computer application, and is conducive to online application and network communication of design data. The building only needs to present the outline features of the main body and load a low-resolution model, but it also needs to present detailed features such as doors and windows during close-up observation, and a higher-precision model needs to be loaded. Therefore, when the model of the building is established, models with different levels of detail can be established, and different models can be displayed according to the position of the user's viewpoint during virtual roaming. The implementation procedure of the professional design of landscape architecture assisted by virtual reality technology mainly includes the following important steps: first, the determination of the design scheme, then the basic plane drawings of the scene are drawn in the AutoCAD drawing software, and after cleaning the lines.

### 2.3 The Perspective Data Analysis and Mining Algorithm for Interior Art Design

The basic entity object of the distributed 3D interior design system is constructed [9], the multi-thread scheduling method is used to process the local information of the distributed 3D interior design system, and the client/server model is used to construct the virtual reality scene application support layer. The research and development of distributed 3D interior design system is carried out under the 20 development platform. The main function of the 3D visual virtual model is to obtain various landscape information in an interactive

environment, and to study the mapping relationship between different landscapes in an all-round way. It cannot be a universal standard template. Even if you master the design rules, you will encounter problems of one kind or another in application. The contribution of extension design theory to data mining is to expand the binary choice of the established rules into multiple choices under different conditions and goals. The expansion of primitives is the core concept of primitive theory.

This is not groundless. And build the corresponding 3D model through 3DSMax and other software. In addition, determining the specific part of the landscape is also an indispensable part of the interactive function. According to the location of the landscape, it can provide designers with more intuitive and detailed information. The core problem of the 3D model establishment is the collection and processing of the overall planning of the campus, road routes, terrain height, vegetation coverage, and building layout, size, and contour characteristics. The accuracy and detail of the data directly affect the similarity between the model and the real scene, which in turn affects the user experience. Due to the complex terrain of Chongqing University of Posts and Telecommunications, in order to ensure the similarity between the virtual scene and the real scene, most of the design contents proposed by the landscape design at the beginning of the concept are in the ideal state of the designer.

### 3. CONCLUSIONS

The distributed feature information fusion method is used to construct the color image model of distributed 3D interior design, and edge contour detection and feature extraction are performed on the distributed 3D indoor spatial distribution image; Decomposition; extension interior design based on extension data mining has clear advantages; extension data mining analysis method can effectively classify indoor data for different design problems, and the limited number of cases does not affect the classification method. Explanation; the excavated design knowledge will help the computer to realize the thinking extension of the human brain and the application of human-computer interaction interior design.

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# The Application of Multimedia and Human Body Digital Modeling Algorithm Technology in College Physical Guiding

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**Abstract:**Using interviews and digital modeling of the human body to investigate the digital application of professional physical education in colleges and universities in Heilongjiang Province, analyze and explore the current problems in the digital application of physical education in colleges and universities. On this basis, it is proposed to strengthen the construction and improvement of the digital teaching system of college physical education, computer multimedia technology, multimedia courseware library, and address the problems of incomplete or incomplete facilities, inadequate development of operating platforms, and generally low teacher application capabilities. Strategic suggestions for optimizing the teaching of physical education courses in colleges and universities under the multimedia technology environment, and the efficiency increased by 7.28%.

**Keywords:** Multimedia, Human Body, Digital Modeling, College Physical Education

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## 1. INTRODUCTION

The human body used in the clothing industry needs to add different amounts of relaxation to different parts, and some parts of the human body can be simplified, so it is different from the simulated human body model. Therefore, clothing mannequin modeling is a complex problem of geometric modeling, parametric design and motion simulation of complex shapes. To make the product design and manufacturing process can be well connected, to provide the necessary geometric information and other related information for the follow-up, geometric modeling technology is a good solution. [1-5]for physical teaching activities. Information technology is a machine and tool that extends the human body and sensory abilities. It not only helps students master knowledge, technology [6], and skills, but also regulates students' learning motivation and interest.

Due to the increase and expansion of the speed of information dissemination and the scope [7] of dissemination, modern information technology has caused major changes in our way of thinking and intellectual activities. The traditional teacher functions, teaching models [8], teaching methods, teaching methods, and student learning will also undergo fundamental changes, and the conservative teaching model will be completely broken [9]. As a modern educational technology and a new type of teaching media, information technology provides a material foundation for teaching reform, innovation and development [10], and opens up a broad space for teaching experience and diversification of teaching methods. In the face of opportunities and challenges, how do we apply modern information technology to college physical education [11], build an information-based teaching and learning environment and new learning models, achieve new and higher teaching goals, and further deepen the reform of college physical [12] education Has a very important meaning. Digital sports uses information technology as a means, through the integration [13] of traditional sports disciplines and other disciplines, so that a series of sports activities and behaviors such as physical [14] education, sports competitions, sports training, physical research, etc. become standardized, networked, and intelligent [15]. It is an

emerging discipline based on computer technology, network technology, multimedia technology, and people-oriented [16].

Geometric modeling technology is a high-tech technology that establishes the data representation of real-world objects in the computer by means of human-computer interaction, and provides effective methods to operate them. Commonly used geometric modeling methods include wireframe modeling, surface modeling, also known as surface modeling, voxel modeling, and feature-based parametric modeling, but these methods have their own limitations and advantages. The main parameters to be considered when modeling radiation physicists are the density, location and shape of the organs and the shape of the body. In addition, the calculation of the absorbed dose of electromagnetic radiation also relies on the accurate representation of the interface between tissues and organs [21] appearance, and shorten the movement. The generalization process helps students quickly grasp the learning content and improve the teaching effect. Wushu is a precious cultural [22] heritage that has been gradually accumulated and developed by the Chinese nation in the course of long-term life and struggle practice. It is a unique national traditional sports [23] event in China. As a component of the school physical education curriculum in my country, Wushu is taught in college physical education. Occupies an important position [24] in China.

The martial arts course is a physical practice course that integrates fitness, self-defense, and self-cultivation, with martial arts knowledge, martial arts skills and national sports culture as the main content. For a long time, martial arts teaching in colleges and universities have mostly adopted traditional teaching methods. Due to the large content of martial arts classes, especially the interface with a relatively large difference in dielectric constant between the two sides (such as skin and adipose tissue). There are two types of electromagnetic radiation: one is ionizing radiation; the other is non-ionizing radiation.



## 2. THE PROPOSED METHODOLOGY

### 2.1 The Multimedia Technology Review

The human body absorbs electromagnetic radiation of different frequencies in different ways, so researchers will use different methods to simulate the energy absorption of the human body under these two radiation conditions. A model of spatiotemporal changes, features, and motion states [9]. Human body information refers to the knowledge about the properties, characteristics and state representation of matter and energy of various elements of the human body, including material information and energy information, and data is the carrier of information. , Data is unprocessed numbers, words, sounds, images, etc., while information is data that is arranged and processed in a meaningful form. Build a digital human body information model to study the information mechanism of the human body system, and discuss the structure, nature, acquisition and processing of the human body system information from the perspective of information flow.

The teaching application of multimedia technology has realized the rational integration of traditional media and modern media, and has been comprehensively applied to the teaching of physical education courses, which has fundamentally innovated traditional teaching methods. Slideshows, projection, audio, video, VCD, audio, computer-aided instruction (CAI) courseware, etc. make students' learning in a colorful, musical ups and downs, vivid animation, human-computer dialogue, intuitive image, real-time information, appreciation and learning. In the learning environment, the initiative of learning is stimulated from the teaching methods and methods. It is conducive to the cultivation of students' creative ability and the full exploration of their learning potential. It is conducive to the standardization and systematization of technical learning, and is conducive to the overall implementation of the curriculum goals. The mechanism formed by the material flow, energy flow and information flow of the human body system is studied to construct a digital human body information model. Generally speaking, the basic theories that generate the material flow and energy flow of the human body system are difference, non-equilibrium theory, dissipative structure theory, and gravitational field theory,

The main feature of multimedia technology is: resource integration. Resource integration refers to the comprehensive processing of multiple information resources.

### 2.2 The Human Body Digital Modeling Algorithm

By constructing a digital human body information model, the mechanism, generation, acquisition, processing and dissemination of human body system information can be studied. Including: digital human cognitive model, information map model, holographic information model, memory information model, etc. The application of digital sports in practical teaching projects reaches 60%, including not only indoor projects such as aerobics, sports dance, and martial arts, but also Track and field, basketball, volleyball and other events. However, the application rate of digital sports in sports majors in comprehensive universities is less than 25%, mainly in aerobics, sports dance, and martial arts indoor projects. It is rare to apply to other practical teaching projects.

The differences from the above physical humans are: first, the mechanical physical human is based on the modeling of the

mechanical properties of human skeleton and muscle tissue; secondly, the mechanical physical human is composed of a limited number of small units They are connected by nodes, and the interaction force is transmitted through the nodes.

### 2.3 The Application of Multimedia Technology in College Physical Education

The realization of martial arts online teaching and distance education in colleges and universities has changed the concept and scope of "classroom teaching" in traditional martial arts education, greatly improved the scope and timeliness of information dissemination of martial arts education, and enabled students to truly break the obvious campus boundaries. Receive guidance and help from different schools, different regions, and different teachers, and you can get more colorful martial arts teaching information and resources besides books. We can combine modern multimedia technology to establish a special martial arts network teaching center, martial arts distance education special zone, martial arts network exchange forum and other service platforms in the college network teaching system, so that all students can enjoy online synchronous learning and martial arts information of the same quality .

The curriculum objectives of the school physical education subject itself are not very standard, and there is no complete national unified standardization and evaluation system. The existing evaluation indicators can be quantified and the operability is poor. Disciplinary construction management departments, policy and regulation institutions, and the guiding mechanism and atmosphere of implementing colleges and universities should pay attention to the standardization of curriculum objectives.

## 3. CONCLUSIONS

Modern multimedia technology has actively and effectively improved the teaching environment of college physical education, optimized the teaching structure of college physical education, and improved the quality and effect of college physical education with its comprehensive application effects of science, information, and modernization. We should not only attach importance to the traditional teaching methods and methods of physical education with a positive and objective attitude, but also establish the concept of modern multimedia technology teaching with a scientific development perspective. Through the proficient and reasonable use of modern multimedia technology, we must integrate it with traditional physical education. The methods are perfectly and organically combined to make up for each other and make good use of each other

## 4. ACKNOWLEDGEMENT

Theoretical and practical research on offering physical coordination courses in preschool education in northern Xinjiang (2022TZYB04) 2022 annual open project of the Key Laboratory of College Student Physical Monitoring Center, Yili Normal University.

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# Calculation of Tourism Development Income Index Based on Finite Element Ordinary Differential Mathematical Equation

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**Abstract:** Using finite element ordinary differential mathematical equations to analyze the relationship between the number of inbound tourists in my country's tourism industry, the number of domestic tourists, and the total tourism income, time and per capita national income. Significant positive correlation. When the per capita national income increases by 1 U.S. dollar, the number of inbound tourists will increase by 102.18 million, the number of domestic tourists will increase by 715.95 million, and the total tourism revenue will increase by 693.8 million yuan. It is predicted that by 2022, the number of inbound tourists will be close to 1 billion. The number of domestic tourists has exceeded 1.2 billion, and the total tourism revenue will exceed 2 trillion yuan, with an average annual growth rate of 9.10%, 6.51% and 11.16% respectively. This paper uses the novel data mining models to construct the efficient analytic model for the prediction analysis. The experimental results have proven efficiency.

**Keywords:** Tourism Development, Tourism Income, Finite Element, Differential Mathematical Equation

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## 1. INTRODUCTION

The tourism industry is known internationally as a sunrise industry that never declines. After 20 years of development, my country's tourism industry has become increasingly distinctive and its scale continues to grow. It has become one of the fastest growing industries in the national economy, and it is also an industry with obvious international competitive advantages. For the healthy development of tourism, many domestic scholars have made quantitative and qualitative analysis and forecasts on the development trend of my country's tourism industry from different angles and using different methods [1-7].

Wang Haihong used the grey forecast model to analyze the overall characteristics of the time series of China's inbound tourism since the reform and opening up, and concluded that China's inbound tourism has the characteristics of high volatility. Scholars such as Wen Liling, Zhang Enxiang, Zhang Lisheng and Xu Chuntang also analyzed and predicted the future development of my country's tourism industry from other different aspects. Wang Caihong used the data of China's inbound tourist flow and tourism income in the past 20 years to analyze the fluctuation cycle of China's inbound tourism industry and made predictions on the prospects of China's inbound tourism. Kuang Lin believes that cyclical fluctuations are a normal state in any economy, and are reflected in the inherent movement of economic expansion and contraction, and the constant alternating peaks and troughs. 5 cycles. Ye Guixiang studied the law of the number of inbound tourists, and believed that its approach conforms to the Logistic model, and pointed out that China's inbound tourism will enter the golden season of development in the future [8-16].

However, most of the above-mentioned studies only analyze from a certain aspect of tourism development, and rarely contact the national economic situation. There is no report about the promotion effect of the increase in per capita national income on the tourism industry. The function of

tourism industry has a direct linear relationship with its scale. The industry develops well, but it is too small to form a scale, and it is difficult for the industry to become a growth point. The development of the tourism industry shows the trend of clusters and shows strong competitiveness. As an effective production organization method that prevails all over the world, the realization of industrial clusters must be based on a reasonable industrial structure and industrial layout. Without a reasonable industrial structure and industrial layout, industrial clusters cannot be established, let alone the sustainable development of the tourism industry. Foreign research on tourist sites is sufficient at the end of the year. The earliest literature on tourism from an academic perspective is enough to benefit one person." Such as the mourning of Bodio's "In the Greater Benefits of Foreign Prisoners Moving and Consumption of Money" "An article. Then there appeared a group of scholars who grew up in tourism research in Germany, Switzerland, and Austria. After World War II, the center of tourism research began to shift from Europe to North America, and showed obvious multidisciplinary penetration in research methods. In the century, the research on tourism from the perspective of tourism development evolution started from the process of industrialization, focusing on analyzing and describing the evolution process and level of tourism development [17-21].

Canadian scholar Stephen Smith also made a preliminary definition of the tourism industry in his book *Tourism Analysis Handbook*. The tourism industry is not just a collection of many unrelated companies, but a very policy-oriented industry. Is a collection of related industries. The income effect of tourism is the most important way for tourism to influence economic growth. Modern economic theory believes that tourism income through primary distribution and redistribution forms a multiplier effect to promote the growth of the national economy. Liu Limei et al. (measured the direct and indirect effects of tourism income in Inner Mongolia, and obtained the indirect effect of tourism income through regression: the increase in tourism income per yuan is approximately RMB yuan. Chen Fei, Zhang

Qingzheng (in terms of- The data related to the development of tourism in Jiangxi Province in 2009 is a sample, and the direct and indirect effects of tourism income on the economy are measured, and the indirect influence of tourism income is more important than the direct influence. Zhou Li (through linear regression, gray correlation and gray prediction Models and other methods analyze the income effect of Hunan's tourism economy, and found that the direct income effect and indirect income effect of Hunan's tourism economy are both very significant, and its contribution to the national economy continues to rise [22-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Tourism Development Income

Tourism is a play experience or experience, a social phenomenon, not a product, nor a social production activity. The total expenditure of all tourists is not the income of similar enterprises in tourism. Starting from this concept, tourism It is not an industry in the traditional sense. However, from the perspective of the development of the industry, tourism has the characteristics of a modern industry. The reason why the tourism industry can form an industry is because it requires many business systems such as catering, accommodation, entertainment, commerce, information, and transportation. The tourism industry cannot be achieved without any of them. Can form a tourism industry. There are many definitions of the tourism industry, but there is a unified and convenient tourism activity that meets the needs of a tourist by providing their own products and services. Although their main businesses or products are different, this difference lies in the overall tourism products or commodities. Under the premise of unification, it further proves that the tourism product is a comprehensive product.

Therefore, starting from the purpose of the industry, the connotation of the tourism industry is based on the value orientation of big tourism. Under the guidance of the tourism authority, relying on the understanding, support and participation of the society, with the six elements of tourism productivity as the core, with travel agencies as the industry leader, there is one A series of industry sectors composed of social, economic, cultural and environmental integrated industries. Certain service sectors, such as landscaping, post and telecommunications, water supply, etc., are only tourism sectors when they are related to tourism, and the relationship between various sectors and the tourism industry changes with the changes in the status of the tourism industry in the national economy and changes in the industrial structure. Change. The effect of earning foreign exchange is one of the very important economic effects of the tourism industry. The foreign exchange earning effect of tourism refers to the foreign exchange income that the destination country or region directly obtains from foreign tourists in local tourism consumption. It is an important indicator to measure the macroeconomic effects of a country's tourism industry

### 2.2 The Finite Element Ordinary Differential Equation

The mathematical models of many physical phenomena in engineering and science can be expressed by differential equations (Differential Equations). Based on the energy principle, the differential equation can be transformed into a functional extreme value problem or other weak forms and then solved. Except for a few equations with simple structures or special forms, the true solutions of most equations cannot be expressed in analytical formulas, so numerical methods are usually used. With the rapid development of computer

technology, the role of numerical methods has gradually become prominent, and it has become the three basic methods of modern scientific research, which has become a tripartite with theoretical analysis and scientific experiments.

The finite element method (Finite Element Method, FEM for short) is an important numerical method for solving differential equations. This method first uses a finite number of elements to divide the solution area, uses a piecewise interpolation shape function to limit the function to be solved in a finite dimensional subspace, and then uses the principle of variation to transform it into a finite degree of freedom algebraic equation (Algebraic Equations) Problem, and then solve this algebraic equation system, and finally use the piecewise interpolation shape function to express the solution to the original problem. With the popularization and development of computer technology, finite element has been widely used to solve large-scale scientific and engineering problems, and great achievements have been made. Solving line method ODEs traditional methods generally use ordinary differential equations solvers, such as COLSYS and so on. In order to establish the connection between FEMOL and FEM, and to facilitate the calculation of EEP superconvergence,

In this paper, one-dimensional FEM is used to further discretize the knot line displacement vector  $d$ , and the  $n$ -th trial function on the one-dimensional FEM unit that introduces ODEs is as follows. The EEP method has been successful in the field of post-processing calculations for the finite element method of one-dimensional problems and the finite element line method of two-dimensional problems, and has given a point-by-point superconvergent solution. These two fields have obvious similarities: the displacement solution of one-dimensional FEM has superconvergence on two edge nodes, while the solution of two-dimensional FEMOL has superconvergence on two edge nodes. The reason for this similarity is that both one-dimensional FEM and two-dimensional FEMOL use superconvergent solutions on a pair of boundaries of the element to repair the solution inside the element. Therefore, using the EEP formulas of one-dimensional FEM and two-dimensional FEMOL in turn, and using the superconvergent solution given by the former as the input parameter of the latter, the superconvergence calculation of the two-dimensional FEM can be smoothly realized.

### 2.3 The Research on Income Index of Tourism Industry Based on Finite Element Method

The number of inbound tourists, the number of domestic tourists and the total tourism income are selected as the main analysis indicators. The statistical data of various indicators from 1995 to 2005 are used as the basic data, and the per capita national income of the same period is used as the auxiliary analysis data. Inbound tourism arrivals: Refers to foreigners, overseas Chinese, Hong Kong and Macau who come to China to visit, visit, travel, visit relatives, friends, recuperate, investigate, participate in conferences, and engage in economic, technological, cultural, educational, religious and other activities the number of compatriots and compatriots in Taiwan. National arrivals: Refers to domestic residents who travel, vacation, visit relatives, friends, recuperate, shopping, participate in conferences, or engage in economic, technological, cultural, sports, religious and other activities during the analysis period, and the purpose of their outings It's not getting paid through the activities you're engaged in. In the statistics, one person is counted for each trip.

As a high-expenditure activity, there is a close relationship between tourism and the level of the national economy. Many scholars have done research on this issue. Wei Xiaoran and others analyzed the relationship between the per capita GNP and the distance of the tourist flow's accessible space, and believed that the per capita GNP of more than 300 U.S. dollars generated domestic tourism motivation and formed near-field tourism; the per capita GNP of more than 1,000 U.S. dollars generated international tourism motivation and formed neighboring country tourism; The per capita GNP is more than 3,000 US dollars to form tourism to distant countries. The above analysis of this article also believes that the increase in per capita national income can stimulate the development of tourism. However, there is no research report on the research on the promotion effect of the growth of per capita national income on tourism, that is, the quantitative analysis between per capita national income and tourism indicators.

Through communication with the surveyed people, most of the surveyed people affirmed the influence of tourism on the local economy. The tourism industry has a good reputation among local residents, and most of the local residents agree with the development results of the tourism industry. Hangzhou residents have a relatively stable preference for various economic factors, and they also recognize various factors through which the economic influence of the tourism industry can be exerted. This is also in line with the overall economic development of Hangzhou, that is, the more developed the overall economic development, the smoother the channels for the tourism industry to promote the economy.

### 3. CONCLUSION

This article analyzes the development status and existing problems of the national tourism industry, and conducts a quantitative analysis of tourism development from two aspects of industrial layout and industrial structure. Through the analysis of the imbalanced indicators of the economic benefits of tourism in the province, it is found that the problems in the development of regional tourism come from the geographical space. The regional level of the national tourism industry has a serious gap. Regional differences in tourism reception benefits are relatively large, and the gap in domestic tourism reception benefits is relatively small.

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# Controllability and Observability Criteria for Systems Described by Fractional Differential Equations

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**Abstract:** Based on the state response of fractional order singular linear systems with impulses, the sufficient and necessary conditions for complete controllability and observability of fast subsystems are studied and given, and the criteria for complete controllability and observability of fast subsystems are further established. These assumptions are too strong to synthesize the controllability of slow subsystems and fast subsystems. The method proposed in this paper does not need these assumptions, The approximate controllability of Hilfer fractional order integro differential equations is studied by using the order method. The controllability and observability criteria of the system described by fractional order differential equations are derived. When the rank of its controllability discrimination matrix M and observability discrimination matrix N is full, the fractional order system is controllable and observable.

**Keywords:** Controllability; observability criteria; fractional differential equations

## 1. INTRODUCTION

The essence of fractional derivative is weak singular integral of variable or its integer derivative. The kernel function in the definition of fractional derivative is called memory kernel function, which reflects the memory characteristics of fractional order system. The fractional order system is suitable for describing a variety of physical processes with the characteristics of "process memory" and "historical heredity"

Zhou et al. gave the definition of mild solutions to Riemman Liouville fractional differential equations and discussed the existence of mild solutions using the theory of noncompact measures. Hilfer extended the Riemman Liouville fractional derivative and proposed Hilfer fractional derivative. The derivative includes Caputo fractional derivative, The Riemman Liouville fractional derivative is also included. Then, aGu et al. M studied the existence of mild solutions of Hilfer fractional differential equations.

More work on the existence of mild solutions of fractional differential equations. Fractional calculus is a theory about differential and integral of any order. It is unified with integral calculus and is a generalization of integral calculus  $\alpha D \alpha T$  to mark differential and integral operators of non-integer order, where  $\alpha$  It is an arbitrary real number. It is very important to study advanced differential equations in industries, bioengineering, economics and other related fields. Because advanced variables and integrals are ubiquitous, but it is difficult to deal with if we copy the construction of the comparison principle in G.T.Wang and [66]. This urges us to construct a new comparison principle, based on this new comparison principle, the existence of extreme solutions is proved by monotone iteration technique and upper and lower solutions.

Computed values of the output sequence is shown below.

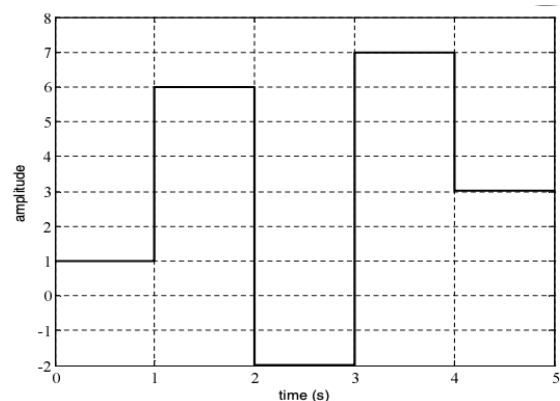


Figure. 1 Computed values of the output sequence. (Figure from Internet)

## 2. THE PROPOSED METHODOLOGY

### 2.1 Fractional Order Singular Linear Systems and Their Controllability (Observability) Concept

In this paper, we prove the necessary and sufficient conditions for the complete controllability and observability of fractional order singular linear systems with impulses and give the rank criteria for judging the complete controllability and observability of fractional order singular linear systems with impulses, which provide the basis and basis for the research and application of fractional order singular linear systems. The purpose of this paper is to study the approximation controllability of system (1.1).

It is worth noting that in the literature, the author discusses the approximation controllability of fractional order differential equations under the assumption that the nonlinear term is uniformly bounded, and the corresponding fractional order linear system is approximation controllability

Different from the above methods, the method proposed in this paper does not need these assumptions. It uses methods

similar to those in the literature and makes necessary modifications to make it applicable to systems. Systems that can accurately describe their dynamic performance with fractional order differential equations are called fractional order systems. Integer order systems are special cases of fractional order systems. The mathematical models that describe fractional order systems include fractional order differential equations Fractional order transfer function and fractional order state space expression, etc.

Let the system be described by the following fractional order differential equation with sequential differentiation and initial value: because the structure presented by this equation set has a profound physical background and the real mathematical model is extremely consistent with natural phenomena, and there are a large number of models in applied mathematics and engineering mathematics that can be attributed to the existence of solutions to the boundary value problem of the equation set, Therefore, it is of great value to study the existence of solutions to boundary value problems of fractional differential equations

## 2.2 Approximate Controllability

To investigate the complete observability of the system, the control input  $u(t)$  of the system is generally not considered, but the output  $y(t)$  of the system needs to be considered. At this time, the concept of observability in the form of fractional order generalized linear time invariant systems, such as (5), is very important, because in practical applications, state feedback control often encounters such difficulties that the state cannot be directly measured.

At this time, it is required to estimate the unavailable state variables to realize state feedback control. According to the research on observability of integer order linear systems, fractional order can not only solve the problems contained in integer order, At the same time, it has its own unique properties. This paper is based on the controllability of fractional order linear neutral time-varying systems and fractional order nonlinear systems.

However, in the literature, the author has not given how the system changes when the system contains multiple delays. The uniqueness of this paper is that the author studies the controllability and observability of time-varying systems with multiple delays. In this paper, the reader can clearly obtain the controllability conditions when the system is a single delay system. Obviously, there must be an input  $u(t)$ , so that equation (10) holds for any  $x \sim 20$ , if and only if the matrix  $QC2=[B2, NB2, \dots, NBh-12]$  is row full rank (at this time, the rank of the augmented matrix is equal to the rank of the coefficient matrix), that is,  $\text{rank}QC2=\text{rank} [B2, NB2, \dots, NBh-12]=n2$ .

## 3. CONCLUSION

For fractional order singular linear systems with impulses, this paper proves the complete controllability and observability theorems of fractional order singular linear systems with impulses by using the restricted equivalent transformation and combining the distributed solution of fractional order singular linear systems with impulses and gives a simple and practical rank criterion for controllability and observability of fractional order singular linear systems with impulses. Fractional order systems are observable. The conclusions obtained are useful for the analysis and synthesis of fractional order linear control systems. This paper only deals with fractional order linear time invariant control systems. The

controllability and observability of fractional order linear time varying control systems are worthy of further study.

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416-424

# Realization of Computer-Aided Art Design System Based on the Measurement and Analysis of Image Aesthetics

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**Abstract:** This paper analyzes the computer-aided art design system based on the image aesthetics measurement, and proposes a new image salient area detection algorithm. After improving the original method, the new algorithm obtains a new adaptive pre-segmentation method, which can adaptively set the number of blocks according to the complexity of the image content, making the segmentation more uniform and reasonable. A comprehensive image aesthetics design model is calculated, which includes two parts: aesthetic classification and score prediction. The image features extracted by this model include low-level visual features, high-level aesthetic features and regional features. Using the quadratic programming optimization function to solve the optimal grid composition position point.

**Keywords:** Computer, Art Design, Image Aesthetics, Aesthetics Measurement

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## 1. INTRODUCTION

Aesthetics started as a philosophical question of beauty and ugliness. In the field of art and photography, people will unconsciously judge the beauty and ugliness of a picture when viewing it. However, because the division of beauty and ugliness is subjective, everyone will have their own opinions on whether a picture looks good or not. But with long-term accumulation of observation and systematic analysis, people slowly discovered the characteristics and laws of beauty in beautiful pictures, cultivated aesthetic awareness, and gradually established the discipline of image aesthetics. Nowadays, image aesthetics, as an important subject, has important guiding significance in painting, photography, and graphic design [1-6].

For example, professional photographers will use a variety of aesthetic principles to create a variety of pleasing artistic photos. As a symbol of this rapidly developing era, it is obvious that multimedia is widespread in people's daily lives. Therefore, this era has been given the title of "image era" or "visual culture era" by many scholars because of the flood of images, video and audio. The importance of images reflects the ever-increasing situation in people's lives. It occupies a pivotal position in important fields such as communication, education, medicine, and economy. At the same time, it also allows people to enjoy more art and beauty. Images (including video and images) can not only play an irreplaceable important role in modern social life, but from an aesthetic point of view, it also has its special meaning and value. Evaluating images from the perspective of aesthetic value is a manifestation of the transformation of cultural information from material to spiritual. This has inspired many scholars and researchers to think about images from an aesthetic perspective. The aesthetic value of images has become another important aspect that people pay attention to in addition to the information attached to the image itself. With the development of related technologies such as computer vision and pattern recognition, the concept of computable aesthetics has gradually been proposed in the field of computer science [7-14].

This subject hopes to study the computable method of image aesthetics, so that computers can simulate the human self-understanding, derivation and calculation of the aesthetic value of images, and make corresponding aesthetic decisions. Aesthetics is a concept from a philosophical category. Generally speaking, things that conform to human aesthetic thinking and habits can always bring people a positive feeling. At this time, we call it aesthetic. In daily life, judgments based on aesthetic feelings are everywhere. People often make decisions based on subjective aesthetic judgments in communication, product selection, web interaction, film and television, and advertising and marketing. On social networks, the impact of aesthetic judgment is equally profound. Social networks have deeply penetrated into the lives of most young people. Uploading and sharing images can often reflect a person's aesthetic appeal and life style, and at the same time affect people's spiritual life. The research of computer image aesthetics has made great progress in the past ten years [15-21].

Since 2005, the European Society of Graphics has held the International Conference on Computational Aesthetics in Graphics, Visualization and Imaging (Computational Aesthetics in Graphics, Visualization and Imaging) and the famous International Conference on Image Processing (ICIP) every year since 2005. In 2008, I also began to pay attention to the aesthetics of images, and organized a discussion topic on image aesthetics and emotions. In recent years, more and more image academic conferences have gradually paid attention to the research of image aesthetics, including Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision, and International Conference on Computer Vision. International Conference on Image Processing. The research reports in these conferences hope to realize aesthetic analysis by combining philosophy, psychology, applied arts and computer science, and establish a bridge between human understanding and evaluation of works of art and computer digital analysis.

Computational Image Aesthetics (Computational Image Aesthetics) is to allow computers to simulate human vision and aesthetic thinking to make aesthetic decisions on images in order to build a bridge between computers and visual art

works. This research is a branch of computational aesthetics in the image field and an important part of high-level (abstract subjective level) image semantic research. The purpose of this research is to enable computers to independently perform quantitative analysis, calculation and evaluation of the "beauty" of images, such as Evaluate the aesthetic index, judge the aesthetic style of the painting, etc. [22-24]

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Image Aesthetics Analysis

Image aesthetics can be defined as the equivalence caused by people when observing images. A low-level local feature descriptor of images is designed to evaluate aesthetic interest. Computable image aesthetics is computational aesthetics in terms of image aesthetics. Upward feature extraction is an important exploration of ideas and solutions. Its research purpose is to hope that computers can study image aesthetics. Another direction is to simulate human vision and aesthetic thinking based on aesthetic rules, and then use the rule of thirds for aesthetics, image beautification, etc. Diagonal dominance and other aesthetic constructions, to build a bridge between computers and visual art works.

Make the rules of the calculation graph and realize the beautification of the image by adjusting the layout of the original image; the machine can automatically analyze and calculate the "beauty" of the image in a quantitative manner. Apply image aesthetics to image modification and evaluation, such as evaluating aesthetics In the reconstruction of the aesthetic style of the index and judgment, the one-third rule in aesthetics is used to change the image in the image; due to the deviation of the human individual's evaluation criteria for aesthetics, the aesthetics of each social image needs to be justified Multiple users participate in the decision. Therefore, based on the image data with a large amount of user evaluation information, this article organizes and builds the library needed for this topic. Because some key areas in the image contain the content that dominates the image theme, it is necessary to divide the image into areas to distinguish the whole and the key areas, and conduct separate research. In addition, we have classified the features, the main categories are: low-level visual features, high-level aesthetic features, and regional features. Different classifications represent the characteristics of different levels of the image. Due to the large number of features and the amount of calculation, this article parallelizes them according to certain strategies. After feature extraction, supervised training and learning of features are required to obtain a classification model.

Through the aesthetic analysis, calculation and evaluation of the image, understanding the position of the user's subject target or spatial reconstruction of the image, to enhance the aesthetic feeling of the photo, and help find the most suitable for the user's psychological needs and have a positive emotional impact on the visual beauty of the film. Goals and plans. Generally speaking, the research on image aesthetics is of great significance to computer interaction at home and abroad.

### 2.2 The Computable Image Aesthetic Measure

At present, the algorithms for extracting low-level objective features (such as color, texture, shape, etc.) from images have become more mature, but they are evaluated aesthetically. Representing the internal order of things, and the purpose of extracting image features that represent the internals of things requires a combination of art, psychology and complexity of

photography (showing the basic theories related to aesthetics and the internal order and duplication of things, and finding out the perception of people It is closely related to aesthetics. It is considered to be the embryonic form of computational aesthetics. Although it lacks related related features and uses appropriate methods to describe it based on specific calculation methods, these theories have very aesthetic image feature extraction for related work. The important guiding significance of the core part of image aesthetics research the image features calculated in this article include low-level visual features, high-level aesthetic features and regional features for the image based on the high-level expression.

Because the low-level visual features are relatively simple, some implicit connections between aesthetics and features in the image cannot be expressed intuitively. Early experiments also show that the experimental results of pure low-level features are not ideal. Compared with this bottom-up aesthetic evaluation method based on low-level features, some studies have proposed the use of aesthetic rules to extract high-level aesthetic features, and more ideal results have been obtained. These characteristics are generally extracted from theories related to aesthetics, photography, and art. This article summarizes the existing research results, combining aesthetic psychology, photography rules, aesthetic measurement, etc., which are related to human aesthetic perception, and calculates a series of characteristics. It is verified by experiments that these high-level aesthetic features can better describe the aesthetic information of the image. For the image aesthetic score prediction process, training and learning are carried out based on the audience's psychological aesthetic score data, and the aesthetic score of the image is predicted.

Therefore, the prediction of the aesthetic score of the image can be achieved through a regression analysis prediction algorithm. The purpose of regression analysis is to predict the value of other variables through known variables and find the optimal model that relates input variables and output variables.

### 2.3 The Computer Aided Art Design of Image Aesthetics Measurement and Analysis

Graphic design works follow the above geometric composition principles and introduce a sense of cohesion to the work, so that every element of the work has a sense of visual belonging. These geometric aesthetic principles are not only the key to understanding a large number of graphic design works, but also the aesthetic indicators for analyzing and judging graphic design works. The paper proposes a graphic design visual aesthetics computer-aided analysis system that uses the above geometric aesthetic principles for analysis.

After extracting features from the image, add high and low aesthetic labels, and use SVM and SVR algorithms for training to obtain aesthetic classifiers and aesthetic evaluation models. The existing visual psychology research shows that the obvious area can attract most of the observer's attention, because the salient area contains most of the useful information.

## 3. CONCLUSIONS

This article realizes the aesthetic analysis of images, and the research results can be applied to semantic-based image retrieval, image aesthetic quality evaluation, photography aesthetic prediction and correction, artistic work style analysis, human-computer interaction, and design,

photography, Advertising and other fields. For example, a picture aesthetic analysis and evaluation system can be built on the Android platform of a mobile phone to realize the automatic evaluation of the aesthetic value of photos or pictures by the aesthetic thinking of a machine simulating humans. First, the watershed segmentation algorithm is used to segment the image, and then the segmented areas are merged according to the brightness and color characteristics.

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# Geochemical Characteristics of Heavy Metal Elements and the Detection of the Environment by the Internet of Things in the Horizon of the Internet

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**Abstract:** This article first introduces the hazards of soil heavy metal pollution, and then takes a research area as the research object to investigate in detail the geochemical characteristics of soil heavy metal elements and their impact on IoT. Classic statistical methods and random forest methods are used to reveal the main controlling factors that affect the content and distribution of soil elements. Refer to relevant standards, evaluate soil quality from the two aspects of soil environmental quality and nutrient abundance, and use SPSS software to analyze and establish a model of the relationship between rice and soil heavy metals. The main research results have increased by 12.7%.

**Keywords:** Geochemical Characteristics, Heavy Metal Elements, Detection of the Environment, Internet of Things

## 1. INTRODUCTION

Land is an important natural resource element for the development of human society. With the rapid development of my country's society and economy, issues such as land quality, soil pollution and the safety of agricultural products caused by it have attracted more and more attention. This thesis is based on the "1: 50,000 Land Quality Geochemical Survey of Jiangshan and Other Places in Quzhou City, Zhejiang Province" project, which belongs to the second-level project of the Ministry of Finance "The Geochemical Survey and Application Demonstration of Land Quality of Basic Farmland in the Lower Reaches of the Pearl River and Zhejiang Province" (subject to in the "Land Geochemical Survey Project"), the beginning and ending years are from 2016 to 2018. The main task of the project is to conduct a 1:50,000 land quality geochemical survey in the cultivated land concentration area of Jiangshan City to find out the soil environmental quality, nutrient abundance and deficiency, evaluate the comprehensive soil quality level, and combine irrigation water, atmospheric dry and wet precipitation, and crops. Survey results data, classify the geochemical grade of land quality. Use the land quality geochemical survey data of Fenglin-Xiakou area of Jiangshan City obtained by this project to carry out related research of this paper. Collect basic data such as topography and geomorphology, geological background, soil types, land use status and plot distribution (secondary land adjustment data), crop types and planting conditions, and major pollution sources in the survey area, and combine actual data obtained from field reconnaissance and surveys. Comprehensive analysis, based on the principles of relative uniformity within the evaluation unit and obvious differences between different units, scientifically and rationally divide the geochemical evaluation unit of land quality [1-7].

1: 50,000 sampling points for the geochemical survey of land quality are arranged in order to arrange sampling points on the distribution map of the evaluation unit to carry out scientific research. Taking farmland soil in the plough layer as the main

survey object, taking into account the indicator of farmland ecological environment quality—crops, and carrying out systematic sampling and analysis. Through the soil geochemical measurement of the cultivated layer, the local soil element geochemical distribution characteristics are ascertained, the soil environmental quality, nutrient abundance, and ecological health quality are evaluated, and on this basis, the soil geochemical quality is comprehensively evaluated. Evaluate the edible safety of agricultural products based on crop sampling and analysis data and refer to relevant standards. Comprehensive evaluation is carried out on the basis of single-element evaluation of soil and crops. Heavy metals are potentially harmful pollutants in the soil environment. Soil heavy metal pollution refers to the phenomenon that heavy metals are introduced into the soil due to various human activities, which causes the heavy metal content in the soil to be significantly higher than the original content of the soil, and further causes ecological deterioration. In environmental pollution research, it mainly refers to heavy metal elements with significant biological toxicity such as As, Pb, Cd, Cr, and Hg. These elements are not needed during the growth and development of plants, but plants can absorb these elements through the soil, and then eat them. These plants cause harm to the human body [8-16].

Heavy metal pollution has the following four characteristics: Universality: With the continuous development of modern industrial production, heavy metal pollution threatens almost every country. In the 1950s, the "bone pain" in the Toyama River Basin in Japan was caused by excessive Cd in brown rice due to Cd pollution. In 1997, two agricultural areas in Montana, USA were also contaminated by Cd, which made the local wheat inedible. The suburbs and irrigation areas of many cities in my country have been polluted by heavy metals to varying degrees, such as the Zhangshi irrigation area in Shenyang. In the distribution of elements in nature, the concentration of heavy metals is natural concentration, and the content is low, which will not cause any impact on people's lives. In recent years, there have been more and more mining, smelting, processing and commercial activities of

heavy metal elements. Many heavy metals such as mercury and lead have entered the atmosphere, water, and soil, and people's living environment has been seriously affected. Heavy metals generally exist in various chemical states or chemical forms [17-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Geochemical Characteristics of Heavy Metal Elements

In order to fully understand the content and changes of the elements in the soil, the control factors, etc., two comprehensive geochemical profiles were measured, which run through all the geological units and soil units in the whole area. The samples collected include surface soil samples, deep soil samples and rocks. The sampling interval is 50-100m. The soil vertical profile sampling points are arranged according to different soil parent materials and different alluvial-proluvial areas. The slope profile is selected in the middle of the slope, and the Pingba section is selected in areas far away from villages, roads and areas with obvious human pollution. The vertical profile depth is 2 About meters, the slope is subject to the bedrock seen, and the Pingba area is subject to the groundwater surface. For sections with significant soil stratification, samples are collected from the humus layer, leaching layer, sedimentary layer, parent material layer and parent rock, and for the sections with insignificant stratification, one sample/20~10cm equal spacing is sampled, and the base is exposed. Collect rock samples at the rocky place.

Collect near-surface dust (dust and floating dust) from 1 to 2 meters above the ground. The sampling method is to use brushes to collect dust from residents' wooden doors and windows or public facilities, and try to avoid pollution sources (such as industrial pollution, civil coal, etc.) The road is not less than 150 meters), the same number points and one point (2~3) are used for sampling. The samples collected at each point are packed in small polyethylene ziplock bags, and each sample is affixed with a sample. After labeling, put it into a medium-sized polyethylene ziplock bag. After the sample is dried, weigh the same amount according to the smallest sample amount among the 5 points to form a sample, and weigh about 20 grams after being sieved with 200 mesh. The soil sample analysis is undertaken by the Chengdu Mineral Resources Supervision and Testing Center of the Ministry of Land and Resources. The testing center establishes a supporting program for multi-element determination with XRF and ICP-MS as the main body.

### 2.2 The Iot Detection of Heavy Metal Elements

Data analysis and mapping: Descriptive statistics of survey data using classical statistical methods, including the average, median, maximum, minimum, standard deviation, coefficient of variation, etc. of each element, to master the geochemical background of soil elements; Use Mapgis, Core DRAM and other software to draw geochemical maps, find out the regional distribution of elements, analyze the influencing factors; apply random forest method to reveal the main control factors that affect the content and distribution of soil elements; according to the soil environmental quality standard (GB15618-1995), Evaluation of soil environmental quality; evaluation of soil nutrient abundance according to land quality geochemical evaluation norms (DZ/T0295-2016); evaluation of soil nutrient abundance according to national food safety standards (GB 2762-2017) for heavy metals in rice crops

Exceeding standards are evaluated; SPSS software is used to analyze and establish the relationship model between rice and soil heavy metal elements.

The number of published articles can indicate the degree of concern for a certain subject area, and the number of continuous publications year by year can reflect the change in the degree of concern for that subject area. Figure 1 shows the trend of educational big data literature over the years included in the WOS core database.

### 2.3 The Harm of Heavy Metals in Soil and Its Prevention

Automobile exhaust is considered to be one of the important sources of Pb pollution. With the development of the automobile industry and the use of leaded gasoline, urban air was polluted by lead and then spread to the suburbs, where it settled on the soil on the arable land in the suburbs, polluting vegetables and other crops. According to statistics, if you add 1 to 3 grams of ethyl lead per kilogram of gasoline, the lead in automobile exhaust can reach 20 to 50 micrograms/liter. Motor vehicle exhaust emissions are not only the main pollution source of the urban atmosphere, but also significantly cause roads. Heavy metal pollution on both sides, automobile gasoline, engine tires, lubricating oil and metal-plated parts can burn or wear and release heavy metals such as Pb, Cd, Cu, and Zn. Pb exists in the air in the form of aerosols and compounds of different sizes, and enters the soil through plant adsorption or precipitation. Gu Wenxing's survey results show that the lead content of the soil has a negative correlation with the distance of the road, and the correlation coefficient is -0.9952. The research results of Zheng Lu et al. showed that the lead content of vegetable garden soil and vegetables in Hefei is positively correlated with vehicle flow, and negatively correlated with highway distance.

The discharge of industrial "three wastes" is the main source of soil pollution. Reasonable layout of industry, adjustment of industrial structure, optimization of resource allocation, and minimization of pollutant discharge. Controlling the discharge of pollutants from the source is the key to solving heavy metal pollution.

## 3. CONCLUSION

To sum up, this article selects the study area to conduct a detailed study on the geochemical characteristics of soil heavy metal elements and the impact assessment on the ecological environment. The soil heavy metal elements in this area are all low and below the light pollution level. Pay attention to the protection of soil quality and safety, and prevent problems before they occur. The random forest method was used to analyze and analyze the causes of soil elements, and it was found that the results of the Internet of Things test were the most important geological conditions affecting the content of soil heavy metals. The cause of soil was the main influencing factor of Cd, Hg, and Pb. The element content has little effect.

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# Discussion on Unorganized Waste Gas Emission and Prevention Measures in Fine Chemical Production

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**Abstract:** This paper mainly discusses the safety management measures of fine chemical production enterprises from the perspective of the importance of safety management in fine chemical production enterprises, and describes them from different angles. At the same time, it expounds the safety technology countermeasures of fine chemical production enterprises, analyzes some safety technologies in the production process, and strengthens the feasibility and necessity of prevention and control of unorganized waste gas in combination with practical cases. In the future, the supervision of enterprises' unorganized emission of waste gas and the research and application of new waste gas treatment technologies in the chemical industry park will be strengthened, and the regional ambient air quality and people's satisfaction with the environment will be significantly improved.

**Keywords:** Waste gas emission; prevention measures; fine chemical production

## 1. INTRODUCTION

In the actual production process of a fine chemical production enterprise, its own characteristics lead to high accident rate and risk. Once a safety accident occurs, the consequences are very serious. Therefore, in the actual production process, the safety of the entire production process should be guaranteed first, and effective safety management and safety technology measures should be applied to effectively manage and control the entire production process. In recent years, Especially since the implementation of the New Environmental Protection Law, in order to effectively curb the frequency of heavy pollution weather caused by haze and photochemical pollution, and vigorously carry out the construction of ecological civilization, it is urgent for environmental regulatory authorities to collect and deal with unorganized exhaust gas and carry out centralized remediation.

Due to people's limited understanding of the organic waste gas emitted by the chemical industry, they do not know what harmful substances are contained in the organic waste gas, nor do they know that these harmful substances will cause great harm to people's health. In the process of production in the chemical industry, the organic waste gas discharged contains a large number of harmful substances that are difficult to degrade, and there are many kinds. Different kinds of harmful substances cause different harm to the environment and people's bodies. The composition of nitrogen oxides is divided into NO and NO<sub>2</sub>, which are derived from chemical reaction of sewage treatment station, nitric acid production, chemical furnace, metal surface treatment and other processes. The main components of carbon oxides are CO and CO<sub>2</sub>, which are derived from the structure of combustion process and self fuel combustion.

The main states of halogen compounds are HF, HCL, etc., mainly from chemical processing plants, plastic chemical plants, waste incineration, hydrochloric acid manufacturing and other links. Secondly, we will increase the investment in scientific and technological innovation and safety management funds, further improve the level of enterprise

automation production, timely maintain and update aging production equipment, avoid corrosion of transmission pipelines and falling of protective layers, increase the proportion of funds in safety management, ensure the strength of safety management, and further ensure the production quality and efficiency of enterprises.

State-wise of total waste generation is shown below.

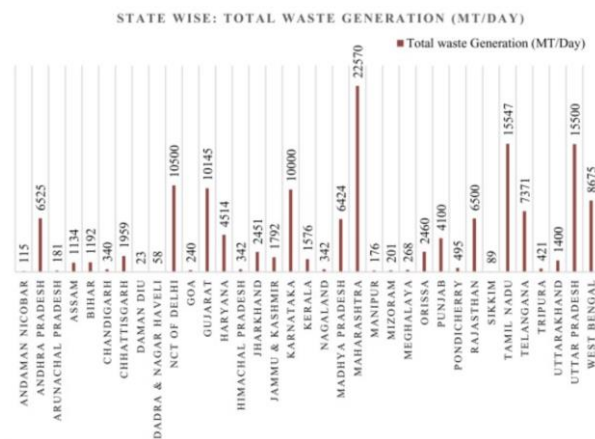


Figure. 1 State-wise: Total waste Generation

## 2. THE PROPOSED METHODOLOGY

### 2.1 Analysis of Safety Management Measures in Refined Production Enterprises

Long term exposure to low concentration pollution environment will lead to physical deterioration, low spirits, respiratory system diseases, benzopyrenes, polycyclic aromatic hydrocarbons, dioxins in incinerator waste gas and other strong carcinogens, which have attracted great attention. Some enterprises engaged in chemical industry production still adopt the original and relatively backward treatment methods to control the exhaust gas.



As far as the governance effect is concerned, the backward governance mode is obviously no longer applicable to the current chemical industry production. If the mode is continued to be used for governance, the consequences will still be increased environmental pollution and people's health will be damaged. In particular, the emission concentration of unorganized waste gas is very high in production procedures such as filtration, centrifugation, filter pressing, crushing and drying. In addition, during the production process, the open cover operation of barreled solvent, the solvent transportation process, the manhole cover opening and feeding process of the reactor, the use of the water vacuum pump and mechanical vacuum pump, some vent pipes not connected to the waste gas treatment device, the dripping during the material transfer process, and the discharge process of process waste water are all important sources of unorganized waste gas.

If the steel pipe system is used, electrostatic bridging shall be carried out for the flange part. If there are four or fewer bolts on a pair of flanges, electrostatic bridging shall be used. If there are more than four bolts, electrostatic bridging is not required. Copper wire shall be used as static jumper.

## 2.2 Suggestions on Unorganized Waste Gas Environment Management

The point sources of unorganized emission of waste gas are scattered, and there are many pollution producing links and points, which makes it difficult to implement effective collection, let alone treatment. At the same time, the emission of waste gas from each point source is small, and the enterprise neither pays attention to nor wants to deal with it. After sorting, the sources are roughly sewage treatment station, solid (hazardous) waste storage yard, volatile raw material loading and unloading process, product storage site and tank farm Waste gas escapes in the production process. Waste gas treatment equipment and instruments are closely related to organic waste gas treatment in chemical enterprises, and their aging will directly affect the effect of organic waste gas treatment.

Therefore, it is necessary for enterprises engaged in chemical production to optimize and upgrade the waste treatment equipment and instruments in a timely manner, eliminate the aging equipment in a timely manner, and actively introduce advanced equipment and instruments that can meet the treatment needs for waste gas treatment to meet the standards for waste gas treatment. The waste gas generated by the water vacuum pump shall be connected to the waste gas header and discharged through the exhaust funnel after entering the waste gas treatment device for treatment. If necessary, the waste gas from the water vacuum pump shall be subject to pretreatment such as condensation before being connected to the waste gas header

Check all vent pipes of the production unit to ensure that all vent pipes are connected to the exhaust header or a separate waste gas treatment unit for treatment. In the actual chemical production process, there will be initial reaction heating and heat release during the reaction process. Heat transfer is required for such reaction process. Under normal circumstances, coil cooling and jacket cooling will be used to transfer excess heat, The applied coolant is generally refrigerant and circulating water.

## 3. CONCLUSION

To sum up, in the process of operation, fine chemical production enterprises should pay high attention to the safety of production, actively apply effective safety management and

safety technology measures, build an effective safety production environment, improve the safety awareness of employees, improve relevant safety management systems, and actively explore new safety management technologies, The aging of treatment equipment and the lack of implementation of treatment measures hinder the efficient development of organic waste gas treatment, and relevant departments must take reasonable and targeted measures to control it. Only in this way can we effectively solve the problem that organic waste gas emissions in chemical enterprises pollute the air and endanger people's health.

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# Empirical Efficiency Modeling of Online + Offline Teaching Evaluation Mode of Courses Based on 6G Real-Time Image Transmission Architecture

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**Abstract:** Putting forward the requirements of the 6G-oriented space-earth integrated information network architecture, and put forward a flexible and reconfigurable space-earth integrated information network architecture on this basis. On the basis of the research, it puts forward the countermeasures and suggestions to improve the evaluation mode of college English online teaching. From the aspects of curriculum structure, curriculum implementation, evaluation feedback, teacher team construction and talent training, the innovative teaching mode of "online micro-course" integrated into mathematical modeling courses is studied. A set of experimental teaching plans based on small modeling projects and corresponding teaching methods are proposed. The system of learning evaluation, and the effect of curriculum reform was analyzed through empirical teaching.

**Keywords:** Empirical Efficiency Modeling, Online + Offline Teaching Evaluation, 6G, Real-Time Image Transmission

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## 1. INTRODUCTION

The data source of this design is the TV signal of PAL standard, and the data format is YUV (4:2:2) format. [1] This design uses FPGA as the platform to convert the original TV signal data into RGB format video signal, and increase the image resolution from 720x576 to 1024x768. In GDI, the device context (DC) contains specific display devices [2].

The 6G network will be an open and autonomous architecture [5], and the security risk of attacking from the inside will be a necessary factor for security considerations. Network/subnet security risk protection requirements. Image acquisition and transmission technology is an important technical branch of the entire machine vision technology [6]. The realization of many application scenarios is supported by image acquisition and transmission technology. For example, the rear personnel in the military field use UAVs to scout the front line, and the monitoring room in the industrial field. Monitoring of production lines, video conference calls in daily life, etc. [7]

In this paper, the area array CCD OV7670 is used as the image sensor, which can transmit a variety of data acquisition modes. It should be combined with the 19325 TFT screen for real-time image display [8]. The basic storage unit of the data memory of this TFT screen is 16 bits, so the RGB565 image is used. data format for processing. The relevant knowledge of important modules is introduced in detail, and the terminal for wireless image information exchange in local area network is designed [10].

The system is divided into a server side and multiple clients. Each terminal establishes a communication network through a wireless network card. The server side collects image data through a camera, compresses and encodes it and broadcasts it to other client computers after scraping [11]. The first step of programming with GDI is to obtain the handle (hDC) of the current device description table, and then use the handle as a parameter to call the API function provided by GDI [12]. Sometimes Xlib is directly defaulted and simplified according

to the actual application of the platform [13]. They provide a set of more convenient and practical components, thus reducing the difficulty of users developing software by themselves and improving the development efficiency [14].

In 2020, there are 1470 colleges/campus from all over the country [14], the United States, the United Kingdom, and Malaysia. Some applied statistics courses for engineering and economics majors in the early years were mainly to introduce software operations, but the explanation of the corresponding theory was not enough. Students often only use statistical software to mechanically process raw data [15], but do not use statistical thinking to analyze and solve problems. Practice has proved that the online teaching mode of college English has gradually been widely recognized, and the direction and goal of the teaching reform of college English courses aimed at cultivating students' English learning and sustainable development ability are becoming more and more clear [16].

The vision of future 6G is ubiquitous, wireless, and intelligent, and can provide ubiquitous wireless connectivity with seamless coverage and context-aware intelligent services and applications. In terms of network architecture, 6G will break through the limitations of terrestrial networks and realize terrestrial [17]. Figure 1 shows the positional relationship diagram of Tina in the process of program development. Meet the XGA standard. The design can be divided into FIFO module, dual-port RAM control module, image structure conversion module and color space conversion module [18].

he dual-port RAM selected by the design must be able to store more than two frames of images to ensure the completion of buffering. The parameter token is ULONG\_PTR, which is the address of the storage unit, which records the mark of the use of GDI+ this time. After the initialization work is completed, the initialization The function in which it returns the entry token to the user for later use when closing GDI+.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The 6G Real-Time Image Transmission Architecture

The 6G security layer will be deeply integrated with the network's basic resource layer, network capability layer, and service layer to provide its own security assurance and application security services for the 6G network. , formulating security strategies, and completing security resource scheduling are all new problems and challenges. On the other hand, affected by the climate, newly harvested crops need to be quickly cleaned and then dried and stored, otherwise the processing quality and selling price of the crops will be affected later.

The application of the cleaning machine has greatly reduced the harm caused by these problems. Since the STM32F4 series single-chip microcomputer is a new type of single-chip microcomputer using the ST company's deletion architecture, the deletion-type single-chip microcomputer adopts the object-oriented programming method, which makes the technical workers It is easier to get started, it changes our thinking about single-chip control, and we can no longer understand the various modules of single-chip microcomputer in depth.

The evolution of mobile communication technology and network architecture, along with the growth of 2G/3G/4G/5G mobile communication network security mechanisms, under the development trend of high integration of digital technology (DT) and communication technology (CT) The network topology is highly dynamic due to the high-speed movement of space-based and space-based network nodes, the transmission delay of different layers of the network varies greatly, and the performance of the network communication link varies greatly. This paper conducts in-depth research on the endogenous security requirements and architecture of the 6G network, and proposes a 6G network. The network endogenous security architecture and operation mechanism are demonstrated through deduction examples.

This paper includes 5 parts: one is to analyze the new security requirements faced by 6G networks, and to analyze the shortcomings of existing security means; the other is to combine 6G network architecture and security requirements, at the beginning of 5G network research, the mobile communication network is given customization. However, as far as the current 3GPP international standard formulation is concerned, there is still a certain gap in the ability to customize and personalize privacy protection. The integrated information network of space and earth should have programmability, and network resources should have elastic scalability, realizing the characteristics of flexible control, integration and evolution, and flexibility and customization of the network, which facilitates the rapid deployment and assurance of networks and services.

### 2.2 The Online + Offline Teaching Evaluation Model

In terms of trust model, the ternary trust model of users, devices, and networks has been transformed into a new trust model with trust assessment capabilities and a zero-trust architecture. Through the endogenous elastic and scalable architecture, as well as through software-defined networking, virtualization and other technologies, the integrated information network of the sky and the earth builds a flexible and efficient network capability resource pool that can be

accessed on demand. As the center, TWith the continuous development of science and technology, people have more and more requirements for image types and quality. Therefore, the original image is combined with the computer to produce a variety of digital image formats to meet people's needs for different application objects and running on different computer systems.

The "College English Course Teaching Requirements" When the dual-port RAM is filled with one frame of image data from one end, the Before writing the next frame of data, start network technology to college English teaching, Cai Jigang et al. already wrote an article and proposed that in this model of classroom, the teacher's role is no longer the "professor" and "indoctrination" of mathematics in the traditional classroom teaching model. There are many modeling methods, reading the first frame of data from the other end; after the second frame is full, read the second frame until the data of the first frame is completely covered by the data of the third frame, time series method, grey theory method, modern optimization algorithm (tabu search algorithm, simulated annealing algorithm) , Various methods in genetic algorithm statistics such as regression analysis, multivariate statistics, random process, time series, statistical calculation, Bayesian statistics, etc., their contents are not separated from each other, but there are many intersections.

### 2.3 The Intelligent Fusion of Vocational Education Image Carriers

The oral examination part reflects the content and method of summative evaluation. Many students rarely or hardly speak actively in oral class, and do not actively participate in classroom activities. Online distance learning based on Rain Classroom and Tencent Conference fully reflects the students Teachers are responsible for integrating the logical relationship of modeling theoretical knowledge and effectively designing teaching content. Students can choose the time, space, and method of online learning according to their own conditions. Instead of actively exploring to obtain their own personalization Answer. Students who progress slowly or temporarily encounter bottlenecks in learning are more inclined to gradually lose the habit of expressing their confidence and thinking independently due to their backwardness in grades.

## 3. CONCLUSIONS

In order to meet the ever-expanding needs of 6G services and deployment scenarios, building a converged information network that integrates space and earth has become an important feature of the 6G network. The integrated information network architecture of heaven and earth should have the characteristics of dynamic reconfiguration and form high efficiency. Make full use of shared high-quality teaching resources, build a new hybrid teaching paradigm that integrates open micro-courses into mathematical modeling courses, and implement small classes before the mathematical modeling competition. At the same time as the "special seminar" teaching, a real-time evaluation and feedback system is constructed throughout the whole process, and a teaching situation of teacher comprehension, teacher-student interaction and student experience is created. The diversified evaluation model of generative college English courses obtained in the research group still needs to be further explored and verified by the teachers of the research group.

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# Construction of Education Mobile Platform Under the Background of Mobile Terminal Red Tourism Resource Sharing Storage and Mining

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**Abstract:** Drawing on the MOOC teaching model and combining the knowledge characteristics of red tourism education, a mobile terminal-oriented online red tourism teaching cloud platform is constructed. The platform integrates red tourism education resources and excellent red tourism works at home and abroad. It provides an important premise and a solid foundation for the development of "red tourism". The construction of old areas should take advantage of good external conditions, seize the opportunity of "red tourism" development, and rationally develop multimedia teaching resources on the Internet. The response to CD-ROM multimedia teaching resources is slow, and the number of users supported by concurrent access to multiple users is greatly limited. SAN (Storage Area Network) can solve the transmission bandwidth bottleneck when data is stored on the network, and the optical disc mirror server can improve the access speed and capacity of the optical disc in the network.

**Keywords:** Education Mobile Platform, Mobile Terminal, Red Tourism Resource, Sharing Storage and Mining

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## 1. INTRODUCTION

The rise of "red tourism" is a manifestation of people's pursuit of a colorful spiritual and cultural life under the conditions of improved living standards, increased leisure time, and convenient transportation [1]. At present, when multimedia data transmission is carried out in the campus network, there are not only data information such as pictures, texts, sounds, animations, etc., but also video and image signals with a huge amount of data. Although the current video and image signals use international compression standards such as MPGE-I, MPEG-II, MPEG4, etc., [2] XenServer launched by Citrix is used as a virtualization platform in the industry. Multiple virtual machine VMs can be run simultaneously on the server side [3].

And provide clients with services running on these VMs. The customer does not have a very advanced hardware configuration and does not have its own operating system. The outstanding problems of music education in general non-art colleges and universities are the serious lack of high-quality teaching resources, the shortage of school hours and the shortage of teachers [4]. Network and information technology can just integrate high-quality teaching resources around the world and break the limitation of traditional classroom hours. Wang Youmei and others believe that in the next 20 years, mobile learning in my country will experience three stages of development: the stage of basic environment construction, the construction of knowledge system Stage and learning service construction stage, my country's mobile learning should return the research focus from "technology" to "learning" [5].

With the rapid development of mobile Internet technology and the increasingly powerful and rapid popularization of mass storage and intelligent terminal equipment functions brought about by cloud computing [6], the demand for learning anytime and anywhere in the field of education, that is, mobile learning, is constantly increasing. From 1994 to 2004, the first ten years of red tourism started [7], the main purpose was to help the old areas cultivate new economic growth points and

make the people of the old areas get rid of poverty and become rich. After the introduction of the "Outline" in 2004, red tourism quickly became popular [8].

The main reason is firstly the promotion of national policies, red tourism is a top-down national government-led project; secondly, the innovation of tourism forms [9]. On the basis of a full understanding of the spatial effect of tourism development and the evolution of tourism spatial pattern the tourism integration development model carries out overall planning, systematic development and joint development of the entire regional tourism [10], and pays attention to coordinating the relationship between regions, so that the regional tourism resources form a good spatial complementarity relationship. In recent years, the whole country has set off a red The tourism boom, especially on the eve of the 80th anniversary of the founding of the party and the 16th National Congress of the party, has greatly increased the number of people visiting patriotic bases and revolutionary memorial sites. Red tourism has become a very popular selling point in my country's tourism industry [11].

To build an advanced socialist culture, we must actively inherit and develop these revolutionary traditions. Only in this way can we prevent and resist the erosion of corrupt culture and various wrong ideas on people [12]. The emergence of "red tourism" is the embodiment of learning and promoting the revolutionary cultural tradition. Many teaching TV programs and multimedia courseware have begun to be on-demand on the Internet, and teaching resources have been shared on campus. The booming distance education technology is also used in some Video-on-demand technology to achieve [13]. It can be a system of various versions of Linux or a Windows system. Moreover, the model of memory and CPU is also selected by the client. When the client opens the virtual client, it is like opening and running a real machine on its own machine, but the VM is actually running in a remote cloud. i.e. on XenServer [14].

Based on the data analysis of the music education questionnaires in ten ordinary colleges and universities and

the inspiration of MOOC teaching methods, this paper constructs a mobile terminal-oriented ordinary college music teaching cloud platform, so that students' learning of music knowledge and appreciation of music works are no longer affected. Time and space constraints, through application and practical research, implement mobile learning effects. [15] In recent years, in many researches on English mobile learning, most of them focus on the effectiveness of mobile learning on English learning for middle and primary school students or full-time college students, but there are relatively few studies on English learning for adult students [16].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Mobile Terminal Red Tourism Resources

Ideological and political education is an important link in building an advanced socialist culture. "Red Tourism" integrates ideological and political education and tourism, combining education with travel and education with entertainment. It combines traditional ideological and political education methods such as reading newspapers, studying documents, and listening to lectures. Tourism resource development is a comprehensive Development is an economic and technological behavior. It needs to use certain technical means to give full play to people's creativity and intellectual resources, and to use and effectively protect various real and potential resources existing in the development zone in an orderly, scientific and rational combination.

The spatial distribution of the scenic spot system has obvious scale-free and shows statistical fractal characteristics. The self-similarity of the scenic spot system means that the self-organization evolution of the tourist space system is dominated by some implicit rules, and it has an optimization trend. Therefore, it is of great theoretical significance and practical value to reveal the fractal geometric characteristics of the spatial structure of the scenic spot system and its governing laws." The "cradle of revolution" Jinggangshan put forward the strategy of tourism development as early as 10 years ago, and has now become a red tourist destination that attracts attention in the domestic and foreign markets. The contribution rate of tourism to the local finance has exceeded 35%. Jinggangshan takes full advantage of the local intact natural ecological resources. The "cradle of the revolution" Jinggangshan put forward the strategy of developing the city through tourism as early as 10 years ago, and has now become a red tourist destination that attracts the attention of the domestic and foreign markets, and the contribution of tourism to the local finances The rate has exceeded 35%. Jinggangshan takes full advantage of the local intact natural ecological resources.

Strong tourism agglomeration areas have strong competitiveness. The spatial agglomeration of tourism enterprises and their support systems forms an agglomeration economy. The agglomeration economy is mainly manifested as the scale economy, scope economy and external economy exclusively enjoyed by the enterprises within the industrial agglomeration. The high concentration of tourism enterprises in a certain region has attracted a large number of service providers and professionals. Customized marketing is based on large-scale production, enterprises treat each customer as a separate market segment, according to their Marketing mixes for specific needs in order to achieve a marketing approach that satisfies. "Red tourism is a semi-organized guided outdoor education".

### 2.2 The Tourism Resource Sharing Storage And Mining

Because SAN adopts optical fiber network, it not only provides high-speed interconnection between host and storage devices, but also greatly improves the number of devices and transmission distance (up to 10 kilometers). The frequent access and fast processing of the massive teaching resource information data of the Internet/Intranet structure lays the hardware foundation and can be migrated without the customer feeling that the customer feels that his VMO has been running continuously.

Unbeknownst to the slightest, VMO has actually switched the operating environment. This technique of moving directly to another actual server without shutting down VM0 is called live migration. The FRAME framework model was developed by Koole for a master's thesis in 2004 when mobile learning first entered the mainstream of educational research, and the thesis was published online in 2006, which may help promote the model worldwide. In mobile learning resource development It should be based on the specific learning needs of the learning subject, closely follow the learning objectives, comprehensively consider many factors such as knowledge content, information carrying capacity, presentation and management methods, and follow the principles of knowledge, miniaturization, fragmentation, and interactivity. Users access the CD mirror server through a web browser to access data, and the settings and upgrade management of the CD mirror server can be performed through a web browser.

Since the optical disk mirror server separates the information storage and reading functions of the optical disk, when implementing dynamic migration, only the memory of the VM running on the original server can be copied to the destination server, instead of copying all the contents on the disk. To the destination server, this greatly shortens the time of dynamic migration. According to the hardware characteristics of the mobile intelligent terminal and the functional requirements of mobile learning, the mobile learning system should adopt the C/S architecture, and store the learning resources in a high-performance server to provide resources. Distribute a service, manage various dynamic data such as users, learning resources and learning progress.

### 2.3 The Construction of a Mobile Platform for Education on Red Tourism Resources

Red culture is a historical culture of revolutionary struggle and national liberation under the leadership of the Communist Party of China. From this point of view, the cultural essence of red tourism resources is that it is a war culture. In any regional tourism industry, these five competitive forces control the competition rules, and they together determine the attractiveness and profitability of the regional tourism industry. sex. The tourism industry in the geological tourism resource group in western Hunan is no exception. Due to the loyalty of tourists in the three major western Hunan geological tourism resource groups to their brand loyalty and the limited size of their own capital. Ranzhuang Tunnel Battle Site, Langya Mountain Five Heroes Memorial Hall, Baiyangdian Yanling Team Memorial Hall, Dong Cunrui Memorial Hall, Ma Benzhai Memorial Hall A large number of red tourism resources in Hebei Province, such as Bethune, Bethune and Ke Lihua Memorial Hall, have a high reputation in China. At present, the CD mirror server products support more than 100 concurrent users, such as the domestic Tsinghua Tongfang mirror server.

Although there are more than 100 students who can simultaneously request a certain CD content in a multimedia network, we still use freeNAS as an example to illustrate. In the XenCenter interface, select pool 0. Click Create New SR (Storage Repository). Enter the wizard to initiate the connection to the iSCSI Target. Select iSCSI in the pop-up box. Click next. The connection interface appears. Openness is a typical feature of the contemporary information society. For example, super girls on TV shows can sing whenever they want, and just like writing on Weibo, people hope that there is no threshold for learning music knowledge, and they want to learn. MOOC also caters to the needs of the contemporary information society.

### 3. CONCLUSIONS

Although this paper has carried out a systematic research on red tourism, the research on red tourism development needs more in-depth, extensive and detailed theoretical research and practical investigation to reach a mature stage. With the continuous development of red tourism, problems will also arise. Appeared one after another. The development of mobile terminal software is an important link and guarantee for the development of mobile learning. According to the construction strategy and scheme of mobile learning resources, this paper describes the design ideas and development technology of mobile learning terminal software for the iOS mobile platform, so that the client can obviously feel a long pause when running. It brings great inconvenience to users. Using NAS can easily solve the problem of shared storage space in the shared resource pool.

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# Intelligent Analysis of Energy-Saving and Environment-Friendly Concrete Materials Based on Finite Element Simulation and Supercomputer

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**Abstract:** In this paper, based on the finite element simulation method of supercomputer, a three-dimensional intelligent modeling analysis of energy-saving and environmentally friendly concrete materials is carried out. First, the basic principles of the finite element iterative integral equation are introduced. The various characteristics of concrete materials and the interaction between steel and concrete, through calculation, people have a more comprehensive and in-depth grasp of the properties of reinforced concrete structures. In the process of nonlinear finite element analysis of reinforced concrete, physical models, numerical methods and programming techniques are involved. The final formation of the analysis program is an important part of it. By using the balanced grid division strategy of graph partition theory and sparse matrix reordering technology, the performance and scalability of the program are improved to 97.2%

**Keywords:** Energy-Saving, Supercomputer, Concrete Materials, Finite Element Simulation

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## 1. INTRODUCTION

Energy shortage is a shortcoming that restricts social and economic development, and the rational and effective use of energy is the principle of sustainable development. In the context of China's rapid economic development, primary energy consumption has grown substantially, and building energy consumption accounts for about 30% of the total energy consumption in society, and this proportion is on the rise. Therefore, the construction industry has great potential for energy conservation, which is of great significance for further accelerating the construction of a resource-saving and environment-friendly society and guaranteeing China's energy security. In the environment of building energy-saving materials, as a new wall insulation material, concrete sandwich straw blocks are widely used in cold areas and hot summer and winter areas to meet the needs of energy-saving renovation and have broad market prospects [1-6].

With the improvement of the current construction technology level of construction projects, R&D personnel have developed many new concrete materials, which have been widely used. In the traditional concrete construction process, the construction unit attaches great importance to the strength of the concrete and ignores the durability of the concrete, which leads to frequent cracks in the concrete, which affects the construction quality of the project. In order to ensure the construction quality of the project, the construction unit must rely on the existing construction technology, analyze the characteristics of the new concrete, control the mix ratio, clarify the construction technical standards, and improve the construction quality. Therefore, this article mainly discusses new concrete materials and their applications, and puts forward reasonable suggestions based on the actual situation of current engineering construction. In the current construction process of construction projects, construction materials will affect the safety and applicability of the overall

quality of construction projects. In order to meet the basic requirements of actual production, in the current building development process, the construction unit should pay attention to the application of new materials. According to the actual situation, continue to use energy-saving, consumption-reducing and high-quality materials to continuously improve the quality and benefits of the project. Reduce project investment costs. In the construction of the entire construction project, concrete materials occupy a large proportion [7-15].

In order to meet the basic needs of the current rapid development of the construction engineering industry, the construction unit needs to continuously develop new types of concrete for different types of project projects, combining the actual conditions, and continuously reduce actual consumption, save engineering costs, and give full play to the importance of concrete in the entire project construction. It can meet the basic conditions of actual construction, change the traditional construction technology and improve the economic benefits of project construction. When the engineering form is special and the load and material properties are very complicated, people often use model tests to determine its mechanical performance. However, due to the limitations of the site and equipment, only small model tests can be done, and it is difficult to fully reflect the actual structure. If you want to study the influence of a certain parameter on the structural performance, you need to do multiple similar components and repeat the test, which is very labor-intensive. If computer simulation technology is used, experiments can be done on the computer, and it is completely in the original size, without reducing the scale; when studying the influence of certain parameters, only a few input parameters need to be modified, which is very convenient and easy. The computer simulation is essential when the structure reacts quickly or the reaction time is extremely long, and when analyzing the internal microscopic changes of the structure. Because reinforced concrete is a combination of two

different materials, concrete and steel, its performance directly depends on the performance of these two materials [16-21].

Especially in the non-linear stage, the various non-linear properties of concrete and steel bars and the non-linear properties of the connection between the two will be reflected in this combined material to varying degrees. At this time, if the linear elastic method is still used for simulation, it will be difficult to accurately reflect the actual deformation and force characteristics of the structure. Specifically, there are the following problems. Due to the large difference in the tensile strength of steel and concrete, under normal use of the reinforced concrete structure, most of the flexural members have cracked and entered a non-linear state, but the steel has not yielded and is still working in an elastic state [22-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Energy-Saving Environmentally Friendly Concrete Material

High-performance concrete has been extensively developed and utilized, referred to as HPC. With the development of science and technology, the composition of high-performance concrete is more complex, and the mix ratio requirements are more precise. With the application of high-performance concrete, it can effectively reduce the size of the concrete structure, reduce its own load, and reduce construction costs and construction energy consumption. First, the characteristics of high-performance concrete.

From the perspective of the workability of fresh concrete, it has the characteristics of fluidity, uniformity and filling. Compared with the previous concrete, the components of high-performance concrete are more complicated, and it is necessary to add a variety of admixtures and superplasticizers to improve the performance of the concrete. In order to prevent slump loss and segregation and stratification, it is necessary to deal with the relationship between retarders, air-entraining agents and stabilizers.

### 2.2 The Finite Element Simulation

The tensile strength of concrete is much lower than the compressive strength, and cracks will appear under the action of low tensile stress. The cracking of concrete can be said to be one of the most important nonlinear characteristics of reinforced concrete structures. In the finite element analysis of reinforced concrete structures, the commonly used crack models are as follows: distributed crack model; separated crack model; fracture mechanics model. In addition, there are other forms of models. The separation crack model formed along the element boundary has certain advantages.

If the influence of the main crack of the structure is studied, it is reasonable to use a separate crack, because this crack model expresses the discontinuity of the strain and makes the result closer to the actual situation. If the role of aggregate occlusion and hidden pin is very important and the local stress of concrete is to be studied, the separation crack model is often used. But this model also has great limitations. First of all, this model has to constantly re-divide the elements and increase the nodes in the calculation, which is a waste of time. At the same time, it affects the narrow bandwidth of the original overall stiffness matrix, which leads to the reduction of computer efficiency in solving displacement calculations. In the application of the distributed crack model calculation, it can be found that when the load continues to increase on the cracked structure, the crack area develops from the initial crack unit to the surrounding area. After the analysis is completed, most of the elements of the component have

cracks. It will inevitably lead to a direct relationship between the number of crack units and the density of unit divisions. When the unit division is small, the number of crack units is correspondingly small. On the contrary, when the finite element division is dense and large, the number of crack units is correspondingly also Just more.

Not only is it inconsistent with the crack form obtained in the test, but also due to the stress release of the cracking unit, the internal stress distribution of the component is also different from the actual structure. In fact, when a crack in a concrete structure develops outward from the initial cracking point, it develops in a band along the crack tip, while the concrete on both sides of the adjacent crack will not immediately produce new cracks due to stress relaxation. For reinforced concrete structures, due to the nonlinear characteristics caused by concrete cracking and nonlinear stress-strain relationship, this is a material nonlinear problem in the classification of the finite element method. In terms of nonlinear solution methods, many researchers have proposed many methods to reduce,"], among which the incremental method and iterative method are commonly used. When the incremental method is used to analyze nonlinear problems, the load is divided into many load increments.

### 2.3 The Finite Element Analysis of Concrete Based on Supercomputer

The direct method has strong reliability and high accuracy, and can solve matrices with a high condition number close to singularity. The disadvantage is that the degree of parallelism is limited and requires more memory; the iterative method has a high degree of parallelism and can solve very large-scale linear systems, such as There are applications in the field of fluids that can solve more than 1 billion degrees of freedom. The disadvantage is that it is difficult to guarantee convergence and requires high preprocessing. This section focuses on the core acceleration for the time-consuming process in the matrix calculation process, so we further optimize the program on the basis of the optimization method in Chapter 3. The finite element method is widely used in accurate electromagnetic simulation of complex and fine structures. The sparse matrix generated by the differential equation of the discrete electromagnetic field of this method has poor performance, and has problems such as large amount of calculation and slow iteration convergence. In view of the above situation, this paper studies the large-scale parallel calculation of finite element. The so-called FE-IEEE (Finite Element-Iterative Integral Evaluation) method is used as the basic finite element algorithm. This method can reduce the amount of additional calculations and has a higher efficient. Formulas can be divided into two groups: differential form and integral form, each of which actually corresponds to an electrical law. Only three of the equations in the four groups are independent, and the other group can be derived from the other three (in fact, Maxwell's own original equations are more than 20, because they are all expressed by scalar fields. Later, it was a low-key big cow. Oliver Heaviside wrote it in a common form today, not only concise but also clear in physical concepts). For a hundred years, people in the microwave field have been studying how to solve this equation under different conditions.

## 3. CONCLUSION

This paper refers to the work of nonlinear finite element analysis of reinforced concrete at home and abroad in recent years, and on the basis of absorbing and using the existing results of other researchers, a complete nonlinear finite

element simulation analysis program of reinforced concrete is compiled. A lot of work has been done from the two aspects of finite element model and algorithm selection and programming realization. The more mature constitutive model, failure criterion and crack model are adopted, and the analysis of reinforced concrete structures has high reliability. It mainly analyzes the randomness of structural cracks caused by factors such as material uncertainties, and establishes the corresponding random model adopts Monte Carlo method to realize the simulation of the random quantity of the structure.

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# Seismic Behavior Analysis of Exposed Rigid Box Column Hybrid Joints

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**Abstract:** The connection joints of the upper and lower structures of exposed rigid box columns are the key to the seismic design of RC frame light steel storey adding hybrid structures. The low cycle repeated loading tests were carried out on two exposed rigid box column hybrid joints with I-shaped and box shaped upper columns, respectively. The failure mode, hysteresis curve, skeleton curve, strength degradation, stiffness degradation and energy dissipation capacity of the joints were compared and analyzed. And compared with the full welding of the inner diaphragm, the finite element model of the joint under the two conditions is established, the stress and deformation of the steel joint are compared and analyzed, and the safety of the joint is evaluated for reference in engineering design and construction under similar conditions.

**Keywords:** Seismic behavior; exposed rigid box ; column hybrid joints

## 1. INTRODUCTION

Proceeding from China's national conditions and realistic conditions, the method of adding light steel to the RC frame structure can increase the use area without disturbing the original structure, and can effectively alleviate a series of resource and environmental problems such as serious land tension, farmland loss, environmental pollution, etc; The exterior and structural functions of the building can be readjusted; It can also solve the problems of water leakage and thermal insulation of the original building roof. When the frame beam is rigidly connected with the column, the horizontal stiffening rib or horizontal stiffening diaphragm of the column shall be set at the corresponding position of the beam flange. The four sides of the horizontal stiffening diaphragm of the box column shall adopt groove full penetration welds.

For non-seismic fortification structures, the diaphragm shall be able to transfer the concentrated force at the beam flange, and the thickness shall not be less than half of the beam flange; For seismic fortification structures, the thickness shall be equal to the beam flange. The joint form proposed in this paper is that the precast beam can be placed in the dark area of the precast column to densify the section fibers and obtain accurate results.

The figure illustrates the use of fiber section by taking the column section on the socket as an example through the pre-stressed steel strand set at the center of the beam section. The concrete is divided into beams and columns for assembly. The angle steel on the upper part of the unbonded beam has loose fiber dimensions through the core area of the internal core area and the external protective layer area and is fixed at the node through the embedded anchor bolt to dissipate energy. The protective layer area at the abutted joint is dense, and the longitudinal reinforcement is defined separately by order. Pour polyacrylonitrile fiber mortar.

Exposed rigid box column hybrid joints is shown below.

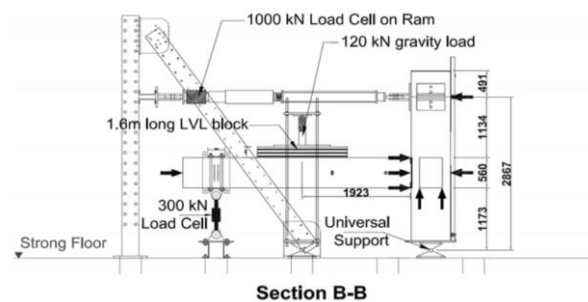


Figure. 1 Exposed rigid box column hybrid joints

## 2. THE PROPOSED METHODOLOGY

### 2.1 Size Design and Fabrication of Test Model

In this test, the test model is finally determined as a semi rigid box column steel frame support structure with two spans in X direction and one span in Y direction through ANSYS simulation calculation, taking into account the size of the shaking table and the maximum allowable loading limit (maximum allowable loading acceleration and displacement) in the structural laboratory of Harbin Institute of Technology. The beam column joints in X direction are hinged.

The Y-direction beam column joint is a semi-rigid connection with top and bottom angle steel. Therefore, this paper takes the joint as the research object, through the quasi-static test of two exposed rigid joint specimens, compares its strength, stiffness, ductility, energy dissipation capacity and other seismic performance, and deeply analyzes the reasons that affect the seismic performance of the joint, providing some technical support for the design and construction of RC frame light steel storey adding hybrid structure.

When the current passes through the slag, the resistance heat generated is used as the heat source to melt the base metal and filler metal to fill the weld bead, so as to realize the welding between the inner diaphragm and the main board. The model

is used for the reinforcement and prestressed steel strand), The steel bars in the plastic zone of the beam end adopt the compression only finite element model (that is, the tensile stress is to simulate the compression stress between the beam end and the column after the gap opens. According to the size of the bolts of the seismic station, the column base plate is designed, and the position of the structure in the seismic station is determined.

## 2.2 Seismic Performance Analysis

In order to prevent the shear force transmitted by the beam end or the bending moment at the semi-rigid joint from causing buckling damage to the column surface during the test, cross stiffeners are welded inside the columns at the beam and column joints. First, a four-story concrete frame with three spans and six column spacings is designed through PKPM modeling, and a light portal frame is added to the top floor to form a "4+1" RC frame light steel storey adding hybrid structure. The three spans are 6.9, 2.6 and 6.9 m respectively, that is, the top floor light portal frame has a span of 16.4 m, a column spacing of 7.2 m, and a storey height of 3.6 m. The design earthquake group in the area where the structure is located is the first group. In this paper, the Solid45 element in the ANSYS software element library is used for geometric and material nonlinear analysis.

Solid45 element is used to establish a three-dimensional solid structure model. The element is defined by 8 nodes, each node has 3 degrees of freedom: translation in x, y, z directions. The element has the functions of plasticity, creep, expansion, stress rigidity, large deformation, large strain, etc. The beam and column adopt nonlinear beam column element, which includes two kinds of elements based on force seismic performance analysis and one kind of element based on displacement, it can be selected according to specific conditions.

The stress of the prestressed steel frame is similar to that of a material, which depends on the aforementioned modeling method. For the new fabricated prestressed composite beam members, only the force is saved - mechanical movement. Reflection phenomenon of the structure under 70gal acceleration: the structure shakes very slightly under 70gal seismic wave, and the shaking amplitude of the seismic table is very small (after sorting out, the real maximum displacement of the structural column base, i.e., the seismic station shaking, is 10.854mm, which is collected from the IMPERIAL wave working condition). The displacement between the floors of the overall structure is not obvious.

Use the test piece to make the remaining concrete and make 3 pieces of 150 according to the standard test method  $\times$  one hundred and fifty  $\times$  150 concrete test blocks, after 28 days of natural curing at room temperature, carries out compressive strength test on the electro-hydraulic servo universal testing machine, and the measured average compressive strength of the cube is 32.17MPa.

## 3. CONCLUSION

In this paper, the pseudo static test of two exposed rigid joint specimens is carried out, and the following conclusions are drawn. Of course, these conclusions need to be further verified by more tests and theoretical analysis. The mechanical performance of the joint is analyzed, and the force transfer mechanism, stiffness and ultimate bearing capacity of the joint are compared with the commonly used four side welding model of diaphragms. It is concluded that the box

column in this project is safe to use the three-side welding method of inner diaphragms.

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# Application of Network Multimedia Extension Topology Algorithm in Wisdom Cloud Sharing of English Teachers' Scientific Research Platform

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**Abstract:** Application of the network multimedia extension topology algorithm in wisdom sharing of the English teachers' scientific research platform is studied in the paper. In order to correctly read the original data of the STL model, better use the OpenGL technology to display the three-dimensional graphics, and realize its operation, we must understand its structure on the basis of fully understanding the STL file. This optimization also serve as the basis of the platform design. Specifically, the implementation process of the algorithm itself cannot increase the network traffic too much, and at the same time, it should also try to minimize the time required for discovery, otherwise it will then affect the performance and efficiency of the network as a whole. Then, we use the network multimedia extension topology algorithm to handle this challenge. Furthermore, the English teachers' scientific research platform is designed and tested based on this model.

**Keywords:** Network multimedia; extension topology algorithm; cloud sharing algorithm; scientific research; smart platform

## 1. INTRODUCTION

There are many kinds of algorithms for realizing topology discovery, but in terms of its performance and efficiency, there are only two index parameters to judge its pros and cons: network load and discovery delay [1, 2, 3].

Specifically, the implementation process of the algorithm itself cannot increase the network traffic too much, and at the same time, it should also try to minimize the time required for discovery, otherwise it will then affect the performance and efficiency of the network as a whole [4, 5, 6]. For simple models, such as cubes, cylinders or spheres, they can often be modeled according to their analytical expressions, and a slightly more complex combined model can be constructed with the help of Boolean operations, but this method is not suitable for the processing arbitrary structural models, because any Surfaces cannot resolve expressions as listed aspects [7-11].

(1) Each time an intersection is found, two nodes of the intersection type are established and inserted into the linked list of the region and the polyline respectively. Then, the pointers of these two nodes are stored in the intersection list on the edge of the core region in turn. Secondly, find the intersection between the polyline and the polyline. In the same way, each time an intersection is found, two nodes of the intersection type are established and inserted into the linked list of the two polylines respectively [12, 13]. Then "judge whether the intersection is in the area. If the intersection is an intersection inside the area, store the pointers of the two nodes created by it in the intersection list inside the area in turn, otherwise store it in the intersection list on the edge of the area.

(2) From the established area on the edge of the sequential took out a nodes in the node list, if the node is in the area on the list of on list as the starting point of the nodes along the area according to clockwise traversal, as every meet next convergence by the best route to select the best path , then

jump to this path to proceed clockwise traversal, until back to the starting point for that completed a child area and stores it. In the figure 1, the extraction topology is defined [14-19].

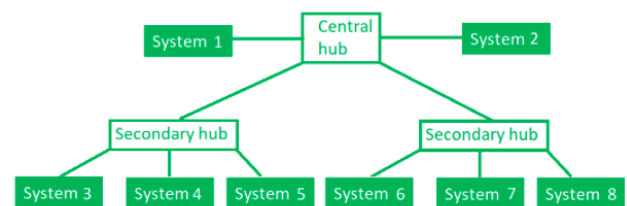


Figure. 1 The Network Multimedia Extension Topology Framework

Based on this model, the designed multimedia framework will be considered. At present, there are many methods of video image acquisition, mainly including two categories: (1) Automatic image acquisition: using a core dedicated image acquisition chip, automatically completes image acquisition, frame memory address generation and image data refresh; in addition to setting the acquisition mode. In addition, the main processor does not participate in the acquisition process; the characteristics of this method are that the acquisition does not occupy the time of the CPU, the real-time performance is good, and it is suitable for the acquisition of moving images; (2) processor-based image acquisition: using general video the A/D converter realizes the acquisition of the image, but the automatic acquisition of the image cannot be completed. The entire acquisition process is completed under the control of the CPU. The CPU starts the A/D conversion, that reads the A/D conversion data, and stores the data in the frame memory.

With these general theoretical basis, the novel network multimedia extension topology algorithm in wisdom sharing of the English teachers' scientific research platform is studied in the paper. The rest of the paper is organized as follows. The section 2 reviews the related work; the section 3 discusses the

proposed model; the section 4 gives the simulation and the section 5 provides the conclusion.

## 2. LITERATURE REVIEW

The reviewed in focused on the extension topology algorithm details. The distributed database stores the topology information of the managed network and other important information of the network [20, 21]. The network topology information is the cornerstone of the whole system, which provides the user with a description means to describe the operation object [22, 23]. At the same time, the important network information it stores can be used to realize the distributed management platform of the WAN. When traversing along an area or polyline, we should choose the best path when we encounter an intersection [24, 25].

This path should ensure that the core traversal direction is clockwise, and the sub-areas obtained by traversal do not contain other sub-areas. This method of direct division of complex models is mainly divided into cell scanning method based on AutoCAD and VBA macro language, solid division method, etc. and the various division methods based on ray intersection. The cells are scanned row by row and column by column, and the volume of the intersecting part with the solid model is compared; the solid model first cuts the solid model, and then compares the size with the cell grid; although the VBA-based subdivision method is relatively simple, popular It is easy to understand, but it can only be realized by software such as AutoCAD, so the scope of application is limited. The division method based on the principle of ray intersection is another kind of commonly used methods, such as vector operation, winding number algorithm.

The odd or even number of intersection points can be used to determine whether the ray intersects with the triangular surface element, which can achieve the better segmentation effect. Among them, the winding number algorithm is judged by the sum of the included angles of the connection line between the vertex of the triangular surface element and the test point. The general algorithm is designed considering the requirement that all MIB nodes can be detected, but this also brings the expansion of the search range, which affects the efficiency of the algorithm.

In order to improve the convergence of the algorithm, we can set the search depth or manually specify the jump number to limit the search.

## 3. THE PROPOSED METHODOLOGY

### 3.1 The Network Multimedia Extension Topology Algorithm

The STL file format is a file format that expresses solid surface data with triangular patches. It is a collection of several small triangular patches in space, each triangular patch is represented by three vertices of the triangle and a normal vector pointing to the outside of the model. Due to the defects of the STL file format itself and the errors in the data conversion process, there are also many defects in the STL model, such as general loopholes, cracks or overlaps, vertex misalignment and normal vector errors. These will bring a lot of the trouble to the subsequent processing. Therefore, it is necessary to check it for data errors and make corresponding fixes [26-28]. A common method is to use a special error correction program for one or several specific defects of the STL file. We can consider that in the three-dimensional model formed by STL file, if a triangular patch with normal vector error is found, it will be deleted. After deleting all triangular patches with normal vector error, the shape of the holes left is

the boundary formed by the triangular patch with normal phasor error. Obviously, these holes cannot be closed or intersected with one or more edges. In other words, they either do not intersect or intersect at a limited number of points.

The topology repair function is only performed when a link down occurs. When a link is disconnected, if the disconnected link belongs to the link in the ring, the set division will not be then affected, and the network layer communication between nodes will not be affected. If the link is disconnected so that 1 set is separated into 2 sets, it is necessary to perform set merging. From the perspective of network management functions, all functions of the network management must be established on the premise of realizing the network topology diagram. From a technical point of view, the network topology based on mobile agent includes all the basic operations of the network management based on mobile agent, such as mobile agent derivation, migration, replication, destruction, etc.

According to the characteristics of the mobile agent, the network topology algorithm is divided into three parts. One part is the discovery of the core network topology, and the discovery agent is designed to realize the rapid discovery of network nodes by discovering the flooding of the managed network by the discovery agent. The topology information is sent to the network management station, and the application server at the network management station uses the topology information to generate a network topology map. For this function, a report agent is designed. Using random clock signals to introduce non-deterministic mechanisms on smart cards is an effective way to prevent side-channel attacks. Of course, this countermeasure also needs to incorporate random timing signals to introduce random switching states of idle periods to prevent reconfiguration of the clock signal. In the figure 3, the topology pattern is defined.

### 3.2 The Multimedia Extension Topology Algorithm in Wisdom Cloud Sharing System

Promote the construction of the unified public area video surveillance. In order to alleviate the problems of difficult interconnection, less sharing, and repeated construction of the video resources in the public areas, a guideline for video construction in public areas is formulated to open up the link between the e-government extranet and the public security video network. The GBCP model takes P as the inner point and G, B and C as the outer points to form a harmonious triangle, which reflects the complex dynamic harmony of the urban life. Based on P, that is, the public space and also environment constructed by the urban ecological environment and the built environment space, and around the provision of urban public facilities and various urban services, construct the government governance system G, social production space and its social community B, community living space and Community Community C, build a core complete dynamic circulation system covering all aspects of urban governance, fully activate the vitality of the government, the market, and the society to achieve urban mass creation and co-governance.

Smart city governance is to explore innovation 2.0 through digital modeling based on the scientific research on urban complex systems, urban digital transformation based on the GBCP model, and smart living laboratories in the new data environment. The service content mainly includes GIS service, MIS service, the OA service and other public services. GIS services include electronic map services, image services, GIS function services, OGC standard service



engines, etc.; MIS services include file management services, general financial management services, the engineering management services, human resource management services, business management services, and multimedia management services, etc.; the OA Services include workflow services, OA office collaboration services, document circulation services, etc.; public services include security authentication services, unified authorization services, etc.

The file where we save the topology information of the triangle element actually uses the vertex number in the vertex file to replace the representation of the vertex coordinates of the triangle element in the original STL file, the order remains unchanged, and of course, the out-of-unit normal vector is removed. Accordingly, we consider the listed aspects.

(1)ARM refers to a 32-bit single-chip microcomputer. Due to its structure and calculation speed, it is currently suitable for transaction processing or low-end applications, from mid-to-high-level industrial control to general simple voice/picture processing.

FPGA as the new FPGA can construct a soft core with internal multipliers/registers/memory blocks. For example, if an ARM is constructed, the functions of the ARM can be implemented; if it is constructed as a DSP, the functions of the DSP can be implemented.

### 3.3 The English Teachers' Scientific Research Platform

In the new era, the network big data technology and the internationalization of higher education have endowed my country's higher education ecology with new characteristics, reinterpreting the meaning and connotation of college English teachers' professional development. How to improve the effect of the college English teaching, make greater contributions to improving the competitiveness of Chinese college talents, how to improve English teaching ability in the era of information technology and big data, rationally reflect on the confusion in teaching, and the theorize teaching experience, all of which require college English teachers have the ability to integrate teaching and research.

System Linguistic Functionalism understands language as a potential system of meaning composed of three pure functions, including conceptual function, interpersonal function, and discourse function. Among them, conceptual function belongs to the function of language to actually describe things; interpersonal function belongs to the function of language in communicating and building interpersonal relationships between people; discourse function belongs to connecting sentences in a discourse by means of language. The function of writing a text, the function of discourse combines conceptual function and interpersonal function with a specific situational context and integrates it into a whole in the text. Scientific research condenses and summarizes the theoretical and regular cognition, and raises it to the principle of regularity to better guide the development of practice. Research and teaching are closely related. Teaching is the foundation of scientific research, and also teaching practice provides rich materials for scientific research.

The teaching insights obtained by teachers in teaching practice are scientifically refined and processed to form research results with universal guiding significance. This is the process of the scientific research. If teachers establish this objectively existing cognitive relationship in their ideology, through the research and practice of the foreign language education theories and methods, they can open up a way to

effectively improve teachers' professional level and professional level. This is the only way for college English teachers to enhance their scientific research ability and with the help of the mentioned platform, the performance will be then validated.

## 4. CONCLUSIONS

Application of the network multimedia extension topology algorithm in wisdom sharing of the English teachers' scientific research platform is studied in the paper. A router is often configured with multiple IP addresses. We also call this kind of node with multiple IP addresses a "multi-homed host". In the previous topology algorithm, a processing queue was specially set for this kind of router, and then set for each router and a unique identifier to identify. Hence, with this theoretical background, the novel model of the network multimedia extension topology algorithm in wisdom sharing of the English teachers' scientific research platform is designed. In the next stage of the study, we will consider some different applications.

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# College English Translation Teaching in the Context of the Internet to Improve Students' English Application Ability

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**Abstract:** English teaching should pay attention to practicality. English translation ability is an essential ability for students in the process of English communication. Translation teaching should truly enable students to master the methods and skills of English translation. Teachers should strengthen the penetration of English translation theory and translation skills in the teaching process, so that students can understand the important methods and means of translation. Gradually attach importance to the teaching of college English translation, and constantly carry out reform on the basis of attention, so as to improve the students' comprehensive application ability. Only in this way, the talents trained by universities will increasingly tend to the talents required by the mainstream development of the world.

**Keywords:** English Translation Teaching; English Application Ability; Context

## 1. INTRODUCTION

The ultimate goal of college English teaching is to cultivate students' ability to use English, and translation teaching is an important part of English teaching. Students should have good English translation ability in the process of English listening, reading and even writing. In the future real English communication, students can better communicate with each other only by accurately understanding and translating the other's language. Compared with Westerners, Chinese people have great differences in thinking due to different cultural heritage and religious beliefs, Furthermore, it is different from us in terms of language expression and language thinking habits.

However, many university teachers do not take this into account in the teaching process, which makes the teaching process ignore the education and guidance of students' cultural thinking, providing a medium for our world integration. At present, under the international situation, the popularity of English has exceeded our imagination, and it is also related to our study, work, and life. And English translation, to some extent, also shows the differences in the development of English. The development of Chinese and Western translation is very rapid, so we should study the specific situation and make unremitting efforts for its further development.

Nowadays, English majors are short of background knowledge, which leads to various problems in practice. If you want to translate articles accurately, you must master literature, history, geography, and other knowledge. Only in this way can you avoid mistranslation in translation. Lack of translation skills. In the process of translation, translation skills are also very important. Only by mastering certain translation skills can we avoid literal translation and dead translation in the process of translation.

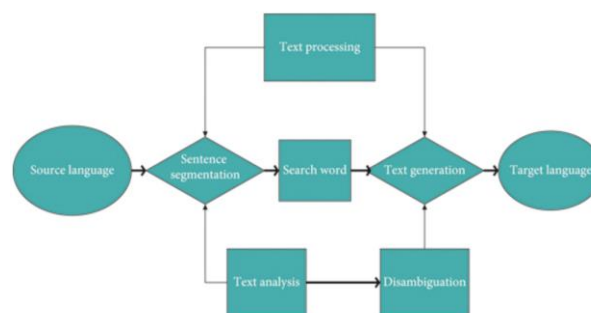


Figure. 1 Classic translation mode (Image from Internet).

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Practice and Further Thinking of Modern Flipped Classroom Teaching Mode

Make teachers and students clear about the knowledge they want to teach and learn and what level they should reach at what stage. The content of translation theory is very broad, involving Chinese linguistics, foreign language linguistics, etc. To achieve accurate translation between English and Chinese, students must systematically master the theoretical knowledge of translation. As an English teacher, we should pay more attention to English translation teaching. Teachers should make students understand the equivalence between the translated text and the original text, and systematically introduce literal translation and free translation to students and related theories on the basis of cultivating college students' English cultural awareness, improve students' English application ability.

The cultivation of English cultural awareness is the cornerstone for college students to learn English well and improve their practical ability. If students want to use English accurately and translate English dialogues, they must understand the culture of English-speaking countries. Under the background of the development of the current network

technology, our university translation teachers can reduce the work pressure through the network technology and provide more guidance for more students to improve their comprehensive abilities.

In the process of practical English translation teaching research, we can prompt students to learn to use the online platform to investigate the background of English translation, so that they can more comprehensively and vividly propose the connotation and implication of the translation content and use the English expression skills in the context to carry out specific translation work. If you want to improve your language ability and make your basic skills become solid, the content you learn in class is very important, but it is also inseparable from your usual reading.

## 2.2 The University Students' Career Education

The skill of translation is very strong. Teachers do not take flexible means and methods to carry out translation teaching, which leads to low interest of students. Teachers directly give relevant exercises to let students translate English into Chinese.

Students feel that translation is difficult, and the process of translation is very boring. The improvement of students' English translation ability and comprehensive ability will be affected.

The status of college English translation teaching will be improved, and the concept of college English translation teaching will be changed. In many colleges English teaching, we can find that many colleges English teachers only attach importance to the spread of English knowledge in the classroom, but pay little attention to English translation teaching, which largely ignores the important position and role of English translation in the overall education. The three ways of English learning are:

(1) Relatively speaking, most people believe that good names can bring good luck to a person, and most of them are the simplest to express the most profound meaning.

(2) Under the background of the development of the existing translation work, the use of English translation methods is particularly important. It requires translators to develop and improve their theories, establish the awareness of lifelong learning English translation, make full use of existing translation resources, and create their own English translation characteristics through the combination of theory and practice, so as to provide customers with optimal translation texts.

(3) If we want to solve the problems in college translation teaching, we must affirm it, and then seriously consider the content we need to teach and formulate a certain outline.

## 3. CONCLUSION

English translation is the basis for the improvement of students' English application ability. College English teaching should actively explore effective translation teaching methods and strategies, infiltrate translation theory and translation skills into classroom teaching, adopt systematic teaching mode, constantly complete the improvement and shaping summary of college English translation teaching program,

improve teachers' teaching efficiency, and improve students' English application ability. We can carry out the classroom teaching of college English translation, and actively explore the teaching mode suitable for our college students' development, so as to improve students' English application ability.

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# Research on Dynamic Visual Simulation of Hydropower Project Construction Based on Virtual Reality

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**Abstract:**In this paper, the basic theories and algorithms of virtual reality technology are studied, and the key technologies for drawing outdoor large-scale virtual scenes, realistic terrain simulation, virtual sound field simulation, and traffic layout in the construction site, three-dimensional road design, and dam construction simulation Visualization has been studied, and the system simulation information and graphics are closely combined to provide a new environment for the design and management of water conservancy and hydropower projects, and to provide decision-makers with a more scientific and intuitive basis.

**Keywords:** Dynamic Visual, Hydropower Project, Virtual Reality, Visual Simulation

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## 1. INTRODUCTION

Our country's machinery and equipment are mainly used in various industrial fields, engineers always hope to reduce the construction cost and shorten the construction period under the premise of ensuring the quality of construction. Usually, with the help of the knowledge and experience of experts and engineering technicians, the mathematical model and the knowledge model are combined well, and simulation is carried out for optimization. Mechanical design and manufacturing are usually called industrial machinery, and various types of technical equipment are continuously delivered to various industries to promote the rapid development of my country's industry. [1-6].

Mechanical automation technology was first developed and applied in the mass production process of mechanical manufacturing cold working in the 1920s, and after the 1960s, it was adapted to the needs and changes of the market. Mechanical automation refers to the use of automation technology in the mechanical manufacturing process to make the production and processing process more continuous, continuous improvement and optimization to form an automatic production process. Automation technology cannot be limited to the simple repetitive actions of machinery. It should set relevant programs from the source to make machinery intelligent. When problems occur in the system, it can self-diagnose and maintain. However, only the combination of mathematical model and knowledge model cannot directly reflect the characteristics of the object, and cannot fully display the cognitive ability and subjective initiative of engineers. Technology is a kind of emerging engineering technology in the field of information science. It is an interdisciplinary development adjust the operation according to the actual situation to accurately complete the task., sensor technology and multimedia technology, network communication, object-oriented technology and intelligent decision support system [7-12].

At present, corresponding results have been achieved in applications in navigation, flight simulation, military training simulation, entertainment industry, and medical treatment. How to apply the existing advanced scientific and technological concepts for hydropower engineering scientific research is a question that all scientific and technological workers think about. In China, the research on dynamic visualization The purpose of mechanical design and

manufacturing and its automation design is to meet last century, and many universities and scientific research institutions including Wuhan University, Tianjin University and Zhejiang University have done in-depth research and discussion. Due to the complexity of the construction scene itself and the construction process, how to realize the combination of graphics and water conservancy and hydropower engineering simulation calculation theory has not been completely resolved. Based on the unique advantages of virtual reality in visualization, this article introduces it into the functional requirements of mechanical equipment, so that it can play its role in industry or engineering, showing virtual construction scenes with a sense of reality, dynamic and intuitive display of changes in construction process conditions, in order to improve the design and management level, and explore new Management, design methods and theories, re-examine the construction management of the project, and completely get rid of the limitations brought by traditional management methods and ideas. form a high-quality, high-efficiency mechanical equipment system is complex, the scale of construction is large, the external environment is changeable, and the cost is huge. Therefore, repeated demonstrations and sufficient investigations are important tasks for the construction of the project. During the construction process, the scientific rationality of various schemes is continuously analyzed comprehensively. So as to form innovative or new programs [13-16].

Through intuitive and accurate evaluation and analysis of several different schemes, the design scheme suitable for local conditions is finally selected, which is not only a major scientific issue of shortening the engineering cycle and improving the level of design management, but also meeting the urgent requirements of rational design of construction organization. Based on this, this article introduces virtual reality technology (Virtual Reality, referred to as VR) to provide a new environment for t and fundamentally improve the economic benefits of industry or engineering, so as to explore new management methods and theories, re-examine the construction management of the project, and completely get rid of traditional management limitations brought by methods and ideas [17-21].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Virtual Reality

The original design of any mechanical equipment is to meet people's needs, and different products will have their core performance due to different needs. For example, the central performance of a crane is lifting and emergency rescue. When people apply automation technology in the machinery manufacturing industry, they must fully consider the core needs of users, and reflect product information and functions to meet people's different needs. There are certain differences between mechanical design and manufacturing and its automation and other mechanical manufacturing theories, which require continuous innovation and improvement on the basis of intelligence, automation and information technology to ensure the maximization of mechanical equipment production and manufacturing benefits. Machine automation is the combination of products by means of rational mechanical functional measures. From planning, to performance debugging and final production, a mechanical automation system is gradually formed, and the mechanical design process needs to meet the functional requirements of the machine. Manual operation often has the shortcomings of low precision and difficult quality control, which is very disadvantageous to production efficiency and product quality.

### 2.2 The Construction Dynamics of Hydropower Projects

The general layout Mechanical automation must improve the accuracy of the equipment is an important link in the design of construction organization. Its design is wider and its influencing factors are also more complicated. Especially in order to solve some uncertain things in the layout process, it is possible to lay out safe, reliable, economical and reasonable construction facilities that are suitable for production organization and management with the help of the knowledge and experience of experts and engineering technicians. Based on this feature, some it can run stably and continuously, which can liberate the operators from the complicated assembly line work site evaluation, optimization and layout of major temporary facilities, they have discussed theoretically and methodically, and put forward the procedures, procedures, and layout of facilities layout. The method of project evaluation and the corresponding mathematical model.

Based on the achievements of the predecessors, we introduced technology and adopted an object-oriented method to model each building entity to make it have a realistic geometric shape. At the same time, we can closely contact the physical concept and functional requirements of the design, and reflect the operation brought in time. Response, and provide corresponding program evaluation. In this way, designers can operate the space entities in a natural way, and carry out the spatial arrangement of large-scale temporary facilities and major auxiliary enterprises according to different design requirements. The simulation of the actual system operating status over time is the numerical calculation of visual simulation. The basic characteristics and output parameters of the simulated system are determined through statistics and observation of the simulation operation process, and the actual performance and parameters of the actual system are inferred and estimated. According to the characteristics of state continuity, it can be divided into discrete and continuous systems. The state change of each construction object at a time point is the focus of the simulation calculation of the water conservancy and hydropower construction system, such as the cumulative amount of completed square meters, service

objects, machinery, elevation, etc. As time changes, these variables show jump-like discontinuous changes.

### 2.3 The Dynamic Visualization Of Hydropower Project Construction Based On Virtual Reality

Nevertheless, technology-based visualization has its unique charm and market prospects for cartography. The general layout of construction is an important part of the design of construction organization. It involves a wide range of areas and complex influencing factors. Large-scale water conservancy and hydropower projects are generally located in mountainous areas, with complex terrain and relatively large undulations. There are usually complex high-, medium-, and low-line traffic roads or tunnels. It is difficult to reflect the impact of topography on the layout of buildings in a two-dimensional environment. These factors can be fully considered in the construction simulation VR system. The space position parameters of the material yard, living housing, mixing building, parking lot and other still life can be edited through operations such as zooming, translation, and rotation; On the basis of the transportation node, the feasible area is divided into connected network nodes, considering the balance of earth and stone excavation and filling, cost, and linear quality (including exercise safety and comfort indicators), combined with material allocation and transportation, the route cost model is established according to quantitative evaluation indicators, and dynamic The planning method is optimized. The parameters of the transportation road need to be designed according to the current address and topographic characteristics in accordance with the basic requirements of transportation, and determine its slope, width, foundation thickness, etc.

The interior of the construction site of a large-scale water conservancy and hydropower project can generally be divided into the following main areas, the main project construction area, auxiliary enterprise area, warehouse, station yard, transfer station, wharf and other storage and transportation center construction management, and main construction section area, building material mining area, electromechanical, metal Structure and large-scale construction machinery and equipment installation site engineering spoil storage area living and welfare area. The construction areas are not completely separated in layout. They are connected with each other in construction, production technology and layout, and sometimes interspersed with each other to form a unified, flexible scheduling and convenient operation.

## 3. CONCLUSION

In this paper, an object-oriented method is used to develop a virtual scene simulation system for hydraulic and hydropower engineering construction. The graphics are extremely expressive, easy to operate, and have good scalability. It can be widely used in the general layout of water conservancy and hydropower projects and various dam construction simulation dynamics. The visualization helps decision-makers quickly and intuitively grasp the construction status and improve the management level. On the premise of classifying the virtual scene model objects of hydropower projects, the modeling techniques are studied respectively.

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# Deep Retrieval Algorithm for Metaphorical Frame Data of Narrative Structures of Chinese and American Electronic Information Disciplines

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**Abstract:** This paper analyzes the similarities and differences of electronic engineering majors in Chinese and American universities from the aspects of undergraduate teaching operation and management, professional curriculum setting, and teaching and evaluation methods. Point, Image Retrieval Model DSHB in Deep Semantic Hashing. Designing end-to-end deep learning networks suitable for retrieval tasks is one of the research hotspots in image retrieval. The dissemination mode of narrative exhibition is embodied in a multi-level nested non-continuous weak logical link process, and its structure is different from the one-way model of novels and movies, and is a feedback model of leap-forward dissemination.

**Keywords:** Deep Retrieval Algorithm, Metaphorical Frame Data, Chinese and American, Electronic Information Disciplines

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## 1. INTRODUCTION

The Pennsylvania State University (PSU) is a world-renowned public university and one of the top public universities in the United States [1-3]. Its academic research capabilities are at the forefront of the world, in engineering, meteorology, earth science, geography, and communication science. In fact, foreign countries have gone a long way in this regard.

Let us first look at some papers published in *Narrative Inquiry*, a well-known American magazine in 2011: "The Telling and Regulation of Life Emotions in Preschool Children's Autobiographical Narratives: The Role of Mothers' Conversational Cooperation" [4]. Texas The University of Arlington is a comprehensive university with both teaching functions and research and public service functions. Arlington ranks second in the University of Texas system, and the School of Engineering ranks in the top 50 graduate schools in the United States [5].

Compared with domestic colleges and universities, American higher education disciplines have distinct characteristics and comparative advantages, and domestic higher education can learn from excellent practices [6]. Relying on the main majors of the school or related majors of famous foreign universities, the college organizes Sino-foreign cooperative education programs targeting domestic students, and jointly trains undergraduates in the fields of science, engineering and management. The research background of image retrieval mainly includes the following aspects [7].

First, with the rapid development of the mobile Internet, social networks are increasingly popular, and the number of users and smartphones is increasing. According to the "Statistical Report on Internet Development in China" [8] released by the China Internet Network Information Center (CNNIC), as of December 2018, museums used to represent human's understanding of the world, while today's museums are obliged to Be a memory center for the community. This is why, after the National Museum of Brazil was destroyed by a fire, people heatedly discussed on social networks whether

Brazil's 200-year-old civilization memory would be wiped out with the fire [9].

When there are no physical objects, can the memory of human civilization be preserved in museums? The Washington Accord, initiated and signed by civil engineering professional groups in the United States, the United Kingdom [10], Canada, Ireland, Australia and New Zealand, mutually accredits undergraduate engineering talents qualifications. The agreement proposes a set of assessable basic requirements for the attributes and professional abilities of graduates in the "Graduate. Attributes and Professional Competencies (Graduate. Attributes. and. Professional. Competencies)" about one in every 50 engineers [11]. The name comes from this college. The School of Engineering includes the Department of Aeronautical Engineering, the Department of Agricultural Engineering, the Department of Bioengineering, the Department of Chemical Engineering, the Department of Civil and Environmental Engineering, the Department of Computer Science and Engineering, the Department of Electronic Engineering, the Department of Engineering Science and Machinery, and the thesis investigation dialogue [12].

How Space Creation Helps Adolescents Use Email (rather than Face-to-Face Communication) to Write About Self; "Constructing the (M) Other: Mainstream and Counternarrative Raising a Child with Down Syndrome" ["Constructing the (M) Other: Dominant and Contested Narratives on Mothering a Child with Down Syndrome"], a comparison of undergraduate courses between two universities in Tianjin Normal University [13].

This article compares the talent training methods in the United States and China from the perspective of the curriculum setting and implementation of the electronic engineering undergraduate majors in the two universities, hoping to provide reference for further promoting the talent training and curriculum reform of electronic information science and technology in Tianjin Normal University [14]. With the rapid development of the electronic information industry, today's



society has entered the information age, and electronic information technology has become the most active and most penetrating science and technology in the contemporary era, with the characteristics of wide application, rapid update, and strong practicality [15]. Create a talent training brand of Nanyou, and create high-level talents with solid foundation, broad knowledge, strong practical ability, high comprehensive quality, innovative spirit and international vision. The program now has 4 undergraduate majors: communication engineering, computer science and technology, digital media and business administration [16].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Comparison Of Electronic Information Disciplines Between China and the United States

In particular, how they protect their rights and interests by telling stories, which can be said to be the first of its kind in domestic narratology research, and has also received widespread attention from the domestic academic circles. The development of the information technology industry requires senior compound talents who systematically master the theoretical basis, basic knowledge and professional skills of this discipline.

Accept strict scientific experiments and scientific research training From the perspective of the division of courses, FIT's curriculum includes three major modules: basic, professional basic and professional, while SDJU curriculum includes general courses, subject basic courses and majors There are three categories of ability courses, and it can be seen that the two schools have the same curriculum classification. After the discussion is over, each group of students sends a representative to the podium to make a report to everyone on the problems and solutions they have discussed in the group. Then ask the teacher and other groups of students to express their opinions. If there is a problem, please ask the question and propose a solution. Finally, through everyone's full discussion, the curriculum syllabus of American colleges and universities in cultivating software engineering comprehensive ability has the characteristics of detailed and sufficient content. Software Design and Engineering, University of Pennsylvania, Carnegie? Software development comprehensive training courses such as "Software Engineering Practice" of Mellon University and "Software Engineering" of University of California, Berkeley,

The Department of Electronic Engineering at PSU has only one major in electronic engineering, and their training plan is in line with the ABET certification requirements. First, they attach great importance to the foundation of mathematics and science, and at the same time, they also attach great importance to the education of students' humanistic literacy. In the third type, The patient seeks a new self. Of the three types, the first is where the patient actually narrates his or her illness experience in terms of social needs and therefore not the true self; in the second, the patient's life is completely disorganized. Cultivating Basic Research With application ability and innovative spirit, graduates can directly serve the society and can engage in scientific research, teaching, technology development and management.

### 2.2 The Metaphorical Framework Data for Discipline Narrative Structure

Anne Hawkins argues that disease narratives are often based on certain Recurring metaphors and myths, such as combat, travel, regeneration, etc., disease narrative authors may use canonical. The University of Texas at Arlington undergraduate electrical engineering program provides students with a broad education, and the professional preparation program is specific to engineering majors of students are offered core courses in basic science, mathematics and engineering.

From the perspective of the narrative medium of novels, since the content is narrated through the carrier of language and words, the narrative of language and words presents a specific time sequence, so the narrative of novels must follow a specific temporal logic, and the spatial form of Features are weakened in the novel. Cornell presented 15 real projects: the university library proposed the need for a war memorial website to preserve and digitize Cornell's war materials during World War I; Daily information, job tasks and a database that provides task tracking and more.

### 2.3 The Deep Retrieval Algorithm for Metaphor Framed Data

The first half semester of the second and third year is to study professional basic courses and laboratory courses; the elective courses of the last three semesters include 40 senior elective courses, including electronic materials and devices. . It should be said that this classification can cover many disease narratives, although most disease narratives are not written for a single purpose.

For example, in an influential autobiography of diseases published in China in 2011, This Life is Unfinished: The Life Diary of a Mother, Wife, and Daughter, this chapter proposes a multi-label image retrieval algorithm based on semantic clustering hashing. As shown in Figure 5.1, the SCBH model first uses a pre-trained convolutional network to perform feature extraction on the input image. From the perspective of the stage division of the process, the two paradigms of narrative and classification are: consistent. The completion of an exhibition needs to go through three stages of planning, design and implementation.

However, in the actual operation of each stage, the three stages are the construction methods that determine whether a narrative exhibition can be finally realized, and it is these methods that shape the different styles of narrative exhibitions. Including electronics, digital systems, microprocessors and computer programming; electromagnetism, power systems and energy conversion; continuous and discrete time systems; control and communication, etc., so that graduates have the following qualities. Set up multiple modules, divide training, and carry out knowledge education combined with "wide-ranging professional exchanges", so as to cultivate professional talents with "solid foundation, intensive practice, and high quality". At present, the course setting adopts three modules of signal processing and analysis, electronic circuit design and embedded system. A large-scale project is arranged for students. Divide students into groups of no more than 3 students per group. Ask students to design a circuit system with Matlab and calculate some parameters of the circuit.

### 3. CONCLUSIONS

This paper is based on deep semantic hashing. The image retrieval model DSHB. The success of deep convolutional neural networks has brought revolutionary changes to computer vision tasks, but in instance-level image retrieval tasks, deep convolutional neural networks are not ideal enough. The ability to integrate knowledge into problem solutions. Reviewing the literature and formulating solutions is the embodiment of cultivating the awareness of research skills.

### 4. ACKNOWLEDGEMENT

1. Systematic Construction of Output-oriented Public Graduate English Curriculum in the perspective of Emerging Engineering (Number 2018xwyj22)

2. Comparison and Contrast of Decategorization of Semantic Features in Zhuang, Mandarin and English Mental Lexicon (Number GXSK201438)

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# Research on College English Teaching Optimization Driven by Embodied Theory to Generate Ideological and Political Effectiveness

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**Abstract:** The effective integration of ideological and political education into college English curriculum is an important part of the reform of English teaching for public courses in higher vocational colleges, and also an important way to implement moral cultivation and realize the education of all employees, the whole process and all directions. Under the guidance of the concept of achievement oriented education, this research integrates the "ideological and political elements of the curriculum" into the teaching strategies of college English teaching, such as defining the teaching objectives of ideological and political education, optimizing the teaching content, and improving the evaluation methods, so as to strive to educate people in an all-round and whole process way, and organically combine English learning and ideological and political education, so as to achieve the goal of cultivating morality and talents, and to some extent, meet the requirements of the new era of the country, society The needs of teachers and students can also provide reference for other colleges and universities to integrate "ideological and political curriculum" into college English teaching.

**Keywords:** College english teaching; embodiment theory

## 1. INTRODUCTION

In June 2020, the Ministry of Education issued the Guiding Outline for Ideological and Political Construction of Courses in Colleges and Universities and other documents to make a comprehensive deployment for ideological and political construction of courses, refine the criteria for exploring ideological and political resources of professional courses, and achieve the top-level design of the system. Based on the requirements of ideological and political construction in the classroom and giving full play to the value of college English education, the American scholar Spady put forward the outcome-oriented education in 1981. This education concept is guided by the students' final learning achievements, changing the traditional "textbook centered" teaching into a "student centered" comprehensive practical teaching, The final learning results obtained by students through the education process are taken as the basis for teaching design and implementation of teaching objectives.

The integration of "curriculum ideology and politics" into college English curriculum teaching is not only a reflection of the country's requirements for higher education and talent needs, but also the needs of college English curriculum itself. The College English Teaching Guide (2020 Edition) points out that "socialist core values should be organically integrated into college English teaching content." Ideological and political curriculum "does not refer to a specific teaching method, it just proposes a new college teaching concept, breaking the traditional teaching thinking mode.

Its significance lies in that the disciplines set up in colleges and universities in China can not only impart professional knowledge to students, but also each discipline has the function of ideological education. The purpose of curriculum ideological and political education is to promote college

education to give full play to the dual functions of each discipline, systematically analyze the current situation of online and offline hybrid teaching application of college English curriculum application, and straighten out the loopholes and deficiencies in teaching application, Accelerate the adjustment of classroom structure, ensure the effective linkage between English major resources and ideological and political curriculum resources, and realize the effective construction of ideological and political system of college English curriculum.

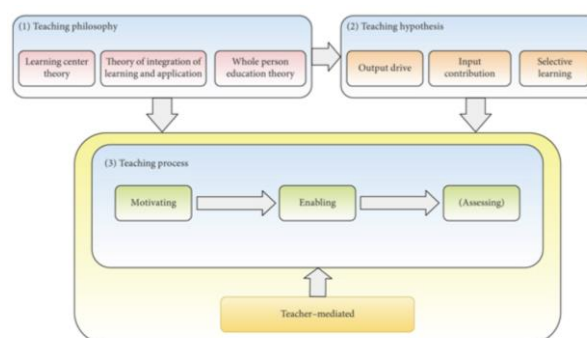


Figure. 1 Theoretical system of "output oriented method" (this image is searched from the Internet)

## 2. THE PROPOSED METHODOLOGY

### 2.1 Strategies for Realizing Online and Offline Hybrid Teaching of College English Under the Framework of Ideological and Political Integration of Curriculum

However, college English classroom is not a pure language classroom, but one of the fronts for ideological and political education. However, the "general" and "cultural" nature of English curriculum in higher vocational colleges determines the necessity and effectiveness of its "curriculum ideological and political", injects the "curriculum ideological and political" element into it in the new era, and makes our English classroom glow with different charm.

If you want to preach, you must first channel. Stimulate the patriotic enthusiasm of the young generation, and help them establish correct socialist core values, with a view to contributing to social development in the near future.

The rise and fall of a country cannot be separated from its own education. Therefore, it is of great significance for China to cultivate outstanding talents to integrate curriculum ideological and political education into college education. In the process of ideological and political construction of college English curriculum, teachers should straighten out the curriculum content and clarify the main context of the curriculum under the framework of scientific principles and practical principles.

In this way, we can gradually explore the elements of ideological and political construction of professional courses, define the framework of ideological and political construction of courses, provide directional guidance for the improvement of curriculum design and methods, and avoid loopholes in curriculum teaching.

Many teachers have doubts about "curriculum ideological and political education". They think that the English classroom is not to cultivate students' listening, speaking, reading, writing and teaching language knowledge, but ideological and political education should be placed in a special ideological and political education or the responsibility of instructors. There is obviously a lack of clear understanding of what is "curriculum ideological and political education".

### 2.2 The Practice of Integrating "Curriculum Ideology and Politics" into College English Teaching

In addition to imparting basic English knowledge to students, the college's marine characteristic courses and English for Special Purposes (ESP) courses enable students to improve their ability to conduct international exchanges in academic and professional fields; Cultural courses can help students learn the excellent traditional Chinese culture, cultivate patriotism, and strengthen cultural self-confidence. As a language course, college English aims to cultivate students' comprehensive English ability, and teachers are bound to introduce some foreign cultures in the teaching process to improve students' cross-cultural communication ability.

However, it is difficult to integrate the educational concept of ideological and political curriculum into professional disciplines, so the focus and research direction of college teachers at this stage is how to effectively combine ideological and political curriculum with college English. The scientific intervention of multiple teaching methods can better activate the teaching atmosphere of the course, ensure that

students, under the guidance of teachers, deeply feel the charm of ideological and political construction in college English courses, gradually create a good classroom learning atmosphere, and give full play to the advantages of ideological and political construction in college English courses.

The theme of this unit is cultural differences. In the overall teaching design, knowledge learning, language communication ability and cultural literacy goals are set, and according to the content of listening, speaking, reading, grammar, writing and other modules, several simple and easy to operate small goals are set to achieve the expected goals of the course step by step, and ultimately cultivate students' ability to think rationally and solve problems in different situations. Dig out the characteristics of college English curriculum, and use the advantages of the curriculum to extract the cultural genes and value paradigms contained therein.

## 3. CONCLUSION

The improvement of online and offline hybrid teaching mode of college English under the framework of ideological and political integration of the curriculum is of great benefit to the continuous improvement of teaching quality. In order to ensure the effectiveness of mixed teaching, build an online and offline teaching platform, and link ideological and political resources with professional resources, the article focuses on reality. In general, the integration of ideological and political education into the curriculum is the main direction of college English classroom reform. Teachers should first improve their political literacy as a starting point, then explore innovative teaching methods, and further use the moral education function of college English curriculum, In order to cultivate more excellent talents for the society.

## 4. ACKNOWLEDGEMENT

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# Intelligent Editing System for Behind-The-Scenes Documentaries Based on CG Image Optimization Algorithm

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**Abstract:** On the basis of studying the network planning technology and the characteristics of CG project production, the relevant calculation methods of the network diagram are discussed, and the network diagram of the system is established according to the implementation of the current task. The type characteristics of behind-the-scenes documentaries are three aspects: fixed subject matter, unified mode, poor narrative, strong sense of participation, theme attachment, and mutual contrast, and summarizes the function of commercial marketing and publicity to satisfy the audience's peeping psychology. In this paper, content-based image retrieval technology is applied to the resource search module of CGProject, and an image retrieval system ImgSearch is designed and implemented. The system has made some optimizations in image retrieval performance. Experiments show that the system has good practicability in CGProject.

**Keywords:** Intelligent Editing System, Behind-The-Scenes Documentaries, CG Image Optimization Algorithm

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## 1. INTRODUCTION

CG (ComputerGraphics) refers to the digital graphics produced by computer hardware and software. image. With the popularization of digital TV production methods, CG production has become an indispensable method for DCC (Di9itaLContentCreation) of today's TV digital content creation. CG production gives full play to the advantages of computer systems [1]. The production is fast and it is easy to adjust. On the other hand, my country's animation industry is in its infancy, and there is a big gap with the above countries. According to statistics, there are less than 10,000 people in the country now, which is only 1/3 of South Korea's [2].

The annual output of domestic animation is only 1% of that of Japan, and the average Japanese has 5.8 minutes of domestic animation, while my country is only 0.0012 dirty. The internal book resources of traditional libraries are changing from paper to digital and electronic [3]. With the continuous development of Internet technology, cloud computing technology has entered the digital library. In the daily construction process of digital libraries, cloud computing technology is used to build intelligent A modernized book collection and editing system. The types of documentaries and the theory of documentaries have been continuously improved and innovated in the continuous exploration of senior scholars and practitioners, resulting in a wide variety of documentaries of various types [4].

The emergence of behind-the-scenes film documentaries can be said to be an emerging documentary model. The earliest behind-the-scenes film documentaries in my country date back to the 1990s [5]. At that time, director Zhang Yimou was preparing to shoot some footage for the film "Happy Times". The behind-the-scenes documentary "Keep Time" was born, but the film was only collected as an image material in the end, and was not broadcast publicly [6]. First of all, the main feature of behind-the-scenes documentaries is that they use the process of film creation and related content as creative materials. As a kind of popular art, film is not only loved by the broad audience, but also the main object of academic

research. Every time a good movie is born, it will be accompanied by the attention of the public and cause a general concern and discussion in the society [7]. The subject selection background of this subject is the National High-tech Research and Development Program (863 Program) project, subject number: 2005AA114050, project name: "Research on key supporting technologies for the construction of Shanghai Digital Media Base" Sub-topic 2: CG production process and key project management technical research, hereinafter referred to as the CGProject project [8]. The main goal of this project is to manage and control the whole process of animation production projects. The needs of these practical problems should be solved content-based image retrieval technology. It has become a research hotspot in recent years [9].

Content-based image retrieval research how to express the content of an image through the visual features of the image. Extract the highly representative features and use the features as the index of the image content to achieve similarity retrieval of images [10]. Most of the existing color image forensics algorithms Convert color images to grayscale images, and then use grayscale image analysis and calculation to obtain forensic results, but when color images are converted to grayscale images, a lot of statistical features between image channels and color information are lost [11].

TV content production, broadcasting and receiving system simulation and digital technology coexist with the old and new, in the production stage [12]. TV program producers use computer technology to produce related CG images: in the viewing stage. Mainstream end users receive analog TV signals through TV receivers to watch images. In the presentation of moving images [13]. There are many technical differences between TV receiver screens and computer monitor screens. Moreover, the execution cycle of general projects is also relatively long, and the project management is complicated [14].

There are generally potential dependencies and constraints between the resources required by the uncle, as well as the

mutual substitution and exclusivity of resources, which greatly increases the complexity of the management project. It not only fully meets the needs of the development of modern society, but also improves the effectiveness of the internal management of the library [15]. The intelligent book collection and editing system can give full play to the real value of the collection resources. Reflect the reality and observe the historical and humanistic process. As an art and an industrialized social product, the development of contemporary and human beings can be said to go hand in hand [16].

Since the documentary is a mirror that reflects social life, the observation of the film itself should also be a historical mission of the documentary, and the encounter between the two will inevitably erase the spark. In recent years, with the prosperity and development of my country's film market, behind-the-scenes documentaries have also developed considerably. In 2002, the behind-the-scenes documentary "Origin" of the movie "Hero" was broadcast on TV stations across the country. As the first behind-the-scenes documentary of a film in my country, "Origin" had a sensational effect once it was broadcast [17].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The CG Image Optimization Algorithm

CG images are composed of red, green, and blue (RGB) three colors mixed in different proportions and intensities. Usually, each color channel of RGB contains 8-bit data, which can be divided into 256 gray levels considering the encoding of TV images. In this In the stage, usually two or more contractors, after carefully studying the customer's demand proposal, estimate the type and quantity of resources required, and the time required to design and implement the solution, and each propose a solution to the problem. From the results, the images and key images in the front are very close in terms of color, which is in line with human visual requirements, and the effect of Figure 2.42 is better than that of Figure 2.41. The description methods for texture mainly include: Statistics-based methods, model-based methods, and structure-based methods.

Statistics based on statistical methods include autocorrelation functions, moments, co-occurrence matrices, and several textures. The model analysis method describes texture as a corresponding probability model or a linear generative model of a series of basis functions in statistics, signal analysis, information theory and other disciplines. This is because the distribution of feature similarity is not uniform, and the components of the statistical histogram are It is quantified at equal intervals and cannot accurately reflect the hue difference. The cumulative histogram method makes the distance between chromaticity values proportional to their visual similarity, which is more advantageous. We first perform CD transformation on the quaternion to obtain two complex numbers, and then perform dual-number complex wavelet transformation on the two complex numbers to realize the quaternion wavelet transformation of grayscale images. CG projects are generally very complex large-scale projects. It is difficult for managers to think through every aspect of a project based on experience.

At the same time, many constraints such as construction period, quality and resources will make the project manager feel unable to start. The project management system is a set of multi-functional and multi-user project management system developed to meet the needs of the 3D animation development and production team to carry out project management

informationization. It is a set of professional project management software for all animation development project teams. Discrete wavelet transform, contour wavelet transform overcomes the shortcomings of discrete wavelet transform and has advantages in directionality and anisotropy. Based on this advantage, contourlet transform can extract more than discrete wavelet transform in terms of image features compared with discrete wavelet transform. Wavelet transform has more edge features and feature information in multiple directions.

### 2.2 The Behind-The-Scenes Documentary Based on CG Image Optimization Algorithm

For this purpose, managers will compress the tasks that start first, according to the start time of key tasks. If the manager wants to meet the requirements with the lowest cost, then he should choose the task with compressible time, and choose the task with sufficient spare resources and the amount of non-renewable resources required to shorten the duration or the task with the least cost to compress. Based on the cloud environment, the staff of the library will not be limited by space and time, and only need to use the Internet to provide high-quality user services in mobile devices. At the same time, the system services and software updates are handled by special personnel. Spread through video websites.

However, most of the crews are fighting independently, and there is no unified and large-scale industrial platform. The description methods of texture mainly include statistical-based methods, model-based methods and structure-based methods. Statistics based on statistical methods include autocorrelation functions, moments, co-occurrence matrices, and several textures. The model analysis method describes the texture as a corresponding probability model or a linear generative model of a series of basis functions in statistics, signal analysis, information theory and other disciplines. The color quaternion wavelet transform also provides amplitude and angle features, which are very It shows the information of the local structure of the image and effectively avoids the directional redundancy information caused by too many directions of the gray wavelet.

### 2.3 The Intelligent Editing System for Behind-The-Scenes Documentaries

In the context of the continuous popularization of Internet technology, cloud computing technology has been widely used in various fields of society. The main components of a cloud computing system include cloud applications, cloud clients, cloud platforms, and cloud infrastructure. The popularity of mobile APP applications enables the content of video websites to be obtained quickly and easily. Just click on the application to watch the latest news, movies and videos. Therefore, the demand for content is increasing day by day under the premise that the communication channel solves the guarantee of traffic, and high-quality content and comprehensive coverage can also increase the click-through rate of video websites.

In the choice of content, select the most representative plots and scenes. Although a documentary is a record of the shooting process, it must be recorded with a purpose, and select the most expressive and representative plots and pictures, such as: the director's excellence, the dedication of the actors, the philosophical pictures on the set, and so on. Since the image retrieval of a single feature is often affected by the feature description and extraction method, it may cause

unsatisfactory results due to the defects of the algorithm used. In practice, multiple features are often combined for retrieval to achieve complementary advantages. Since color is also an important feature of images, in order to obtain higher retrieval efficiency, feature points, etc.

Shapes are generally represented by points in the feature space, that is, described by a vector. In the deformation method, the shape can be described by the input required to transform one shape into another shape. The similarity of the shape can be measured by the transformation distance. In the relational method, the overall description of the shape is the description of the individual components that make up the shape, and also includes the description of the relationship between them. The behind-the-scenes documentaries of the film have now basically formed the "standard configuration" of the film, the film crew before shooting A special documentary group was established to record the process of filming. However, most of the crews are fighting independently, and there is no unified large-scale industrial platform.

### 3. CONCLUSIONS

CG/PR forensics model W based on color quaternion wavelet transform and CG/PR forensics model based on quaternion Markov statistical features. Then, the H methods are realized through the simulation platform. The typed research is inseparable from the sorting out of their development context, and the development of behind-the-scenes documentary films is divided into stages, which is convenient for accurate positioning. In particular, the development process of behind-the-scenes documentaries in Chinese films is combed in detail. Through the research and analysis of dual-tree complex wavelet transform, wavelet theory and quaternion theory, the gray-scale quaternion wavelet transform is proposed on the basis of dual-tree complex wavelet, and the Based on this, a corresponding forensic model is proposed.

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# Opportunities and Challenges for the Development of New Media Films in the Internet Era: A Theoretical Analysis

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**Abstract:** The new media films living on the Internet have typical features of decentralization, huge audience and strong interaction. These features make the new media films break the traditional film production mode dominated by directors and form a trend of integration of producers and consumers of content, and mixing of film creators and audiences. This blending has been further strengthened in the era of big data. The new characteristics and new marketing methods of film marketing in the new media environment, as well as the thinking about the problems and countermeasures of new media film marketing in the new era background and new marketing environment.

**Keywords:** New Media Films; Internet Era; Opportunities and Challenges

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## 1. INTRODUCTION

The new media film mainly refers to the film style that relies on the network, personal computers and mobile terminals as the media and is produced because of this media. As McLuhan said, "media is information", the existence of new media itself changes our perception mode, cognitive mode and even thinking mode. New media films also have new film types, film ideas and film ecology different from traditional films. Until the Chinese film market became popular in recent years, commercial films became more mature, and marketing methods continued to introduce new ones.

But how effective are the lively marketing activities? For most elaborate premieres, only a few blockbuster promotions can be broadcast live, while other film promotions with tight marketing costs are just a piece of news in film and television entertainment programs. In the new media environment, there are more films and TV works coming into people's view, such as "Never Thought of", which involves a lot of restricted content. Under various communication channels, foreign film and television works have gradually entered the domestic mainstream market.

The emergence of new media has enriched the theme of film and television art creation. Film and television creators can choose more themes to create according to their own and changes in the market environment. As for what film is, there are two tendencies in the history of film theory: natural pragmatism (Bazan and Krakaur) and artistic purism (Einham and Eisenstein). The former advocates that film is the impulse of human beings to complete the reproduction of nature through film, while the latter believes that film has a pure artistry independent of other art categories. It establishes a true and deep level precision marketing Interactive marketing is different from all-round, large-scale, three-dimensional shallow source publicity.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Opportunities for Film and Television Art Creation in the New Media Era

The characteristics of new media's mass distribution make it necessary for movies in the era of "Internet plus" not only to carry out wonderful story telling, but also to understand the hearts of audiences, understand their needs, communicate with them, and let them enter the story.

Although new media has brought more development opportunities to film and television art creation, it has also led to confusion in the management of the film and television art industry market. With the constant popularity of the Internet, the speed of network communication is very fast, opening a new chapter for film and television art creation. But in such a rapid creation, there is no perfect art creation management mechanism. The development of we media and new media makes people's pursuit of films no longer limited to the traditional film system. Ordinary people can even shoot new media films according to their own needs.

This brings a question: if everyone can make movies, is such a new media movie still a movie or a good movie? We acknowledge that after everyone's participation, personalized content customization is different from on-demand. Audiences' on-demand mode is only based on a single film source, while personalized content in customized marketing can bring together audiences of different categories and different levels of preferences and prepare their favorite product types for selection through new terminals, such as mobile phones, digital TV, pad, etc. at different prices. In the creation of film and television works, the production and directing personnel determine the artistic value of the works. Therefore, their professional quality of film and television is very important, which will affect the production quality of film and television works.

## 2.2 Personalized New Media Film Marketing Strategy

Although in the new era, film and television production has lowered the threshold of access, it does not mean that the quality of film and television creation and artistic value will be reduced. From the above characteristics of new media films (decentralization, huge audience and strong interaction), we can find that new media films have completely broken the traditional film production mode dominated by directors. In the process of traditional film production, everything is decided by the director from plot development, shooting progress, scene selection, actor selection, lens selection, paragraph arrangement, and later editing, dubbing, and effects.

Formulate and improve the number, type and update time of movie sources. With the help of the network, the terminal will automatically provide users with new movies or peripheral accessories related to user preferences at the update time selected by users. This can greatly save the time spent by the audience searching and re selecting each time they demand and improve the enjoyment and efficiency of watching. From the current production situation of some film and television works, the staff will be affected by many factors, resulting in their own low professional quality, which ultimately causes problems in the creation of film and television works. When the works are really put into the market, they will be questioned and abused by the public.

To this end, contemporary film and television creators need to constantly improve their comprehensive quality to ensure the artistic value of works of art. As a new paradigm of network theory and practice, big data has emerged in recent years, and then rapidly flourished in management, communication, politics, commerce and finance. The meaning of big data is to maximize the collection, collation and analysis of data generated by users using media through various new media, so as to predict the future development trend. The diversity of user needs requires that personalized customization resources should become increasingly diverse, and the payment method used for customization can be the payment method of new media terminals.

## 3. CONCLUSION

New media films, rooted in online culture, inevitably have the attribute of mass culture. However, if new media films only use big data as the future development direction, then pure films, serious films or art films "watched by the minority" will be submerged by data. With the continuous development of new media, the creation and dissemination of film and television works are constantly changing, and the evaluation of film and television works of art has formed a diversified development trend, which requires film and television producers to constantly improve their comprehensive quality, improve the quality of creation, and create more works of art that meet the needs of the public.

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# Cultivation and Innovation of Modern Art Design Talents and Innovation of Education and Teaching Mode under the Internet Background

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**Abstract:** The concept of "Internet plus" has promoted the art design major in colleges and universities to enter a new era of talent training. The art design major needs to carry out talent training innovation on the original basis. Based on the era background of "Internet plus", the major of art design needs to build a suitable curriculum program. Learners and educators start "self-study" and "guidance" respectively. The "Internet+" platform provides a space for sustainable development for cultivating learners' practical ability, innovation ability and professional quality. Therefore, under the influence of the Internet+", the reform of the training mode of art design professionals in higher vocational colleges must update the teaching concept, innovate the teaching mode and learning mode.

**Keywords:** Art Design; Talents and Innovation; Teaching Mode

## 1. INTRODUCTION

China's economic structure has entered a period of adjustment. The core and key of "Internet plus" lies in innovation. In the process of integration of the Internet and traditional industries, the new economic model affects people's daily life, creating a new state of socio-economic development. In the form of data and case analysis, this paper deeply expounds the cultivation of art design talents, points out the problems existing in the teaching of art design education, and then proposes to examine and position art design education from a new perspective, which requires innovation in teaching forms and methods of art design education in colleges and universities in China.

In fact, in the "Internet Plus" era, all industries are facing the problem of transformation and development. The cultural and creative industries that are constantly integrating across borders are also in urgent need of a large number of high-quality comprehensive talents. Such talents should not only master design theory, but also improve design ability, and also have innovation awareness and self-improvement ability. Without such talents, the transformation and upgrading of the economy and industrial structure would be impossible. And our higher vocational art design specialty should also actively cater to this trend of thought and close its talent cultivation concept to Internet plus.

At present, many of our art and design professional educators are still clinging to the old ways, building curriculum programs that adapt to the development of the "Internet plus" era, sorting out the problems to be solved, focusing on the analysis of the framework and theoretical system of the curriculum, making adjustments to the existing curriculum and content arrangements, and analyzing and interpreting the professional curriculum.

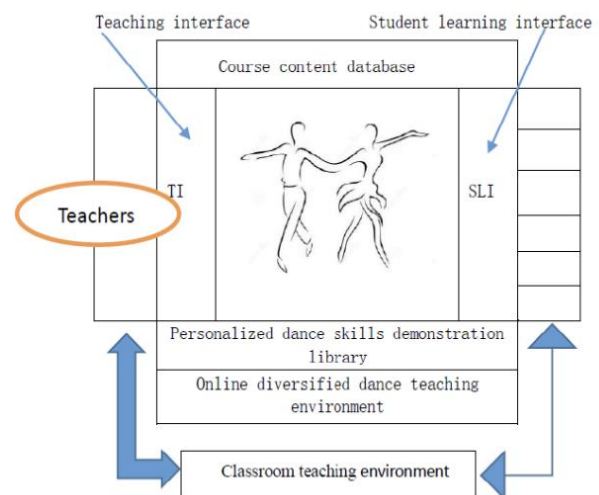


Figure. 1 The basic framework of interactive dance teaching system based on network (Note: We get this figure from the google scholar)

## 2. THE PROPOSED METHODOLOGY

### 2.1 "Internet Plus" and the Innovative Background of the Cultivation of Art Design Professionals

The construction of online education platform should proceed from reality, give full play to the advantages of current big data, use cloud computing to analyze all kinds of data, and conduct scientific analysis, management and decision-making on the teaching process.

According to the development situation of local colleges and universities, we should gradually expand from point to area. We can first build the advantageous teaching resources of regional colleges and universities, and then integrate the

teaching resources of art design specialty according to the improvement of high-quality resource sharing needs

In the process of training art design talents, higher vocational colleges based on the "Internet+" thinking should earnestly respect the growth and development law of higher vocational talents, establish the "Internet+" education development thinking, focus on the training goal of higher vocational colleges' art design talents, take the initiative to meet the development needs of the Internet, and cultivate art design talents with artistic innovation, service innovation, and technological innovation. Their teaching content still stays in the traditional art design mode and tools, and their teaching methods are also very simple, mainly teaching, and they are reluctant to participate in and cooperate with the professional Internet plus teaching reform, which has greatly hindered the professional construction and reform.

## 2.2 Thinking on the Talent Training Mode of Art Design Major in Higher Vocational Education

The development of the Internet has had a great impact on traditional media and traditional reading methods. With the development of Internet technology, we can try to build a cloud classroom for our specialty in the course teaching, and at the same time, we can carry out flipped teaching to break through the limitations of students' learning time and space, so that students can learn independently. Reasonable teaching design is the guarantee for the implementation of teaching, including harmonious teacher-student relationship, ladder exercise of teaching content, real-time reflection of teaching results and teaching evaluation, etc, these are important factors for the establishment of a harmonious teaching atmosphere.

In the specific teaching design process, we should emphasize the innovative spirit and practical ability of art design teaching, the construction of online platform should highlight the scientific nature of teaching methods and emphasize the ability of art design talents to explore knowledge. In the online online and offline teaching model, the "Internet+" based teaching and learning model can provide all-round learning support services for teaching management, academic guidance, emotional communication and career development of learners.

On the one hand, teachers organize theoretical learning by means of independent theoretical learning, face to face learning of difficult problems, collaborative learning and other teaching methods. The talent training goal of art design major in higher vocational colleges is to cultivate high-quality skilled talents for the art design industry. However, the old subject-based curriculum system in the past cannot complete this task and must be improved. Therefore, professional leaders and directors of teaching and research departments should learn from the advanced experience and practices at home and abroad, and constantly develop more useful professional theoretical courses through extensive professional research and demonstration. The discipline of art design mainly focuses on theoretical learning. Under the background of "Internet plus", the professional teaching of art design should strengthen the practice sector to promote the integration of theoretical learning and practical ability training.

## 3. CONCLUSION

In a word, teachers should establish the advanced concept of modern art and design education, create a new education

model, and make the art and design discipline better integrate with other disciplines. In the context of "Internet plus", the teaching of art design specialty should integrate the resources inside and outside the class and combine theoretical learning with practical operation. Teachers can not only provide guidance in professional theory and technology, but also communicate and make suggestions for students' employment and entrepreneurship, career planning and even life emotion at any time, so as to better fulfill the teacher's responsibility of teaching and educating people.

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# The Impact of GloVe and Word2Vec Word-Embedding Technologies on Bug Localization with Convolutional Neural Network

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**Abstract:** In the field of software engineering, software quality assurance faces many challenges, including overcoming the problem of identifying errors in the source code. Finding the location of the error in the source code is a very important process, as is taking advantage of the semantic information available in the bug reports and the source code to find the similarities between them, using modern techniques called word embedding. This study aims to demonstrate how GloVe and Doc2Vec word-embedding technologies affect bug localization accuracy and performance. Therefore, this study proposes to adapt DeepLoc by using GloVe embedding techniques to process the source code instead of Word2vec and using Word2vec embedding techniques to process the bug report instead of Sent2Vec. AspectJ represents the large dataset, which contains many bug reports, while SWT's small dataset contains fewer bug reports. Experimental results show that the improved DeepLoc on SWT achieves 0.60 and 0.72 MAP and MRR, respectively. While the improved DeepLoc on AspectJ achieves 0.17 and 0.27 MAP and MRR, respectively. The results of the improved DeepLoc should be compared using two advanced models from previous studies: DeepLoc, DeepLocator.

**Keywords:** Bug Localization; Deep Learning; Word Embedding Techniques, GloVe Technique, Doc2Vec Technique.

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## 1. INTRODUCTION

Software developers depend on the software life cycle when developing their software, which consists of several phases, including the testing and maintenance phases. However, after the software is used by real users, some errors or unexpected behaviors in the software's tasks are known as bugs. In this case, users write a report describing these errors, and thus the program must enter the maintenance phase.[1]. Localizing bugs requires a lot of effort and takes a lot of time on the part of software developers, so its cost is very expensive.[2]. Therefore, there is a need to facilitate the fault localization process to save effort, cost, and time. Moreover, bug reports are written in natural language, while source code files are written in programming languages. Therefore, a solution to the language incompatibility between natural languages and programming languages is necessary. Thus, several solutions have been proposed to localize the errors [2-6].

NOPL [3] is one of these solutions. By utilizing the angelic localization algorithm, NOPL takes a buggy program and test suite as input and generates a debug with a conditional expression such as if then, and else statements as output. Although NOPL effectively successfully fixed bugs related to conditional if statements in Java, it did not consider the rest of the other code statements in Java. Moreover, NOPL is limited to Java only and does not recognize other programming languages. Also, in some test cases, the inability to set the maximum execution time is caused by an angelic fix localization causing an infinite loop. Another study [4] proposed a new paradigm of information-theoretic infrared methods to support error localization tasks in software systems and aim to establish accurate semantic similarity relationships between source code and bug reports. These methods, including Mutual Information (PMI) and Uniform Google Distance (NGD), exploit coexistence

patterns of code terms in a software system to reveal hidden textual semantic dimensions that other methods often fail to capture. Furthermore, the study [5] DeepLocator, a deep learning-based model, was proposed to improve error localization performance through semantic information in error reports. This is done using Word2Vec word embedding technology to handle source code and bug reports. However, the approach can be affected by derivation and the removal of stop words. Some reports are written in long terms or in an incomprehensible language, affecting the results' quality. Recently, a newer version of DeepLocator called DeepLoc was released[6], a model that makes full use of semantic information It processes bug reports and each line of source code into vectors and retains the semantics of the sentence in the vector. These vectors are then fed into CNNs to extract their hidden semantics and properties and discover the correlation between the feature vectors extracted from the bug reports and the source code. Thus, DeepLoc was using Word2Vec for source code and Sent2Vec for bug reporting. Although the study showed that using Word2Vec to process the source code is better than Sent2Vec because the source code contains keywords such as "public," "for," "void," and "int). However, the study [7] confirmed that using GloVe gives better and faster results than Word2Vec. Thus, as a first scenario, this study proposed using GloVe word embedding technology to process source code, while Word2Vec word embedding technology was used to process bug reports. In addition, another study [2] proposed a model that takes advantage of different script properties of error reports and source files as well as relationships between previously fixed error reports. Therefore, the study used one of the word embedding techniques, the global vector, for source code processing and bug reporting. However, the quality of bug reports, identifier naming conventions, and annotation methods in source files pose a threat to external validity. Also, open-source datasets are set in size, and if they are written in

a language with software other than Java, this affects the quality of the results. Thus, the Doc2Vec [8] is one of the best ways that takes much less time to complete the processing process, so it is one of the best options to solve the time and speed challenge. The study also confirmed that the Doc2Vec model is much faster to build than traditional methods such as Word2Vec or Fast text word embedding techniques. Therefore, as a second scenario, this study proposed to utilize the GloVe word embedding technique to process the source code, while the Doc2Vec word embedding technique was used to process the bug reports.

## 2. LITERATURE REVIEW

Many studies have discussed bug localization in different approaches [2-6, 9-12]. Generally, these approaches can be categorized into 3 categories: the traditional program analysis ,machine learning & (information retrieval), and deep learning. even though the study discussed the most important achievements and challenges in the field of research, it was absent from many other contributions in the field.

One study in [3] Which uses an angelic localization algorithm to fix errors in conditional statements such as if, then and so on clauses. This, named NOPL. However, it does not take into account the rest of the other statements in Java. Moreover, NOPL is not limited to Java only it recognizes other programming languages. Also, it causes a defective patch localization.

Khatiwada et al. in [4] proposed a model of infrared informatics methods to support error localization tasks in software systems. Although the study succeeded in determining the localization of the error by arranging the files using IR techniques, it affected the error tracking in the software system to understand the cause of the error and isolate the relevant parts. While this process can be feasible when analyzing smaller systems, analyzing relatively large and complex systems can be tedious and error prone. Moreover, [9] proposed text retrieval (TR), where a search source code is indexed, which is then queried for the relevant code file for a given bug report. Although the study succeeded in determining the localization of errors through information retrieval techniques, However, TR-based methods showed poor performance when using all-text in bug reporting.

Gharibi et al. [2] proposed a text properties model is a multi-component approach to error localization that takes advantage of the unique text properties of error reports and source files and word-embedding techniques that arrange the relevant source files for each error report and then search for similarities between the source code files and the error report so that it can be reached where it has a relationship to the error report in the source code. In this way, however, the quality of error reports, identifier naming conventions, and the way comments are written in source files pose a threat of incorrect results. Furthermore, DeepLocator[5] proposed a deep learning-based model for semantics in error reports and source code. DeepLocator bridges the semantic gap by using an Abstract Syntax Tree to analyze the syntax of the source code. In addition, one uses word-embedding techniques to achieve semantic similarities, however, the approach can be affected by the removal of stop words. If developers in the project team prefer to use very long statements to express bug reports, the filter size should also be longer in the neural network settings, and these factors affect the approach. After that, DeepLocator was developed into DeepLoc by Xiao et al. The study [6] proposed The DeepLoc model is a new model

based on deep learning that takes full advantage of semantic information, although the study successfully fixed the error and improved performance and accuracy of the model as shown in Figure1.

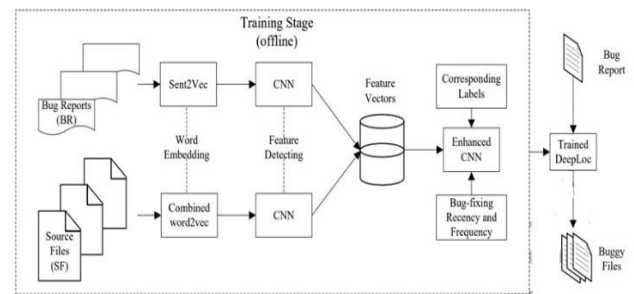


Figure 1: The Overall Structure of DeepLoc

However, localization procedure made it difficult to represent the source code with Sent2Vec. Therefore, Sent2Vec is not good for converting source files into vectors because source code is written in programming language and contains reserved words such as constant, public, etc., as proven by the study [6].Furthermore, the DeepLoc model work, consisting of six phases: analysis and pre-processing, token matching, VSM similarity, stack trace, semantic similarity, and fixed bug reporting. as shows in Figure 2 This is a simplified explanation of the six stages that operate in DeepLoc:

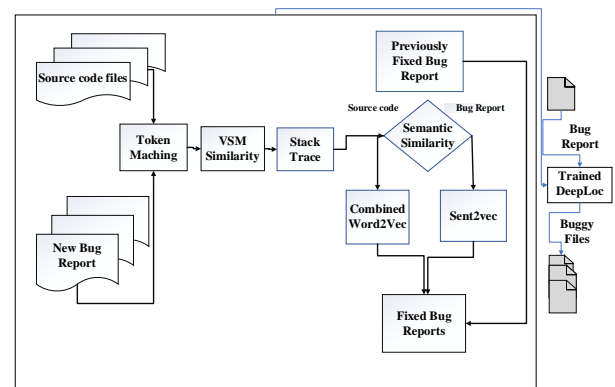


Figure 2: The Stages of The DeepLoc

Some studies have demonstrated that the use of different word embedding techniques is possible in the field of error localization. There are studies that have used Word2Vec technology for source code processing and bug reporting. In addition, other studies have used Word2Vec technology for source code processing and Sent2Vec for error reporting. More importantly, studies have shown that using GloVe for both source code and bug reporting can achieve the same goal. While this study proposes to try two scenarios, the first uses GloVe technology for source code and Word2Vec technology for error reporting. As for the second scenario, that uses GloVe techniques for source code and Do2Vec for bug reporting in order to ensure the effectiveness of these proposed techniques compared to previously implemented techniques.

### 3. METHODOLOGY

Enhanced DeepLoc Model, a deep learning-based model that automatically detects errors in source code by compiling problematic files associated with bug reports. The model consists of six phases: analysis and pre-processing, token matching, VSM similarity, stack trace, semantic similarity, and fixed bug reporting. Moreover, in the improved approach, the change was only in the semantic similarity phase. The words themselves cannot be entered directly into CNN [13]. Thus, pre-processed words must be embedded in vectors, and there are many types of word embedding techniques that have been accepted so far in the field of bug localization and that have proven effective in this field and in different fields. In addition, this study used empirically tested techniques to convert words in bug reports and source files into vectors that preserve words with high efficiency and accuracy. Error indicators in error reports generally consist of summaries and descriptions of many words. Fortunately, error reports are written in natural language, so each word in the report is converted to a vector using one of the words embed methods known as "word2vec methods." Moreover, try to get the best results by using efficient methods to automatically handle the source code and convert the code from source to vectors quickly and accurately. Thus, the improved DeepLoc method used a semantic similarity technique known as "Global Vector." This approach is used in Spacy12's GloVe Common Crawl model to calculate semantic similarity for processing source code.

### 4. PROPOSED MODEL

Our proposed bug localization model utilized the Word2vec embedding techniques to process the bug report; and GloVec word embedding techniques will also be used to process the source code. as shown in the Figure 3.

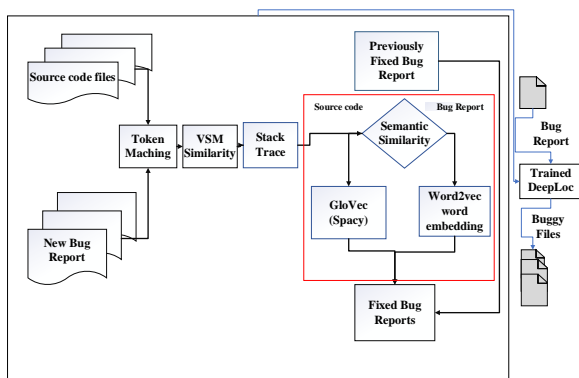


Figure 3: The Overall Structure of Our proposed bug localization model

### 5. RESULTS AND DISCUSSION

In this paper, the output of running the **Our proposed bug localization model** that GloVe technology was used to process the source code, while Word2Vec technology was used to process the bug report to check the effects on DeepLoc's performance in terms of the evaluation matrix: accuracy, MRR, and MAP. The dataset consists of two parts: AspectJ, which represents large projects, and SWT, which represents small projects.

#### PART1: RESULTS OF SWT

comparing the results of the **Our proposed bug localization model** to several complex bug localization models such as DeepLocator and DeepLoc, based on the same data set (SWT) as illustrated in Table 1.

Table 1. The Overall Performance of Scenario one and the Previous Studies on SWT

Graphics	Our Model	DeepLoc	DeepLocator
Accuracy@1	0.65	0.39	0.36
Accuracy@5	0.81	0.66	0.60
Accuracy@10	0.88	0.77	0.75
MAP	0.60	0.40	0.39
MRR	0.72	0.49	0.48

As shown in Table1, the results of our proposed bug localization model which show the best performance among all previous studies in terms of all evaluation matrix criteria. However, our proposed bug localization model gains 0.65 in Accuracy@1, Therefore, this paper found that the first scenario is effective with small projects, as illustrated in Figure 4.

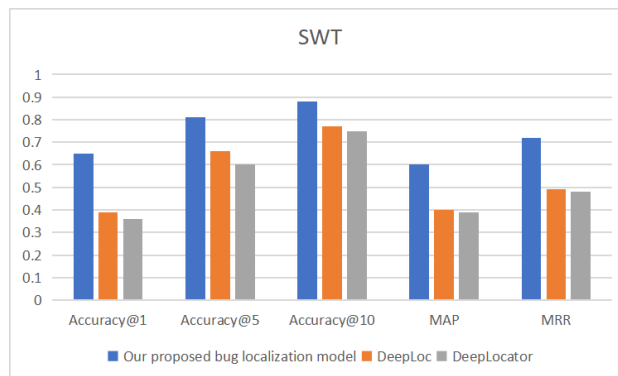


Figure 4: The Performance Comparison of Scenario 1 and the previous studies on WST

#### PART2: RESULTS OF ASPECTJ

Comparing the results of our proposed bug localization model to several complex bug localization models such as DeepLoc and DeepLocator, based on the same data set (AspectJ) as illustrated in Table 2.

Table 2. The Overall Performance of Scenario one and the Previous Studies on AspectJ

Graphics	Our Model	DeepLoc	DeepLocator
Accuracy@1	0.17	0.45	0.40
Accuracy@5	0.36	0.71	0.66
Accuracy@10	0.52	0.80	0.78
MAP	0.17	0.42	0.34
MRR	0.27	0.51	0.49



As shown in Table 2, the results of our proposed bug localization model on the AspectJ dataset were lower than all other models in terms of all evaluation matrix criteria. Therefore, this paper found that the first scenario is not suitable for large projects, as shown in Figure 5.

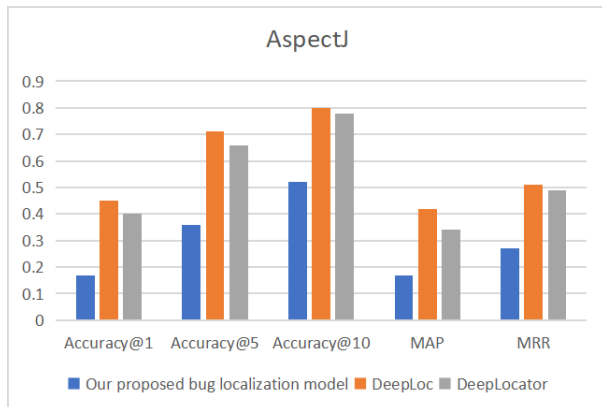


Figure 5: The Performance Comparison of Scenario 1 and the Previous Studies on AspectJ

## 6. CONCLUSION AND FUTURE WORK

In this paper, an approach that benefits software engineers is improved by finding the wrong part in the source code to easily correct the error later on. This has adopted the use of different word embedding methods, text analysis, and semantic similarity. This study was performed on the DeepLoc model, which is a deep learning-based model that consists of a neural network with word embedding techniques. Current approaches to error localization focus on similarities between reports and source code or relationships between term weights. However, most of these methods ignore semantic information in error reports and source files. Since there is a lexical difference between error reporting and source code in particular, the proposed approach bridges the semantic gap using embedding techniques. Keywords to remember when writing bug reports and source code In addition, compare the proposed approach with different state-of-the-art methods (DeepLocator, HyLoc, LR + WE, and Bug Locator), and then implement the approach in the AspectJ and SWT dataset projects, which contain a lot of error reports and source code files. The experimental results showed that the best performance obtained through the proposed approach was with the SWT data set.

Where the value of MAP and MRR is greater than all previous methods except for the textual properties model, whose values are slightly greater than the proposed approach. In the future, it intends to improve the performance of DeepLoc by adding a Doc2Vec technique to handle bug reports.

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# Research on Innovation of Physical Education Curriculum Reform and Development Based on Internet + Education

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**Abstract:** In recent years, with the continuous progress of global Internet technology, the concept of "Internet plus" has penetrated into all walks of life in China, and has also had a profound impact on people's production and life. Especially in the field of education, how to use the "Internet plus" era development dividend to improve the teaching efficiency of various subjects, so as to cultivate modern high-quality talents, has become the focus of teachers and scholars. Based on the era background of "Internet plus", this paper discusses the current teaching of physical education in colleges and universities in China. Firstly, it analyzes the current situation of the development of the teaching mode under the background of "Internet plus". Colleges and universities should strengthen the reform of sports information teaching, improve the multi ideological understanding, establish and improve information resources and facilities, reasonably innovate information sports classes, attach importance to the cultivation of teachers and students' information ability, and promote the overall development of college sports as a whole.

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**Keywords:** Physical Education; Curriculum Reform; Internet + Education

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## 1. INTRODUCTION

Since the 21st century, with the rapid development of high-tech with Internet information technology as the core, the social ecology has undergone tremendous changes, and the interconnection of everything is becoming the underlying logic of the world. In 2015, "Internet+" was formally incorporated into the national development strategy, actively trying to integrate with all walks of life, and "Internet+" quickly became a hot word of the times. The change of teaching mode and the humanization of teaching evaluation have brought new opportunities and challenges to college PE educators.

How to better combine the existing traditional methods of physical education in colleges and universities, and take the Internet related technology as the technical support, further promote the development of college education, especially physical education, and maximize the effect of physical education teaching is a problem that we need to solve urgently. "Internet plus" is a very popular development concept at present, which also has a positive impact on the reform and development of physical education teaching in colleges and universities. First of all, the "Internet plus" background has opened up information access channels for college sports teaching, which has an incremental expansion effect on the content of traditional college sports teaching resources.

Increase the input of college sports information teaching resources and facilities. Under the background of the "Internet+" era, the informatization construction of higher education is in full swing. The informatization construction of campus network information construction, office automation system, logistics service management and other aspects has begun to take shape. These informatization resources and facilities are the basis for the development of sports teaching reform. Rapid data generation and data dynamic system (fast

data analysis, focusing on real-time), and potential mining value (important information hidden behind the data to be mined).

## 2. THE PROPOSED METHODOLOGY

### 2.1 New Teaching Mode of "Internet plus Education" Course

Big data is not only a data resource, a method of data analysis, a new discipline, but also a kind of thinking. It extracts effective information from data to promote better decision-making and feedback, Let physical education teaching in colleges and universities have evidence in the general direction. Traditional physical education teaching often spends a lot of time and energy on skill learning. Teachers spend a lot of time to help students form a general framework of action in their minds and eventually form an automatic action. As a passive receiver, students form action memory during repeated practice

Under the background of "Internet plus", in order to change the traditional physical education teaching mode in colleges and universities, we must first strengthen their Internet thinking in physical education teaching. The so-called Internet thinking is to promote teaching reform by taking advantage of the internal development laws and advantages of the Internet on the basis of fully understanding the basic concept, development mode and current status of the Internet Strengthen the information construction of physical education classroom teaching in colleges and universities. Physical education classroom is the key point of college sports information teaching reform and the territory for testing results.

## 2.2 Countermeasures for the New Mode of Physical Education Teaching in Colleges and Universities under the Background of "Internet plus"

Therefore, information reform should be carried out from all aspects of classroom teaching, mainly including the formulation of teaching objectives, the renewal of teaching models, the setting of teaching links, the presentation of teaching effects, and the innovation of learning methods. As an extension of Internet technology, the Internet of Things can theoretically connect everything through the network to achieve real-time data sharing between things and people. In general, the Internet of Things is divided into three hierarchies: the perception layer, the network layer and the application layer. The main task of the perception layer is to obtain the parameter information of the front end, namely, timeliness and adaptability, synchronization with practice, cracks between theory and practice, lack of research experts, strong unity and poor individuality.

This will bring more profound changes to all aspects of college physical education. It can be said that the combination of "Internet plus education" has reshaped the traditional physical education teaching ideas and methods. At present, the background of "Internet plus" has penetrated into various fields, and people have become accustomed to and are willing to learn and communicate on various Internet platforms. Therefore, for the reform of physical education teaching in colleges and universities, in order to promote the development of teaching, we must first cater to the current learning methods of people, and teachers should also create a good online learning environment for students through network resource management

Mobile APP, multimedia classroom, camera real-time recording and uploading and other information means and resources are combined with explanations, demonstrations and other methods to jointly complete the teaching task, so that the entire teaching process in class is efficient, coherent and orderly. After class, students complete their homework with the help of the course platform and learning resource library to expand and improve their knowledge. The role of Internet of Things technology in physical education teaching has gradually improved. For example, in the process of marathon or long-distance running, RFID chip cards are pasted on athletes, and RFID reader devices are placed at specific distances around the track, which can record the time information of athletes passing through various reference points, so as to calculate the running speed and the total length of time, which is more accurate and efficient than manual records.

## 3. CONCLUSION

"Internet plus education" is a new direction of the development of college education, and also an inevitable trend in the development of the Internet era. As an important part of education, physical education will inevitably advance with the tide of development. The rapid development of the Internet provides opportunities and development directions for college teachers, but also brings challenges to the development of college sports. In this Internet reform, the use of incentive art

in physical education teaching can stimulate students' desire and will to learn, and improve students' sports skills and classroom efficiency. Therefore, PE teachers should reasonably and appropriately use the incentive art in the daily teaching process to make it better serve PE teaching.

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# Strategy Research on MOOC Resource Construction and Teaching Application Based on Tourism Management Education

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**Abstract:** The construction of school-based characteristic courses is an effective measure to realize the coordinated development of tourism specialty in colleges and universities in serving local areas, transforming achievements, and cultivating talents. It can highlight the characteristics of talent training in local colleges and universities. Taking "Xiangyang Culture and Tourism" as an example, it sets the goal of collaborative education in the construction of school-based characteristic courses that restrict the cooperation between schools and regions Tourism management major in colleges and universities is a "theory+practice" major. Under the background of "Internet plus+tourism" and "Internet plus education", tourism management major not only needs to pay attention to the development trend of "Internet plus+tourism", but also needs to integrate the concept of "Internet plus" into classroom teaching. Through "Internet plus Tourism Management Education", it is an important mission of the current classroom teaching reform of tourism management specialty to explore a new model of "Internet plus" classroom teaching and cultivate more excellent tourism talents.

**Keywords:** MOOC Resource; Teaching Application; Tourism Management Education

## 1. INTRODUCTION

The practice of tourism industry shows that the cultural tourism industry is surging forward in the unity of opposites between global localization and local globalization. The globalization and localization of tourism define the skyline and horizon for tourism development and talent cultivation respectively. If there is no vision of globalization, tourism higher education will easily lose its direction of progress; Under the care of globalization, if there is no deep grasp of localization, the network and information supporting facilities of many schools are not complete or can not meet the needs of teachers and students, which seriously hinders the development of new information based teaching.

External network equipment and speed are important indicators to measure whether a school's online learning resources are sufficient, but many schools have insufficient network speed, which is not conducive to students' offline learning and communication, and seriously affects the speed of information dissemination. In the context of "Internet plus", the requirements for tourism talents are more stringent, which requires students not only to master industry related knowledge and skills, but also to have the ability to operate modern information technology and new media. Therefore, the major of tourism management should constantly adapt to the rapid development of modern industry, cultivate all-round development such as morality, intelligence, physique, beauty and labor, master the basic theory, professional knowledge and professional skills of modern tourism management, and have high-quality applied talents who can effectively respond to social and industrial changes.

In 2018, China put forward the concept of new liberal arts, emphasizing the improvement of humanistic quality and quality, interdisciplinary and multidisciplinary integration, and integration of new technology and education. Scholars in relevant fields in China have also studied the concept of the new liberal arts, believing that the concept of the new liberal

arts is a humanistic reform based on the national conditions and from the perspective of the actual needs of social development. Its focus is on the construction of the curriculum system, students' practical ability, teaching forms and other aspects to integrate traditional liberal arts with modern scientific and technological means and new teaching concepts.

Design of the teaching mode of college wisdom curriculum is shown below.



Figure. 1. Design of the teaching mode of college wisdom curriculum

## 2. THE PROPOSED METHODOLOGY

### 2.1 Current Situation of Classroom Teaching of Tourism Management Major

Taking the creation of teaching situation as an example, teachers can present videos and pictures related to tourist attractions in front of students, so that students can feel the charm of Muke class by combining music, painting, pictures and text, so that students can master basic knowledge and sublimate their emotions. However, it should be noted that the traditional classroom cannot be completely replaced by Muke Classroom.

(1) The development of the traditional classroom so far shows that it has a certain adaptability and practicality. Culture is the

soul of tourism, and a place with a long history and splendid cultural accumulation has the potential to develop tourism. Xiangyang is an outstanding representative of a historic and cultural city with a deep cultural heritage.

(2) School based curriculum is based on schools and students, curriculum development model that enables teaching to adapt to the ever-changing needs of social and economic development and meet the talent capacity needs of students and enterprises

Under the impact and encouragement of the Internet, new teaching models and teaching methods such as flipped classroom, hybrid teaching, integrated learning and engineering teaching, Muke class, micro class, blue ink cloud class emerged at the historic moment. Classrooms turned from indoor to laboratory and even internship posts. The learning form realized online and offline zero distance communication. The use of video teaching and simulation laboratories made learning more vivid, specific and interesting. The tourism industry has a strong comprehensive feature, which determines that the curriculum of tourism management is also very comprehensive.

## 2.2 The Path to the Reform of Classroom Teaching Mode of Tourism Management Major under the Background of "Internet plus"

However, at present, the curriculum system of talent training programs in many tourism colleges and universities generally focuses on professional knowledge rather than comprehensive quality, and there are also problems such as unreasonable curriculum system, curriculum design for people, and unclear training objectives, resulting in many students' lack of independent thinking ability, innovation ability and adaptability.

Setting the correct goal and direction for talent cultivation is an important basis for the construction of the curriculum system of tourism management specialty. From the goal of talent cultivation, we can see the school running philosophy of universities and the talent cultivation orientation of the specialty, which will determine the future development of the specialty. The scientific and comprehensive formulation of teaching objectives can effectively realize the diversified development of majors, so as to better cultivate high-quality application-oriented talents for regional economic construction.

Taking the creation of teaching situation as an example, teachers can present videos and pictures related to tourist attractions in front of students, so that students can feel the charm of Muke class by combining music, painting, pictures and text, so that students can master basic knowledge and sublimate their emotions. However, it should be noted that MOOC cannot completely replace the traditional classroom. The development of the traditional classroom so far shows that it has certain adaptability and practicality. The construction of school-based curriculum is the key and difficult point of the teaching reform in colleges and universities, and also the key breakthrough to improve the teaching quality and education level. In the construction of school-based curriculum, students should be given priority to, pay attention to the participation of students, and fully absorb the views of students, Students' representatives are encouraged to participate in the design of curriculum objectives, content preparation and specific decisions.

Students' representatives' opinions should be listened to in the whole process and all links of its construction and reform

## 3. CONCLUSION

With the rapid development of cultural tourism, all parts of China have launched cultural tourism projects with different characteristics, taking the construction of high-quality cultural tourism scenic spots as an important means to improve the quality and image of the city. While increasing the construction of cultural tourism industry in various regions of the country, it also puts forward higher requirements for the development of the industry. Therefore, the construction of new liberal arts will be the main direction of the teaching reform of tourism management discipline. The major of tourism management should combine its own characteristics and advantages with the current situation of the industry development.

## 4. ACKNOWLEDGEMENT

Funding: 2018 Guilin Tourism College: Research on the Construction and Application of Tourism Etiquette under MOOC Mode (2018XJGA07)

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# The Organic Combination of Artisan Spirit Cultivation and Ideological and Political Education in Colleges and Universities

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**Abstract:** The development of the times requires more construction talents with "craftsman spirit". Colleges and universities are the main training bases for construction talents. Whether college students establish "craftsman spirit" reflects the effectiveness of ideological and political education in colleges and universities in the new era, and to a certain extent, reflects whether the talent training mechanism of colleges and universities meets the development requirements of the times. The ideological and political education in colleges and universities undertakes the educational task of standardizing behavior, cultivating morality and encouraging progress, which is consistent with the connotation of craftsman spirit. The article believes that the ideological and political education of college students is an important position to cultivate the craftsman spirit. The organic integration and connection of the craftsman spirit and the ideological and political education of college students is of far-reaching significance in expanding the space of the ideological and political education of college students, cultivating and practicing the socialist core values, improving the ideological and political education function of colleges and universities, and improving the comprehensive quality of college students.

**Keywords:** Organic Combination; Artisan Spirit Cultivation; Ideological and Political Education

## 1. INTRODUCTION

In the 2016 government work report, Premier Li Keqiang solemnly proposed to advocate the craftsmanship spirit, promote and practice the craftsmanship spirit to promote enterprises to keep pace with the times and pursue outstanding development. Craftsman spirit is the essence of China's excellent traditional culture. Premier Li Keqiang's advocacy is not only to inherit this excellent spirit, but also the youth who are the future builders and successors of socialism with Chinese characteristics are the main force to carry forward and inherit the craftsman spirit.

Therefore, how to organically integrate and link the craftsmanship spirit with the ideological and political education of college students in colleges and universities, and then change the unilateral mode of ideological and political education of college students that only relies on ideological and political theory courses in the past, has far-reaching and significant significance in expanding the space of ideological and political education of college students, cultivating and practicing the core values of socialism, improving the function of ideological and political education of colleges and universities, and improving the comprehensive quality of college students. In terms of professional ethics, it is emphasized that employees should be free from distractions and be able to withstand the temptation of real interests, so as to adhere to corporate loyalty and the ultimate pursuit of product quality. Professionalism is the most important standard to measure craftsmanship. The former pays attention to professionalism and production art of products, while the latter only pays attention to skills. Therefore, the former can create works, while the latter can only produce products mechanically. Wu Yujian believes that higher vocational colleges face three dilemmas: culture, system and mode in cultivating students' craftsmanship.

Li Gang and others analyzed the practical difficulties of the cultivation of craftsmanship spirit in higher vocational colleges, and put forward countermeasures and suggestions on the "three identifications" of identity, value and cultural identification of craftsmanship spirit cultivation. First, craftsmanship spirit reflects the specific behavior of practitioners on their own professional value orientation, which includes practitioners' scientific and moral literacy, as well as their artistic pursuit.

The mapping of Bloom's target classification theory is shown below.

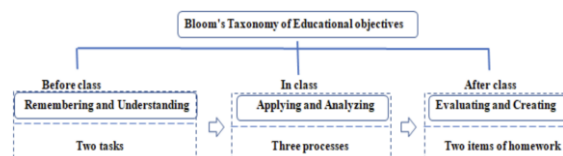


Figure. 1. The mapping of Bloom's target classification theory.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Connotation and Educational Function of "Craftsman Spirit"

Good scientific literacy is reflected in a pragmatic attitude. In practical work, we should not only be down-to-earth, but also be brave to innovate; Good moral quality is reflected in positive professional ethics and good work reputation; Pursue purity and detachment of work, pursue perfection of products, and do not view work with a utilitarian mentality. This is an ultimate artistic pursuit of products

It is the need of China's economic transformation and development as well as the development of colleges and universities to cultivate students' craftsmanship. The integration of craftsman spirit into ideological and political education needs to be highlighted in professional education,

curriculum, practical education and innovation and entrepreneurship education. For current college students, giving play to the ideological education function of craftsman spirit is of great significance to the guidance of college students' values, the cohesion of ideology and the promotion of learning motivation. Craftsman spirit has rich connotation and is of great significance to social development. As an excellent cultural resource, its significance is mainly reflected in the educational function.

The author will start from the cultural characteristics of the craftsman spirit, and explain its educational function from three aspects: educational function, normative function and incentive function. Through actual investigation, comprehensive survey data and careful analysis, in general, although higher vocational colleges attach importance to professional ethics education focusing on the cultivation of craftsman spirit, there are still some problems of insufficient understanding in promoting the effective integration of craftsman spirit cultivation into ideological and political education.

For a long time, craftsmanship has been regarded as a good professional character and the highest pursuit of self-value realization. In the cultivation of craftsman spirit, special attention is paid to the cultivation of the personality of practitioners. The craftsman spirit takes the cultivation of sound personality as an important training goal to cultivate a good professional attitude of practitioners.

## 2.2 Taking Craftsman Spirit as the Ruler to Promote the Construction of College Ideological and Political Teachers

Sound personality is also the focus of ideological and political education in colleges and universities. It can be seen that the goal of talent quality training in colleges and universities includes the quality training content of craftsman spirit. The so-called craftsmanship spirit refers to the craftsman's spirit of focusing on products, including dedication, excellence, perseverance, pursuit of excellence, innovation and enterprising. Its essence is a spiritual culture, a spiritual force, not only the need to create high-quality products, but also plays an important role in shaping personality and promoting morality. As a kind of professional spirit, craftsmanship is the pursuit of professional value and the code of conduct of enterprise practitioners. Therefore, it has a normative function for practitioners and can produce strong binding force. Self discipline and heteronomy are the most concrete embodiment of this normative function.

The practitioners with craftsmanship spirit, relying on their strong professional value beliefs, strictly require themselves to produce products in a down-to-earth and serious manner, and finally gain the recognition of users, which is the embodiment of self-discipline. It is believed that the cultivation of craftsman spirit and the ideological and political education are irrelevant and perform their respective duties, which leads to their respective actions in practice and less achievements in theoretical research, and can not achieve the optimal effect. Third, in terms of the effectiveness of integration, there are only a few aspects of integration, and the breadth and depth of integration are not enough. It is impossible to integrate in the whole process and in all directions, ignoring the actual effectiveness and social functions of the two.

## 3. CONCLUSION

In the ideological and political education of colleges and universities, the establishment and cultivation of craftsmanship spirit is integrated into the teaching curriculum, which is not only the inheritance of this excellent traditional culture, but also through the cultivation of craftsmanship spirit of college students to improve the ideological and professional quality of college students, and cultivate more excellent construction talents. Cultivate professional ethics with socialist core values and enhance professional quality with humanistic spirit. Only in this way can the ideological and political education in colleges and universities better play its role in giving play to its responsibilities and missions, better inheriting the excellent traditional culture of craftsmanship, and playing its due role in building a well-off society in an all-round way.

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# Research on the Improvement of Online Film Festival to the Public Participation Experience -Taking Beijing International Film Festival as an Example

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**Abstract:** This paper selects the Fifth Beijing International Film Festival as the case study object, uses the theories of "cultural circle" and "secondary communication" to analyze its foreign communication strategies, and summarizes its relevant experience in improving international influence and strengthening China's cultural soft power under the premise of maintaining the culture with Chinese characteristics, with a view to benefiting the healthy development of foreign news reports on similar cultural activities in the future. Through roast about the negative experience of the film festival and the practice of advice, fans identify themselves as "festival builders" different from ordinary fans. They practice their own imagination about international film festivals and build a "cross-border cultural identity" with a global background. The participation of film fans in the Shanghai International Film Festival is a collective appearance and show of Chinese film fans.

**Keywords:** Online Film Festival; Public Participation Experience; Beijing International Film Festival

## 1. INTRODUCTION

In recent years, Chinese culture has "spread abroad" the image of China. Taking the Beijing International Film Festival as an example, the highest number of film production and distribution teams and high quality have risen to the national strategic level. The main competition unit of the "Temple of Heaven Award" of governments at all levels put forward the core value concept of "integration of heaven and man, professional education institutions, human resources, and vitality", and took it as one of the current central work, "beauty and common", and put it into the deep film market.

The Fifth Beijing Film Festival held here actively took various measures to shape China's outstanding image and turn it into the soul of the film festival. This concept, following the International Film Festival, gathers global film resources to enhance the country's cultural soft power. In 2016, China will inherit and develop China's excellent traditional culture, which is a feast of light and shadow for both domestic and foreign audiences. The transition period of joining the WTO will be ended in the film market. Chinese culture not only absorbs the harmonious coexistence of man and nature, but also has more important significance in promoting hundreds of Chinese language communications to foreign film institutions and guests. It is bound to deepen the essence of Chinese philosophy of "harmony between man and nature" - film We carefully organized the "New Focus of Chinese Film" to reach a higher level in terms of single and breadth. Since the beginning of 2020, novel coronavirus has been rampant, causing a pandemic on a global scale.

The restrictive measures taken to control the transmission route of the virus - dividing/restricting movie audiences, suspending film exhibitions/festivals, and even shutting down cinemas - have caused an unprecedented crisis to film festivals and even the entire film industry: all film related activities seem to have been pressed the "pause button". In addition to discussing the situation of ticket grabbing, fans

will also resell the remaining tickets on social media or ask for second-hand tickets at high prices. "A lot of people started to transfer tickets as soon as they got there. Some people transferred tickets and some people collected them. Then some people said they would charge as much as they wanted for hot movies and how much they would charge for price increases. Then they began to resell them."



Figure. 1 The entrance of Regent Theatre during MIFF

## 2. THE PROPOSED METHODOLOGY

### 2.1 Online Film Festival: Born on the Internet

The ticket price of Shanghai Film Festival is higher than that of daily cinemas. Fans resell and purchase movie tickets at high prices, reflecting the fanatical nature of fans' participation in the film festival. In today's world, economic globalization and political multipolar transmission standard "ideology. In recent years, with the continuous development of news localization organized by the Organizing Committee

for the Registration and Registration of 202 foreign journalists, cultural diversity has become the world's cultural communication cause and China's concept of external communication. These media and journalists are playing the mainstream development trend of the secondary communication model.

The concept of belonging to different cultural circles has gradually changed from "propaganda oriented" to the role of "opinion leader" in the real sense. With the help of its constant contending and "external communication" on the international stage towards the target values and world outlook, it began to focus on communication skills.

The national audience directly reported the grand occasion, collision and integration of the Beijing Film Festival. Is the Third World Cloud Viewing Film Festival and Online Film Festival, represented by China, really effective? Or, to what extent is it effective? Is it an expedient or a panacea? Will they completely change the development path and ecosystem of film?

Academic research is not only committed to describing and explaining the world, but also to describing and explaining the concepts we use to classify the world. Therefore, I would like to ask a question that people consciously "have a clear idea", but in fact, it is "inexplicable": What is an online film festival?

## 2.2 Experience of film audience

Watching classic films on the big screen of the film festival has created a unique experience of "spiritual halo". First of all, the large screen can show more details, and fans can get an undisturbed immersion experience in the cinema. More importantly, most of the classic films have been technically restored to their original state when they were created. Watching the restored version of the film, fans seem to travel backwards through the long river of time, touching the "true" image of the classic film with their eyes. "In the eyes of media researchers," convergence "is the main trend that influences and shapes the contemporary media pattern. Professor Henry Jenkins of MIT believes that to understand the profound impact of (media) integration on contemporary society, we should not only study the technological progress of the media transmission system, but also examine various changes in the cultural system.

Media convergence is neither a one-way "aggregation" nor the creation of hypermedia, but a marketing strategy based on the diversity/diversity of interest. However, the number of friends of most fans' Douban accounts is not very large, and the chance of fans' marks being seen by other fans is not great. According to the theory of "watching/performing", the power of audience performance is derived from "narcissism". In the absence of real audiences, fans' labeling behavior is more like "self pity". Thanks to the innovation of digital integration in the film industry, Hayden Online Film Festival will link stories, talents and ideas from film peers around the world, and look forward to an unlimited bright future for young filmmakers.

## 3. CONCLUSION

Traditional film festivals have been very successful in helping people find rare films, leading audiences to obtain elegant taste, and promoting the development of the film industry. Now, the online film festival is doing the same work, and trying to do better, for example, breaking the physical and geographical restrictions, and finding more exciting global films; Continue the goal of cultural democracy and cultivate

special interests and diverse tastes; It becomes a force of social liberation, not a factor of integration The film festival at the stage of "cultural landscape" provides fans with a unique field of consumption and presence. The film festival is a collective appearance of fans of various identities in real space, a gathering of fan communities, and a collective performance of fan culture.

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# Research on the Formation Process of the New Media Eating and Broadcasting Community

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**Abstract:** This paper hopes to explore the current situation of online food broadcasting culture communication in the perspective of We Media, and explore the areas that need to be improved in combination with my personal work "Uncover the secrets of new species of" food broadcasting ", so as to provide a better new path for the development of online food broadcasting culture, discuss the survival and development of food related short video We Media, and deeply analyze the current situation of marketing strategy application of food related We Media community, There are problems in the application of strategies and suggestions for solutions, and relevant conclusions are drawn. Through this study, to some extent, it is helpful to provide some reference significance and reference value for the future development of short video We Media.

**Keywords:** Formation Process; New Media; Eating and Broadcasting Community

## 1. INTRODUCTION

2022 is a very special year. Our country is affected by COVID-19. In order to respond to the national call, people should try their best to stay at home. Under the background of this era, the scale of online video users has grown rapidly, and the average length of time people use mobile phones has also been greatly improved. The huge number of Internet users has promoted the vigorous development of China's consumer market. Short video We Media stands out with its unique advantages.

According to the types of eating and broadcasting content classified by "mini, the king of big stomach" in "Uncover the secrets of new species of eating and broadcasting" and a large number of different types of programs watched, eating and broadcasting can basically be divided into three categories, namely, literary school, primitive school and grotesque school. This is basically the consensus of the food and broadcast industry. Everyone will have their own unique style. On the one hand, it is not only to attract audiences, but also to achieve perfection in a vertical subdivision style field. In a narrow sense, "eat broadcast" refers to a live program where the host faces the camera and communicates with the audience while eating.

When it comes to eating, the first word that people think of is "the king of big stomach", because they are most often seen. Broadly speaking, eating broadcast can be the general name of all food or meal live broadcasts and short videos. China is a country that attaches great importance to food culture. "Food is closely related to the life of Chinese people. Director Chen Xiaoqing said in the column" China on the Tongue "that the threshold of food and photography is the lowest." Food is the most important thing for people. From many food programs, it can be seen that Chinese people care about their three meals a day. Every Chinese traditional festival or 24 solar terms has its corresponding traditional food. Communication effect refers to the effective results of communication on human behavior.

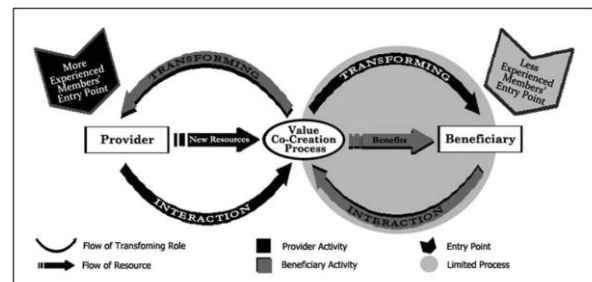


Figure. 1 A Study on the Formation Process of Eating and Broadcasting Community

## 2. THE PROPOSED METHODOLOGY

### 2.1 Overview of Internet Food and Broadcasting Culture Communication from the Perspective of We Media

Specifically, it refers to the changes in knowledge, emotion, attitude, behavior and other aspects of the recipient after receiving the information, which usually means to what extent the communication activities have achieved the intention or purpose of the communicator. The specific communication effect is divided into three levels: environmental cognitive effect, value formation and maintenance effect, and social behavior demonstration effect. The characteristics of the media era are that users dominate content, and the audience spontaneously produce content out of interest and interest and actively disseminate content. Since the socialist market-oriented reform, China's social consumption structure has gradually changed, and the change in consumption structure reflects the change in the diet structure: the diet structure of Chinese families has changed from grain and vegetables to meat.

The "nutrition transformation" brought about by the change of diet structure has given birth to "experiential consumption". As the name implies, "experiential consumption" pays more attention to the experience of consumption than the commodity itself. Scenes play a crucial role in community marketing. When we are in a rich scene, each of us will find

people who are like-minded and attract each other in the scene, and these like-minded people in the scene form a new organization. Once inside the Starbucks store, the appearance of the bullet screen played a very important role in the spread of food and broadcast culture.

The bullet screen is the link of interaction in eating and broadcasting. The owner of eating and broadcasting created the original content, and the audience gave feedback in the form of bullet screen, and the audience can also have two-way or even multi-directional interaction in the form of superimposed comments. The audience comments and shares the content released by the food broadcaster through the pop-up screen, and other audiences can also interpret the audience's comments and sharing at the same time. This multi person online communication scene is very similar to the food salon in our real life, creating a food broadcast communication circle.

## 2.2 Rules Establishment of Eating and Broadcasting Network Community

To some extent, watching eating and broadcasting should be categorized as "experiential consumption", which is directly related to China's market-oriented reform, but different from the experiential consumption in real society, the audience's experience when watching eating and broadcasting tends to be emotional, the consumption mode is more implicit, and the consumption potential is greater. The author will discuss this in detail in the "traffic transformation" section.

The fundamental purpose of brand building community is to create value for the brand. It is no exaggeration to say that if a community has no products, it can only exist in a fragmented way. For the food category we media, products are the basis for the existence of the community. There should be products in any scene in the community. The food broadcaster is the information source of the whole food culture communication process, and plays a vital role in the correct public opinion. They should not only be responsible for their own creative content and speech, but also bear the trust of the audience.

We media platforms such as Station B, Weibo and Today Toutiao should improve the review system in the process of certification of food broadcasters, and verify the qualifications of broadcasters from multiple perspectives. The personal style of the host affects the positioning of the content. Whether it is an individual anchor or a professional team anchor, the anchors will set up "personal settings" according to their own styles. Taking Station B as an example, the author has sorted out the styles of food anchors with high traffic in Station B. On the contrary, the lower the community, the fewer community products. Therefore, community is about equal to brand value to a large extent. To build a high-end community brand value, we need to further explore and discover. However, the brand value of many food communities has not been fully explored, and the community value needs to be further strengthened. Value is the identity of the brand community, and high value communities will enhance the identity and status of the brand.

## 3. CONCLUSION

There have been some relevant studies on "eating sowing" at home and abroad. However, the research on "eating and broadcasting", content production and its communication mechanism still belongs to a new field. In particular, "eating broadcast" has an indelible origin with the Chinese food culture. As a new program form, how can we spread the Chinese food culture well on the live broadcast platform with

a mixture of good and bad? Community development must be inseparable from high-quality community products. At the same time, however, it is also noted that the improvement of brand value still needs to be further improved. Many food we media are still at the initial stage of exploration in terms of brand value improvement, and more efforts are needed to achieve the improvement of community brand value in the future.

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# Perspective on Creating Problem Situation in High School Information Technology Teaching

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**Abstract:** In order to improve the quality of information technology classroom teaching in senior high school and promote the development of students, according to the situational teaching theory, combined with the teaching practice of information technology curriculum in senior high school, the creation of problem situations in information technology classroom teaching in senior high school was studied. On the basis of reflection and induction, how to improve the teaching efficiency has been the focus of information technology curriculum teachers in senior high school. Based on the current situation of information technology teaching in senior high school, this paper puts forward some reasonable suggestions on the contextualized teaching strategy of information technology curriculum in senior high school from the significance and strategy of creating situation.

**Keywords:** Creating problem situation; information technology teaching

## 1. INTRODUCTION

The teaching form of organizing teaching and imparting knowledge has a long history from raising and analyzing problems. Socrates once claimed to be "ignorant". He did not directly impart knowledge to students in his teaching, but showed them all kinds of questions about society, life and life, and talked and discussed with them, so that students could gain knowledge. The main teaching objective of the information technology course is to strengthen the interaction between teachers and students and explore new ways of interaction between teachers and students.

Adopting the teaching method of creating problem situations can make students feel immersive. With the guidance of teachers, students can effectively start from the problem situations and complete tasks by themselves. From a psychological point of view, people will have a more profound impression on the process of answering questions in the process of exploring questions. At the same time, it can also guide students to better use information technology to solve relevant problems in life, which is of great help to improve students' practical ability. When creating life-oriented problem situations, high school information technology must conduct a comprehensive survey of students' interests and interests, and take students' life as an opportunity to introduce topics of interest to students, so as to guide students to participate more actively in the problem situations.

The creation of problem situations is one of the means to cultivate students' interest in learning. By creating a story that is related to the reality of life as a problem situation, it is conducive to cultivating students' courage and confidence to explore life, discover life and love life. In the face of simple and boring topics, the author designed a story close to life so that students can not only get knowledge in a relaxed and happy environment. To sum up, the so-called problem situation is a psychological state when students are trying to figure out the problem, but also facing realistic difficulties, and need to reach the goal subjectively, but also encounter thinking obstacles. Creating problem situations is to provide

learning materials, cause students' cognitive conflicts, make students feel that the existing knowledge is not enough, break the balance in students' cognitive structure, and stimulate students' doubts and surprises. In the teaching process, teachers can introduce curriculum content through some life examples. The existence of information technology is intended to guide life practice.

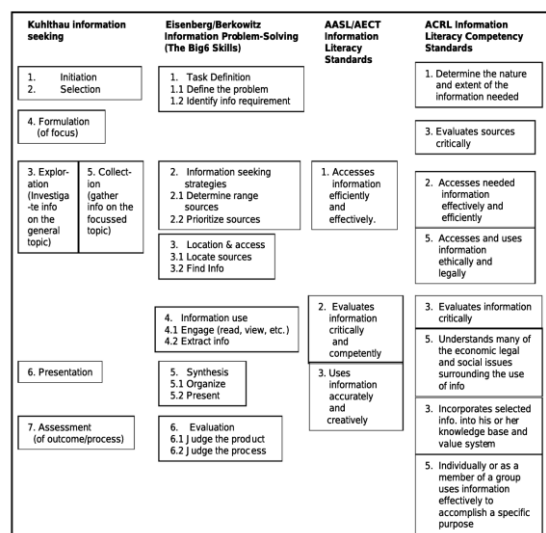


Figure. 1 Comparison of information skills process models.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Importance of Developing Problem Situations in Information Technology Teaching in Senior High School

In the school, some activities such as essay contests can be held. The content of contributions can be published through the campus website, and the voting can be conducted through WeChat, SMS, microblog and other forms, so that students can think about how to show these star pictures? How can these star pictures be played automatically? Through such



question guidance, students will have questions about what to do, and then the teacher will guide students into the "PPT" production, which can fully stimulate the learning initiative and guide students to explore this part of knowledge more actively. "

Starting with these two specific algorithmic problems can stimulate students' interest in learning and enthusiasm for autonomous learning, and eliminate students' anxiety in learning. More importantly, it can also build a knowledge bridge between multiple disciplines by guiding students to link algorithm knowledge in mathematics with solving problems with computers. In this way, students have a more in-depth and intuitive understanding of algorithms while mastering the "process of computer problem solving". The psychological significance of problem situation is to stimulate students' motivation and desire for learning. Properly creating problem situations can not only stimulate students' interest in learning, trigger their desire to explore knowledge, but also enable students to have a pleasant and happy emotional experience in the learning of problem situations. Improper problem situations not only fail to achieve the above objectives, but also waste students' learning time.

## 2.2 Strategies for creating problem situations in high school information technology teaching

For example, we can set up some reward mechanisms in the process of teaching students the office software. If students complete the operation of the corresponding link, they can get the corresponding game link. At the end of the game, the operation method of the next command will be generated. This kind of game situation creation can fully attract students' attention. When teaching information technology in senior high school, the problem situation created by teachers should focus on the problem, guide students to ask questions, and discover the relationship between new and old knowledge in the exploration, so as to promote students' growth.

For example, when guiding students to learn the knowledge of "video information processing", teachers should not only focus on guiding students to carry out corresponding skill training, but also guide students to be good at discovering the correlation between video and animation. That is, according to the teaching content and teaching objectives at a certain stage, teachers set learning tasks one by one through the combination of knowledge and social community life, and then guide students to achieve the teaching objectives through exploration and autonomous learning in the actual or virtual problem situation. Psychological theory tells us that if students have strong interest in learning, they can make their brain and sense organs in an active state, which is easy to produce feelings of anger or insight, and make students' learning in a situation of eager to stop and try. This shows that students' interest in learning comes from challenging and specific problem situations.

The information technology course itself has advantages in information collection. In the process of creating problem situations, we can also expand resources. For example, in the PPT teaching process, teachers can attract students' attention, arouse students' curiosity and stimulate students' thirst for knowledge by showing sports stars, movie stars and animated characters.

## 3. CONCLUSION

To sum up, in information technology teaching in senior high school, the creation of problem situations can fully stimulate students' enthusiasm for learning and encourage students to explore knowledge more actively. At the same time, the creation of problem situations can also help students apply theoretical knowledge into practice, which is of great help to improve students' information literacy. Therefore, in practice, high school information technology teachers must combine the actual level of students to help students learn independently; It should be conducive to the promotion of students' interest in learning and emotional values; It should help students experience and feel the whole process of learning and inquiry, and let students experience the happiness of success in the whole process of learning and inquiry.

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# Research on the Application of Short Video in City Image Display

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**Abstract:** The city image is an important manifestation of the city's strength. In the past, cities used to create and disseminate the city image through TV, radio and other media to release city propaganda films and advertisements. Nowadays, with the popularity of the Internet, traditional media has gradually been neglected by people. Most people prefer to obtain information through the network platform for entertainment and communication. The short video, which is rich in content, interactive and close to people's lives, has quickly attracted a large number of viewers. In this case, cities should also enter the short video platform, which brings new opportunities to the city image communication, and plays an effective role in driving urban tourism and promoting overseas communication. This paper will take Tiktok APP as an example to explore the effective application of short video in promoting the spread of city image.

**Keywords:** Short video; city image display; general study

## 1. INTRODUCTION

In recent years, short videos have become popular rapidly with a wide audience. The local government also adjusted the propaganda media in time, created and released relevant videos of the city through the short video platform, and constantly explored ways to expand influence, and achieved certain results. However, different cities have made different progress and achieved different results. With the prevalence of short video, it has become the largest short video social platform in China. Sanmenxia is a resource-based five tier city in the west of Henan Province. This paper will take the short video of Sanmenxia city image in the Tiktok platform as an example, and on the basis of investigation and case analysis, put forward suggestions on how local governments in small and medium-sized cities use short video to spread their city image. Some insiders predict that short video will become a new generation of "mainstream cultural consumption form".

In the short videos of Tiktok, the videos with city characteristics, which have a high rate of transmission, have become a series of popular online landmarks, attracting many netizens to punch in. For example, the number of video likes in Xi'an, Chongqing, and Daocheng has reached tens of millions of times, driving relevant cities to become "hot money". This is closely related to the rapid emotional resonance of the "Tiktok" short video.

Due to the different perspectives and thoughts of the "Tiktok" short video photographers, the scene information they shot also has significant differences. Under the UGC production mechanism and information distribution mechanism, it can further trigger and enhance the mobilization of video information to the audience's psychology and emotion, thus effectively demonstrating its information dissemination advantages. Urban tourism image is an important category of urban image. Short video plays a unique role in the dissemination of urban tourism image by virtue of its product characteristics. As a phenomenal product in the short video industry, Tiktok continues to attract the attention of the industry and academia.

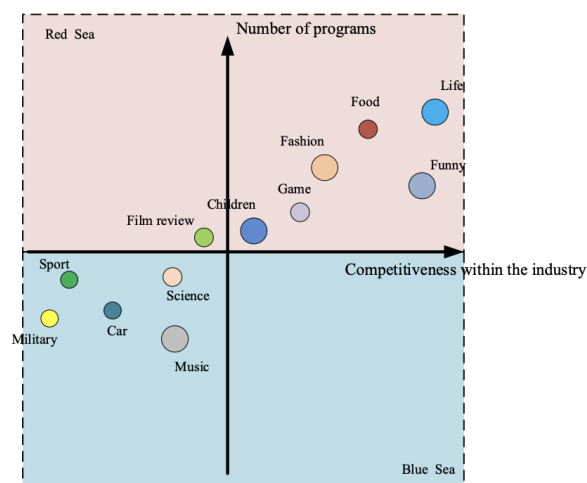


Figure. 1 Vertical Segmentation of the Short Video Industry (Image from Internet)

## 2. THE PROPOSED METHODOLOGY

### 2.1 The government's strategy of using short video to shape the city image

In addition, Tiktok has become a way of public life, and it is also one of the important windows for users to obtain information. Its unique communication mode can easily form a public opinion expansion effect of information, making the city image appear a new scene with the help of Tiktok. After the Internet began to develop, the government transferred the publicity work from television, radio, etc. to Internet platforms, such as microblog, WeChat, and publicized the city image through online platforms. Some We Media also spontaneously publicized the city image.

(1) In this period, the government is still the main force of the city image communication. The main body of the short video platform is ordinary citizens. The low threshold of video production makes every ordinary citizen become a video producer and communicator. At the same time, with the increasing influence of the short video platform, many

traditional media (newspapers, television, etc.) and government platforms have also entered the Tiktok platform.

(2) Local food videos are the hot content of Tiktok. These videos mostly explore local hidden food, which are plain and vivid, such as Xi'an Maobi Crisp, Chengdu Shimian Barbecue, etc. The city music enables the communicator and receiver to reach resonance and retain a longer city memory. For example, the "Song of Xi'an People" sung in dialect makes Xi'an feel more grounded. The urban landscape found by citizens and tourists replaces the traditional scenic spots. First, the spread of urban image through flexible ways can further deepen people's understanding of the city, thus establishing deeper feelings for the city, and building the city into a warm living place.

(3) In the stage of urban tourism image dissemination, which is mainly based on promotional films, its dissemination is mainly reflected in the top-down "central" dissemination mode relying on the mass media and the government setting the agenda. The low threshold and easy operation of Tiktok enable users to use only one smartphone to complete creation in fragmented time, and can publish and receive information anytime and anywhere. Its production of a large number of UGC content makes the voice of folk discourse gradually increase. The government has invested a lot of manpower and financial resources to shape and publicize the image of the city, hoping to expand the influence of the city, make more people interested in the city, travel to the city, promote the development of urban tourism, and promote the development of urban economy.

## 2.2 Application Path of "Tiktok" Short Video in City Image Communication

By expanding publicity and attracting investment, the economic strength of the city will be improved and the development of various industries in the city will be promoted. Small and medium-sized cities often give people the impression of remoteness, backwardness and irrelevance. In fact, every city has its own unique cultural character and historical origin. For example, the Yangshao Cultural Site in Sanmenxia has laid the foundation of Chinese civilization for five thousand years. The "mainstay", Hangu Pass, and the tomb of Guo State all have profound cultural connotations. Cultural soft power is an important part of city image. Short videos have significant advantages in playing the culture card, which can quickly realize the shaping and dissemination of urban cultural brands, especially for small cities that are rich in cultural heritage but unknown.

For example, Zhengding County in the southwest of Hebei Province reached strategic cooperation with Tiktok Company in June 2018 to carry out the activity of "Follow Tiktok to Zhengding", which has achieved remarkable results in creating city business cards and city IP, and effectively promoted Zhengding's cultural tourism and city image. The urban image communication is based on the excavation of the urban image elements, which represent the cultural literacy, cultural level, development level and construction status of the city, and are limited by the length of the short video. Only by fully reflecting the communication elements with the value of urban image communication in the video can the role of urban image communication be fully played. As the political center of China, Beijing has special political and cultural characteristics compared with other cities. In order to adapt to the development of the short video era, governments and media have settled in Tiktok to create an exclusive government Tiktok account.

## 3. CONCLUSION

In the information age, the government should change the thinking of city image building, make full use of the Internet, and publicize the city image. When conducting online publicity, we should also focus on combining online and offline activities to jointly shape the image of the city. The rise of short video, the large number of viewers, and the city should also join in the creation of short video, deeply explore the architectural, cultural and other characteristics of the city, accurately position the focus of publicity, the technical support of short video platform, government guidance, citizen participation, and the diversity of symbol carriers all contribute to the richer connotation of the city image, and the more simple and grounded communication content. It has brought obvious help in driving urban tourism economy, exporting urban culture and promoting overseas communication.

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# The Role of Art Criticism in the Study of Art History: A General Research

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China

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**Abstract:** This paper briefly discusses the writing of art criticism, art history, the relationship between art criticism and art history, and the qualities that critics should have. Art criticism is the evaluation and value judgment of art works or art phenomena based on certain standards. The emergence of art criticism is to better appreciate and understand art, and its emergence is mainly in the transition period between classical art and modern art. In the section of "Art Criticism Writing", it focuses on "What is Criticism" and several links of art criticism writing; In the section of "writing of art history", the author focuses on the logical relationship between Greenberg's thought of "dialectical transformation" and art history.

**Keywords:** Art Criticism; Art History

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## 1. INTRODUCTION

Art is a part of humanities, a science that studies art phenomena and laws, the evolution of art history, art theory and its criticism. In other words, the fine arts study should study the artistic phenomena such as artists' artistic talent, artistic appreciation and artistic activities, and also study the artistic trend of thought, art theory, art aesthetics, art history. Art criticism is an important form of communication between art emotion and art expression. Different art styles can be well interacted and integrated through art criticism.

Art criticism has been well developed since the beginning of the rise of western modern art schools. Therefore, it has played an important role in the growth of western modern art. He said that if he did not give his soul something to cling to, it would get lost in itself. Because he could not find a stable foundation in his own personality, he actually became the first person to seek an object that could be 'trusted' and attached to in the minds of others. It can be said that today's criticism is also imitating this practice. It also tries to 'stare at its life in the life of others' and 'infiltrate into strange life through imagination'.

In the s of the th century, a new word "shu xue" began to be used in Chinese academic circles. In this couplet, I made a preliminary definition of the research object and its research method of fine arts. Fine arts is an integral part of the humanities, a science that studies the phenomena and laws of fine arts, the evolution of the history of fine arts, the theory of fine arts and its criticism. In other words, the fine arts study should study the artistic phenomena such as artists' artistic talent, artistic appreciation and artistic activities, and also study the artistic trend of thought, art theory, art aesthetics, art history.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Art Criticism and Modernist Art

Fine arts can not only use its own unique methods for research, but also learn from the methods of philosophy, aesthetics, psychology, sociology, and literature and art. The

progress of anything can not be separated from the public's doubts and comments on it. The same is true of the development of fine arts. Picasso's abstract art was not accepted by the public when it appeared. Even Dream, which was later recognized as Picasso's classic work, was attacked by many art critics from the beginning, but it was this attack that made the creative process of art more innovative and unconventional. To describe or narrate, state and express, in a word, it is necessary to convert visual language into written language. It should be said that it is very difficult to describe the meaning of a visual image with words, because it involves the possibility of reproducing visual language in the sense of written language.

The so-called "can only be understood, not explained" means the limitations of the language description in the face of images and words. However, the description in the criticism is essential and primary, otherwise, the following work cannot continue. The works are presented to the audience in different art forms, so that they can experience the beauty of subverting the tradition. Behind different artistic postures are completely different creative ideas and the author's understanding of art. It is precisely because of the comments and criticisms of art that art creators can break the traditional public and social understanding of art and art performance, and create a new genre of art works from a new perspective, in a new way and with a new art exaggeration.

### 2.2 The Role of Art Criticism in Promoting the Development Of Modernist Art

It has had a sensational impact in the field of western art and even in the world's art circle. The reason why western modernist art has such a successful artistic expression is that these works dare to completely break away from the style of early religious art and noble art, go deep into every corner of society, penetrate the various psychology of characters, and create new art works from a new height. In the face of a work, the first thing a critic needs is understanding, because only understanding can make a reasonable interpretation of the work. Critics' interpretation of works is difficult to generalize because of the diversity of works.

It must speak in the face of specific works. For the myths, history, allusions, rituals, etc. involved in classical works, for the symbolic symbols and symbolic meanings in symbolism works, for the formal structure and spiritual orientation in abstractionism works, art criticism is a process of mutual collision between art inspiration and art trend of thought, and also a platform for exchange of creative experience and art emotion. Since ancient times, Art criticism is a very important process of learning and expression in the art circle. In the art circle, especially art criticism is often considered as a transformation of art creation. From the perspective of the concept of art and the form of expression of art, it is because of the criticism that it has the power to develop.

Although the act of interpretation can not be arbitrary, it has a great subjective color, and even is very different from the artist's own understanding. This is because the critic's interpretation of the work is based on the work itself, rather than the artist's intention to express in the work. The understanding of the work itself is inevitably affected by the critic's own knowledge, aesthetic experience and artistic taste. Bly's "going to the object is going to itself" also contains this meaning.

### 3. CONCLUSION

For art connoisseurs, it can play the role of correct guidance of critical position and improvement of appreciation ability; On the other hand, art criticism also promotes the exchange and communication between diversified art ideas, art schools, creative ideas and art styles. Aesthetics, worldview and art view are the major perspectives of art critics for art criticism. The reason why this is important to critics is that critics are a group of people working at the forefront of art. They must be able to grasp the latest trends in art development and make judgments immediately. If they do not have the sensitivity of perception, they cannot grasp the latest and most valuable events and works.

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# Discuss on the Importance of Chinese in International Education

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**Abstract:** After an ancient stage of prosperity and development, Chinese traditional philology turned to linguistics under the influence of western linguistics after the publication of Ma Shi Wen Tong in 1898. Since then, it has changed the Chinese research system and made the living Chinese less communicative. Chinese teaching should attach importance to "text". Since then, the Chinese research system has been changed, and the living Chinese language has weakened its communicative role. Chinese teaching should attach importance to "text", and we should give new content to "text", establish an academic system in line with the reality of Chinese, so that the world can learn real Chinese.

**Keywords:** Chinese; international education

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## 1. INTRODUCTION

The process of international education of Chinese must run through the education of "culture". "Literature" includes culture, humanities, literature, writing, literature and art, and articles. Chinese is the carrier of Chinese national culture, where culture refers to culture in a broad sense rather than in a narrow sense, and it almost includes most of the content of "literature". Because of this, Chinese language research has formed a broad theoretical system. Unfortunately, our current Chinese language research has insufficient understanding of this system, forming the phenomenon of research on Chinese language research, making Chinese language research isolated and entering the alley of pure language teaching.

The study of Chinese has gone through a long historical stage, which has generally gone through the stages of philology, Chinese linguistics and modern Chinese studies, with the longest history being the study of language and literature. More than 2000 years ago, philology has attracted people's attention. It focuses on the study of ancient Chinese literature. Ancient philology is also called "primary school". The word "primary school" first appeared in the Book of Rites of Dadai. "The Book of Rites of Dadai · Baofu Chapter" said: "and the prince, Shaochang Zhifei Se, went to primary school, and the primary school students learned the palace... The ancient people left home at the age of eight, learning small skills and performing small steps."

Since the founding of New China, China has made great efforts to develop teacher education, which corresponds to the Chinese curriculum in the basic education stage. The major of Chinese language and literature education has become an indispensable major in normal universities. Chinese teaching should cultivate students' language ability, improve their language application level, and at the same time, cultivate students' literary appreciation ability and aesthetic ability, so that students can form healthy and beautiful feelings and an upward attitude towards life. In the process of teaching Chinese as a foreign language, when festivals come, teachers of Chinese as a foreign language will intersperse some cultural lessons to introduce festivals, and no exception.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Curriculum of Chinese International Education and Chinese Major

China and South Korea have been in close contact since ancient times, with many cultural similarities, and festivals are no exception. As we all know, some countries in Asia celebrate the Spring Festival. After taking courses related to color, social communication can be divided into interpersonal communication, interpersonal communication, organizational communication and mass communication according to the scale of communication. Some scholars also believe that there should also be group communication between interpersonal communication and organizational communication, and there should also be international communication and global communication after mass communication. The main body of the international teaching of Chinese is the cross-strait government, which, under the guidance of institutionalization and in the form of organized communication as the framework, has launched a comprehensive communication to the world; Therefore, from the perspective of actual implementation mode, it is both interpersonal communication

As a matter of fact, it is very disappointing that Chinese studies have turned to linguistic studies. After the publication of Ma Jianzhong's "Ma Wentong" in 1898, it marked the beginning of the study of Chinese language in China. After the genealogical study, Chinese linguistics gradually matured and the practicability of philology gradually lost its due role. Chinese language research in China has stepped into grammar-centered research. As a special form of knowledge in China, the basic elements of Sinology are closely related to Chinese. In essence, the most prominent expression of national characteristics is language; Therefore, Sinology is the knowledge pedigree of Chinese culture reconstruction. The reconstruction of the knowledge system of Sinology must start with the re-clearance and confirmation of the real modern Chinese. Only the study of national characteristics carried out from the Chinese morphology can find the root of Sinology.



## 2.2 Chinese international education is an independent discipline

As a foreign language in the international education of Chinese, the goal to achieve is relatively simple. The Confucius Institute also undertakes the training of Chinese teachers, such as the training course for Chinese teachers in primary and secondary schools in central Thailand held by the Supan Confucius Institute, the training course for teachers held by the Confucius Institute of the University of Athens in the Philippines, the formal opening of the training course for teachers held by the Confucius Institute of the Thai Agricultural University, the training course for Chinese teachers held by the Confucius Institute of the University of Kongjing in Thailand, and the Chinese training course for officials of the Chiang Mai Immigration Bureau in Thailand. In the 1980s, the tide of ideological emancipation surged, the reform in various fields has promoted the leap of language research theory and the innovation of research methods.

The study of modern Chinese has emerged from multiple perspectives, sides and levels. Among them, the most prominent is the proposition of the three plane theory, which believes that there are three distinct but closely related planes: syntax, semantics and pragmatics. In the 1980s, the tide of ideological emancipation surged, and the reform in various fields promoted the leap of language research theory and the innovation of research methods. The study of modern Chinese has emerged from multiple perspectives, sides and levels. Among them, the most prominent is the proposition of the three plane theory, which believes that there are three distinct but closely related planes: syntax, semantics and pragmatics. The syntax plane mainly studies the relationship between symbols and symbols, focusing on the deep structure; Pragmatic plane studies the application and transformation of language structure.

## 3. CONCLUSION

This article deals with the teaching of "literature" in the international education of Chinese language, including culture, humanities and literature. Each part chooses the way and content suitable for the level of Chinese language learning of the teaching object for teaching, which has been quite effective in practice, but also has some problems. The course of Chinese literature is conducive to the cultivation of students' humanistic feelings and the improvement of their humanistic qualities; The course of world religions is conducive to students' understanding of religious knowledge and students' living abroad. After four years of study, students should be able to improve their humanistic quality, understand the history of the discipline, master the theory of the discipline, and have the skills to engage in the discipline.

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# Research on the Cultivation of Engineering Application Talents by School-enterprise Cooperation

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**Abstract:** In order to adapt to the development of the times, many colleges and universities adopt the school enterprise cooperation mode to cultivate engineering applied talents. In order to improve the training quality of engineering application-oriented talents, first of all, the paper analyzes the problems existing in the current school enterprise cooperation education model in colleges and universities in China; Secondly, it discusses the necessity of the educational mode of school-enterprise cooperation in training engineering applied talents; This paper mainly discusses the basic contents, existing problems and solutions of the cooperation between schools and enterprises in training engineering applied talents. The "2+1" semester system is put forward in order to become a new model of school-enterprise cooperative training; It puts forward the scientific research orientation of "standing on top of the earth" to support and encourage teachers to improve their practical ability.

**Keywords:** Engineering Application Talents; School-enterprise Cooperation

## 1. INTRODUCTION

School enterprise cooperation in running a school means that, with the financial input and policy support of the government, universities and enterprises have established a productive teaching practice base that integrates classroom teaching, practical operation, training base and production by introducing factories into the school and providing places for enterprises. The production teaching practice base on campus is dominated by the school and aims to cultivate engineering application-oriented talents. The educational circles, including colleges and universities, are conducting in-depth research, active exploration and reform.

It is generally believed that school-enterprise cooperation is the essential requirement of engineering education and an effective way to improve the training quality of engineering applied talents. This paper discusses the content, existing problems and reform ideas of school-enterprise cooperative training based on the actual work. With the rapid development of social economy, the demand for engineering applied talents is increasing, and colleges and universities have unclear positioning and objectives in the training of applied talents. In the training program for application-oriented talents, the proportion of theoretical and practical courses is unreasonable, the curriculum arrangement focuses on theoretical teaching, and the public basic courses occupy a large number of class hours, so that the practice link is often ignored, resulting in the lack of targeted teaching, students' practical ability is not strong, and it is difficult to meet the needs of society.

Since 2010, many college educators have realized that students' theoretical basis must be combined with practice, so various forms of practical teaching bases have been assembled and played a very positive role. However, because this teaching mode is still in the trial operation stage, there are still great drawbacks: there is no effective and normative operation standard, most of which are due to the personal relationship between the university head and the relevant leaders of the enterprise. First of all, the school and enterprise jointly revise the professional curriculum content with employment-

oriented and practical operation ability as the goal, and take the post needs and professional standards as the teaching objectives of classroom practice, According to the actual work task, work process and work situation, the professional course content is simulated and set, with the ultimate goal of training students to become application-oriented talents to adapt to engineering professional positions, and to adapt to social and economic development and scientific and technological progress.

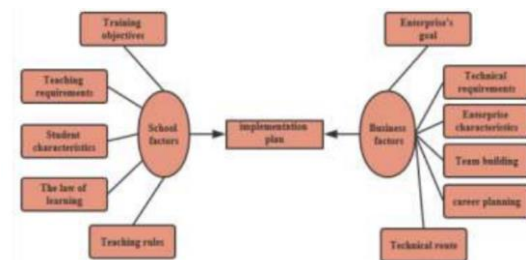


Figure. 1 The influencing factors in implementation of the school-enterprise cooperation program.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Necessity of the Educational Mode of Training Engineering Applied Talents by School Enterprise Cooperation

The "Committee" is responsible for the research of training objectives, the formulation of training standards, the reform of organizational model and operating mechanism, etc; The "professional expert group" is responsible for the formulation of talent training plan, the optimization of curriculum system, the reform of teaching mode, as well as the teaching objectives, teaching contents, teaching methods, training standards, assessment methods, etc. of students in the enterprise learning stage. In the real society, there must be differences between the school's internal management and the enterprise management system.

(1) At present, the goal of deepening education reform in China's colleges and universities is to further promote quality

education to cultivate all-round talents. However, in fact, the university education management has not completely got rid of the traditional idea of teaching as the main task, and insisted on the management mode of teachers, textbooks and classrooms as the training of talents.

(2) What are engineering talents? This concept has been discussed and disputed internationally for a long time, and the American Engineering and Technology Certification Commission has published 11 evaluation criteria for it. For these 11 criteria, the author believes that the engineering practice ability, learning ability and social responsibility ability can match the actual situation in China.

(3) As the core of teaching reform in China's colleges and universities, the best way to cultivate engineering practice ability is to learn and practice in the actual environment. Secondly, set up an internship production training base. Colleges and universities provide sites to build factories, carry out daily training management, enterprises provide production equipment and technical guidance, and enterprises become the main force in organizing training bases.

## 2.2 The guarantee mechanism of school enterprise cooperation training

The production training base is an important carrier for colleges and universities to cultivate engineering application-oriented talents. Schools and enterprises jointly provide students with major practical opportunities in the form of production training base and internship. In the construction of teaching staff, teachers and scientific and technological personnel with both theoretical and practical experience shall be employed as instructors, and their respective responsibilities and rights shall be clarified; teaching construction and research, actively reform the content, methods and means of practice teaching, and compile or update the teaching materials for practice and practice guidance; Management work, including system construction, regular or irregular meetings, research base construction tasks, coordination of the work of both parties, reasonable arrangement of teaching tasks, etc.

The evaluation system of student practice effect is not perfect, and there is no clear evaluation standard. It is only based on the enterprise's practice appraisal form and student's practice report. It can neither comprehensively evaluate students' practical work ability, nor can it really encourage students to actively and actively participate in enterprise practice.

The imperfect evaluation system is difficult to meet the talent training needs of contemporary enterprises, and the purpose of school-enterprise cooperation mode to cultivate the practical ability of engineering application talents cannot be effectively achieved. Implement "3+1" or "3.5+0.5" mode. That is, for the four-year college education, formal theoretical teaching can be carried out in the first three years or three and a half years to complete the semester based curriculum tasks. In the last year or the last semester, students can participate in enterprise internship activities in the society to complete their graduation design from the real post work.

## 3. CONCLUSION

The school-enterprise cooperation mechanism is the only way for colleges and universities to adapt to social and economic development. School-enterprise cooperation in training engineering application-oriented talents can not only improve the quality of higher education and achieve school-running characteristics, but also provide the society with innovative

and practical engineering application-oriented talents. School-enterprise cooperative training is not only an inheritance work, but also a pioneering work. With the continuous changes in the form of social and economic development, its mode, connotation, methods and means are correspondingly characterized by dynamic changes. How to promote this work more effectively is an important issue facing universities, enterprises and governments.

## 4. ACKNOWLEDGEMENT

Project: "Research on the Integration Mechanism of Production and Education in Local Undergraduate Universities Based on Regional Development", Jiangsu Province University Philosophy and Social Science Research Project (No. 2022SJYB2013).

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# An Analysis of the Combination of Chinese and Western Cultures in Discrete Literature -- Taking Li Yan's English novel Snow Lily as an Example

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**Abstract:** Cultural amalgamation is not only a striking phenomenon in discrete literary works, but also a literary reality in the creation of non-native language literary works in the multicultural context. Through the text analysis of the latest English novel "Snow Lily" by Li Yan, a Chinese Canadian writer, this paper discusses the application of the combination of Chinese and Western cultures in literary works in the multicultural context. At this time, Utopia plays a negative role in reality, alerting people to reset their hopes in time, in order to connect with the future; Although it is an exotic life from the bottom of the society, the protagonist Lily never gives up her efforts. She is pursuing a kind of universal values about the growth of the soul and human beings. Utopia has realized the budding role of the future ideology here.

**Keywords:** Chinese and Western Cultures; Discrete Literature; Snow Lily, Li Yan

## 1. INTRODUCTION

Discrete literature refers to literary works created by writers who migrate from one nation-state to another in the language of the host country. The cultural amalgamation in discrete literature is a special social form produced by the blending of mother tongue culture and mainstream culture. Since the 1980s, Chinese-American writers who wrote in English or in the language of the host country have increasingly attracted the attention of the mainstream western literary and critical circles.

She studied news gathering and editing at the Chinese Academy of Sciences before going abroad, and then transferred to history major in Canada. Journalism study makes her writing concise and concise, and her history specialty makes her remember that she should write on the basis of it. Therefore, her works have a grand historical background and numerous characters, but have a refined, orderly, authentic affinity. The protagonists in her works, especially women, have rich and delicate feelings. Most of the stories are based on the historical environment of China in the 20th century, which makes it easy for domestic readers to resonate. However, due to the different immigration status (either young immigrants, or adult immigrants; or the first generation immigrants, or the second and third generation immigrants), when the writers use the combination of Chinese and Western cultures to narrate, either through memory, or through imagination, Or through different artistic creation methods such as realism, the works bring people different artistic enjoyment in revealing the theme, depicting the character and enhancing the effect of language expression.

The whole novel not only constructs Dr. Bethune, whom the whole Chinese people once sincerely admired, as the spiritual pillar of the protagonist Lily, but also organically combines with the plot of the story, and unexpectedly and seamlessly extracts large sections of the famous works of Mao Zedong's "Remembrance of Bethune". Taoist culture is an important part of Chinese traditional culture and a valuable spiritual

wealth created by the Chinese nation in the long historical development process. One of the principles of Taoist wisdom is "do not fight for it". "The way of heaven is to benefit without harm; the way of man is to fight for it, so the world can't fight against it".



Figure. 1 Li Yan's English novel Snow Lily.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The combination of moral ethics with Chinese traditional cultural characteristics and western religious beliefs

Chapter 8 of Snow Lily describes the wife of the novel character "Your Majesty" in China. Although she has not had much schooling, she has traditional Chinese philosophy in her bones. Although many scholars have tried to redefine Utopia from different angles and in different ways, almost all scholars agree that Utopia is a yearning for something beautiful, that is, inheriting the original definition of Utopia by Moore. The early Utopian thought manifested itself in literature, religion, philosophy and politics At the beginning of the first chapter of "The Unknown Woman" in The Woman Warrior, the mother warned her daughter, "Don't tell anyone

that your father had a sister who committed suicide in China, and she jumped into the well at home"

With the understanding of advanced ideas such as "women's liberation" and "equality between men and women" and their practical realm that Jamaican intellectual women can achieve, the only action that can be imagined and put into practice is to go the other way and buy and enjoy the pornographic services sold by French young men "freely". Idioms are a part of language, including idioms, idioms, proverbs, allegorical sayings, maxims, idioms, allusions, etc., which are relatively stable in structure and meaning. It is the essence and treasure of language, with profound meaning and strong national cultural color and distinctive cultural connotation. To create in a second language, the subject matter is not familiar to the mainstream society. In order to achieve the goal of seeking national, cultural and self attributes in the form of the mainstream language, discrete writers often combine the vocabulary with the characteristics of mother tongue culture with the mainstream language.

## 2.2 Cultural Combination and Its Significance in Discrete Literature

For people living in a foreign country, the discomfort caused by cultural conflict cannot be avoided. However, if this conflict is only in terms of customs and habits and can be solved by time, then this discomfort will not pose a threat to hope. Hope is the spiritual power of human activities, but at the same time, hope also expresses people's dissatisfaction with the current reality. What people want to have is what reality cannot give. Without hope, reality will remain unchanged. Snow Lily is an English novel published by Canadian bilingual writer Li Yan in 2009.

This novel mainly shows the psychological process of the new generation of Chinese immigrants living in Canada at the end of the 20th century. "In a foreign country, Li Yan's starting point of life is greatly different from that of the early immigrants. Their good education provides them with a new perspective of observation and thinking: they pay more attention to the changes of their own and the spiritual level of their society"

The author's exposure and analysis of the reality, although not in a harsh tone, is more like a casual chat. If the reader carefully speculates, the distinctive social ecology of "leading and being led" and "using and being used" in China and Canada are on paper. In addition to the descendants of the British, the French and a small number of Indians, the remaining one-third of the population comes from all over the world. Immigration from all over the country has brought Canada a rich and colorful cultural atmosphere and formed a multicultural environment. The coexistence of different artistic expressions and cultural characteristics of different nationalities has brought about the prosperity of Canadian cultural undertakings.

## 3. CONCLUSION

Literary works created under the multicultural background, whether created by overseas Chinese English writers or by overseas Chinese writers, inevitably have their own ethnic cultural characteristics. North American discrete literature

reflects the history of several generations of Chinese struggling to survive in the United States and Canada, and describes the foreign experience of Chinese immigrants trying to change their destiny and create a new life in different social and historical environments. However, due to the different immigration status of writers, in order to truly reflect the historical features of immigrants in different periods, their methods of expressing Chinese culture in the English context are also different, thus portraying different characters and bringing different artistic enjoyment to readers.

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# Research on the Development of Hardware Cross-Border e-Commerce Based on Blockchain Technology

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**Abstract:** As an emerging internet industry, cross-border e-commerce has developed rapidly with the support of the government, but its sustainable development is also faced with the challenges of low logistics and transportation level, inefficient payment methods, and uneven product quality. More and more hardware cross-border e-commerce giants are embracing blockchain and trying to solve the pain points of cross-border e-commerce industry with blockchain technology. Through the application of blockchain technology, we can realize the decentralized simple trading mode of hardware goods, the timely tracing of commodity production and other information, and the commodity transportation supervision platform, so as to reduce the risk index in the production and operation of cross-border e-commerce, and promote the healthy, stable and sustainable development of cross-border e-commerce.

**Keywords:** Hardware; cross-border; e-commerce; blockchain technology

## 1. INTRODUCTION

As one of the basic protocols of the next-generation value Internet, blockchain technology is a major cutting-edge technology and disruptive technology that has triggered social change. It has gradually received widespread attention and attention from more and more national governments and international organizations. It is convenient for anti-counterfeiting verification and validity verification of information and generates the next block.

In short, blockchain is a chain-like block data structure formed by connecting and combining various data blocks in a chronological manner and establishing a distributed account book that cannot be forged or tampered with by means of cryptography. What is different from physical payment is that when consumers consume goods, the information of both sides of the transaction will appear through the network system, which also shows to some extent that cross-border e-commerce payment is essentially based on Internet technology and platform, with the characteristics of networking and virtualization. This KBGHE exhibition covers an area of 30000 square meters. In addition to Haier, Jiumu, Wanjiale, Wanhe, Vantage, Fantai, Boss, A.O. Smith, Linnei, Hesheng, Humegao, Opec and other domestic and foreign brands, Shengzhou and Shunde also appeared in the form of exhibition groups.

Blockchain technology stores data in each node of the blockchain system instead of one or several data centers through the point-to-point network topology, which makes it present a distinct decentralized feature. At the same time, each node of the blockchain system is an independent data information storage and query service responder and requester, and the nodes are independent and non-interference with each other. In the blockchain technology, except for the encryption of private information of the transaction, all other data are open to anyone, and everyone can query and develop through open applications. Therefore, the openness of information in the whole transaction process is high, and everyone keeps accounts and participates, ensuring the

transparency of the transaction. Although China's current online transaction has risen to a new level, cross-border e-commerce payment is also highly favored by consumers, but affected by the stability of the network system, there are also a series of uncertain factors hidden in the cross-border e-commerce payment work, which not only affects the stability of cross-border e-commerce trade, but also leads to the loss of trade funds and endangers the security of cross-border e-commerce trade.

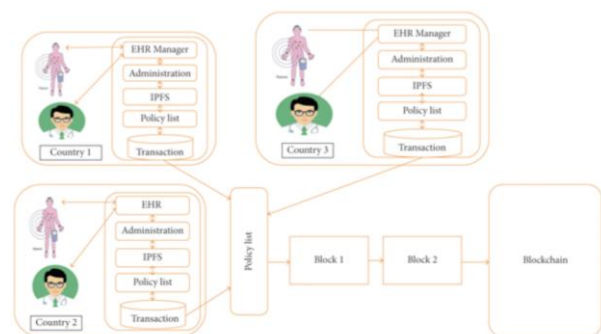


Figure. 1 Network model of the proposed cross-border e-commerce approach based on Blockchain technology. (Image from Internet)

## 2. THE PROPOSED METHODOLOGY

### 2.1 The concept and characteristics of blockchain technology

According to Zheng Changqing, general manager of eBay's international cross-border trade business unit in China, cross-border e-commerce has become the new normal. In global e-commerce, cross-border trade accounts for 20%, with an increase of 29%, twice the growth rate of non-cross-border e-commerce. In this process, any malicious tampering behavior will be rejected and corrected by other nodes, thus ensuring the tamperability of blockchain data.

Finally, timestamp technology. Timestamp is to give the blockchain system a time dimension, connect nodes according

to the time sequence and cover the system time certificate, so as to provide accurate time for the data transaction information inside the blockchain system. The encryption method used by the blockchain system is asymmetric. When encrypting and decrypting the information stored in the blockchain, the public key and private key should be used at the same time. Secondly, if there is malicious tampering, it will be rejected through consensus mechanism, and then the security of the blockchain system will be guaranteed.

## 2.2 The application challenges of blockchain technology in the cross-border e-commerce payment model of hardware products

If you want to manipulate and modify the block data, you need to master more than half of the nodes, which is difficult, and it also avoids the risk that the blockchain data will be controlled and changed maliciously. In the process of in-depth analysis of blockchain technology, we learned that this technology could achieve the purpose of direct cross-border e-commerce interaction, effectively improve the efficiency of cross-border trade, and further achieve the purpose of smooth cross-border e-commerce trade.

Yu Jinshan, general manager of Wendeng Power Tools Group, said: "The eBay platform provides us with a new channel to open the international market with low cost and high efficiency. As long as the products published on the eBay platform are of excellent quality and receive the positive evaluation and approval of the buyers, they can quickly open the market. In recent years, China's cross-border e-commerce has developed rapidly. Although the speed and quality of cross-border e-commerce logistics have been continuously improved, they also face the following problems. First, the level of cross-border logistics and transportation is not high. Generally speaking, Cross-border logistics transportation takes a long time and customs clearance is more frequent. Few enterprises will monitor the cross-border goods transportation process in real time, which leads to cross-border products are vulnerable to damage during multiple transportation and transfer.

Cross-border e-commerce involves many intermediate links and processes, mainly involving cross-border procurement and sales, commodity storage, commodity after-sales and other links. A slight error in one link will lead to product quality problems. For example, in the process of cross-border procurement and sales, e-commerce companies will establish fake overseas authentic product inquiry websites to provide consumers with inquiry services and deceive consumers through fake overseas logistics information.

## 3. CONCLUSION

In the communication environment where media means are increasingly diversified and attention is scarce, enterprises need to use traditional media and Internet media in a comprehensive way to obtain higher user attention at a lower cost. "Therefore, we take the five linkage forms of 'CCTV+Outdoor+Dual Microvirus Video+We Media Creative Poster+Tiktok Extension' to integrate and make efforts. The new business form of " blockchain+cross-border e-commerce "is gradually emerging, which can effectively solve many problems in the current cross-border e-commerce development, such as commodity trading, quality control, logistics and transportation, but it also needs us to continue to dig deeply into the value of blockchain to promote the sustainable development of cross-border e-commerce.

## 4. ACKNOWLEDGEMENT

2022 Zhaoqing Philosophy Social Science Federation planning project "Zhaoqing Jinli hardware industry cross-border e-commerce ecosystem construction and implementation strategy research", Project number: 22GJ-50.

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# Research on the Novel Multi-Data Fusion Methods in Wireless Sensor Networks

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**Abstract:** This paper discusses the new problems faced by multi-type data fusion, discusses the relationship available for fusion in multi-type data from the analysis of correlation, puts forward the concept of data type attribute correlation, and summarizes the research status of data fusion based on correlation. The general process of multi-type data fusion research is given, and the relevant literature is summarized according to the process. The model skillfully combines the hierarchical structure of wireless sensor networks and neural networks, and designs each cluster as a three-layer perceptron neural network model. The feature data is extracted from the large amount of raw data collected by the neural network method, and then the feature data is sent to the aggregation node.

**Keywords:** Multi-data fusion; wireless sensor networks

## 1. INTRODUCTION

As a new network system, wireless sensor network (WSN) has the characteristics of low cost, high precision and easy operation, which gradually highlights its position in science and technology. In wireless sensor network, a large number of sensor nodes continuously collect field data according to the set period, and these data have the following characteristics: (1) The data collected by a single sensor node many times in a short time has high similarity; (2) The data collected by the neighboring sensor nodes at the same time have high similarity. Data fusion is one of the important research fields in wireless sensor networks.

Using data fusion technology can effectively overcome the energy limitation in wireless sensor networks. By merging data from multiple data sources and removing redundant information, data fusion can effectively reduce the amount of data transmission in the network. In WSN applications, each node collects a large amount of sensing data. Suppose that in the wireless sensor network system, the node collects the humidity information of the surrounding soil environment every 30s, and generates 120 sensing data every hour, and 2880 sensing data will be generated in a day, The amount of data collected by nodes is very large

If multi-dimensional monitoring data is considered, the sharp increase in the amount of data transmitted by nodes will lead to the depletion of node energy, The sensing data of these nodes are highly similar or even the same in the physical type attributes expressed, so that the multi-source data has a certain degree of spatial correlation in the physical space. At the same time, due to the continuity of physical phenomena and the limitation of query operations in wireless sensor networks, the data values obtained by continuous sampling of nodes also have certain similarity, which is called time correlation. The research of data type attribute correlation is another important way following the research of time-space correlation.

Division of sensor nodes hops in network is shown below.

Effectively reduce the number of packets to reduce network energy consumption. This is a processing technology for source coding and the earliest data fusion technology. The

NNBA model is designed for real-time monitoring applications, such as forest fire real-time monitoring network, large greenhouse monitoring network, etc. In this kind of application scenario, the sensor node continuously collects some environmental indicators, such as temperature, humidity, light intensity, and transmits the collected data to the sink node.

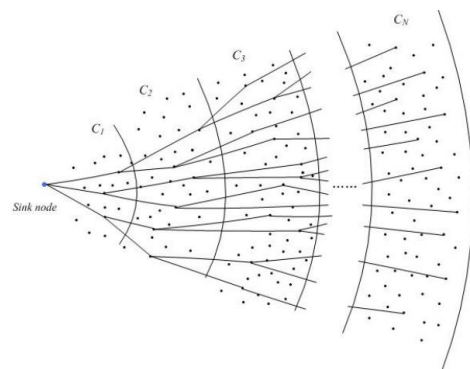


Figure. 1 Division of sensor nodes hops in network (image from Google)

## 2. THE PROPOSED METHODOLOGY

### 2.1 Correlation characteristics of multi-type data

First of all, data type attribute correlation is different from space-time correlation, and is a new correlation independent of space-time correlation. The correlation of monitoring data type attributes depends on the inherent attributes of the monitoring target's own type. The data type attributes are interdependent, converted or equivalent to each other. Krishnamachari and Estrin and other researchers have conducted in-depth research on the impact of data fusion technology in wireless sensor networks. The research results show that the impact of data fusion technology on the system is mainly manifested in two aspects: saving energy consumption and increasing delay time.

In fact, this is an irreconcilable contradiction. That is to say, data fusion can save energy consumption, but inevitably increase the delay time of data transmission. The data funnel is essentially a cluster-based data fusion. The boundary node is equivalent to the cluster head node, and the sensor node belongs to the intra-cluster node. The cluster head node is responsible for merging the data packets of the nodes in the cluster. The encoding algorithm based on data order can further compress the size of data packets. For formula (13), select the same Gaussian kernel function, and the induction data fitting curve is shown in Figure 2. When using formula (10) to approximate the data, there may be large deviation at the boundary or individual positions, because there may be no data associated with them when using the kernel method to calculate the weight value, The fitting results in the boundary region by using the local polynomial kernel regression method are good. The study of the correlation of data type attributes is another important way to follow the study of time-space correlation.

## 2.2 Energy model of sensor nodes

First of all, data type attribute correlation is different from space-time correlation, and is a new correlation independent of space-time correlation. The correlation of monitoring data type attributes depends on the inherent attributes of the monitoring target's own type. The data type attributes are interdependent, transformed or equivalent to each other. The traditional data fusion model is generally data fusion independent of data. There are nodes specially responsible for data fusion for data fusion, which is passive data fusion. Such data fusion is generally implemented during data transmission. This data fusion technology does not consider the correlation of data. After collecting the data, the node responsible for data fusion will sort out the collected data information and merge or discard some data with low reliability to reduce network energy consumption and improve data accuracy.

Neural network and data fusion have a common basic feature, that is, through certain operations and processing of a large number of data, we can get conclusive results that can reflect the characteristics of these data. Therefore, neural network can be used to realize and solve the problem of data fusion. Energy is an important resource in wireless sensor networks, and the main role of data fusion is to save energy. Therefore, it is very necessary to establish the energy model of sensor nodes and quantify the impact of data fusion on the energy of sensor nodes and the impact on the lifetime of wireless sensor networks.

By analyzing the correlation between the sampling points and the observed data, the induction data can be well approximated by linear regression. However, in practical problems, the relationship between the data is often not linear, and the direct use of linear regression model will fail. This requires selecting a relatively close curve to fit the data according to prior knowledge, and linearizing the nonlinear equation through transformation, Then the least square method is used to solve the linear regression equation. The data independent fusion algorithm generally includes two types of compression techniques, one is in the source coding.

## 3. CONCLUSION

This paper discusses the problems faced by current data fusion research, such as the complexity of data correlation redundancy and the difficulty of data fusion; The research status of data fusion is summarized; The concept of data type attribute correlation is proposed, which is independent of time-space correlation and has certain space-time characteristics. This paper points out that data prediction is an effective way to solve multi-type data fusion, data packet merging and model-driven data fusion. In practical applications, data fusion needs to be combined with MAC protocol, data-centric routing, network topology and other factors to conduct cross-layer design and optimization, so as to obtain the optimal energy benefits.

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# Analysis on cold Chain Logistics Informatization Construction of Blockchain Technology

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**Abstract:** Against the background of the later epidemic era, this paper analyzes the current development situation of China's cold chain logistics market and the pain points of the food cold chain logistics information traceability system, and finds and summarizes the problems of the current China's food cold chain logistics traceability system. Based on the blockchain technology, the construction and research of the food cold chain logistics traceability system can be carried out, and the improvement of the global positioning system of cold chain logistics, intelligent temperature control and the construction of the Internet of Things can be achieved from the three aspects of the setting of participants, so as to better implement the rural cold chain logistics. The research shows that based on the "first kilometer" and "last kilometer" issues under the current rural cold chain logistics background, the combination of cold chain logistics and blockchain technology will bring about the deep integration of models and technologies. Finally, based on the current blockchain technology, the paper puts forward suggestions and management implications for the development of rural cold chain logistics.

**Keywords:** Cold chain; logistics informatization; blockchain

## 1. INTRODUCTION

The main reason for the case of cold chain food virus import in Longgang District of Shenzhen is that the logistics and transportation of imported cold chain food is not standardized and the food quality supervision is insufficient, which leads to the easy contact with the virus in the logistics process of imported cold chain food and thus forms chain transmission. At present, China's logistics shows the following trends: First, the scale of infrastructure is expanded. From the perspective of the national cold chain logistics, the total capacity of cold storage, the number of refrigerated cars and insulated cars are increasing. Third-party cold chain logistics enterprises continue to grow, showing the development trend of scale and networking.

The trend and trend of market segmentation, cross-border competition and global layout show an upward trend. At present, China's fresh food cold chain logistics industry is far from developed countries. In terms of profit margin, China's cold-chain profit margin is about three times that of developed countries, only 8%. In terms of market share, the proportion of enterprise income is low, compared with 70% of the top five cold storage enterprises in the United States, and less than 10% of the top 100 enterprises in China. The reasons are as follows: firstly, the concentration of China's cold chain logistics market is low. The import and export process of cold chain logistics containers is divided into seven parts: before cargo packing, before consignor packing, before container loading, loading and transportation, container unloading, cargo unloading and after cargo unloading. The pre-loading process of containers includes the following processes: the cargo owner orders the shipping space, informs the shipping party of the shipping location, the type and quantity of goods loaded, and empty the container

Shipper packing refers to the cargo packing operation after the cargo owner picks up the empty container. The non-corresponding key technology is used in the blockchain technology, which greatly improves the security of

information. Third, it has repeatedly verified performance. The blockchain is equipped with timestamp technology, which can be relied on to conduct real-time search and search for user information at different time nodes. And under the system control of timestamp technology, user information is difficult to be maliciously modified and stolen.



Figure. 1 The blockchain work principle.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Construction of cold chain logistics mode of agricultural products under blockchain technology

In addition, because the Internet of Things technology currently used mostly follows the framework from user to cloud and then to the background, the imported cold-chain food can only be traced from customs entry to domestic sales, but it does not cover the whole process of information management of imported cold-chain food in the production, processing, cold-chain storage, logistics transportation and sales of the country of origin, and it is difficult to ensure the quality and safety of cold-chain food from the source of production. And the existing national cold chain food traceability management platform is only for imported cold chain food. The value of blockchain technology is mainly reflected in three aspects: decentralization, data tamper prevention and traceability, and node transmission mechanism. First of all, decentralization means that the database is distributed, which can realize the decentralization of data storage. Due to its own consensus mechanism, it can realize the decentralization of management system.

(1) One of the characteristics of blockchain technology is decentralization, which ensures the equality, independence and tamperability of each node in the entire supply chain. Based on this, the fresh logistics supply of each link is no longer operated in the form of single chain, but is integrated and developed in a more centralized way. Blockchain technology can help build a decentralized fresh and cold chain logistics platform that runs through producers, suppliers, wholesalers and consumers.

(2) Based on the characteristics of centralized monitoring, local distribution and overall mobility of cold chain transportation, a cold chain transportation monitoring system is designed. STM32 microprocessor is used as the main controller of the data transmission module, and the wireless module based on SX1212 chip is used to build a point-to-point network, Using GPRS module to upload data to the server, the system can monitor the temperature, humidity, battery capacity, route and other information of cold chain transportation

## 2.2 Management suggestions for agricultural products cold chain logistics mode under blockchain technology

Applying blockchain technology to the construction of food cold chain logistics traceability system can effectively ensure the two-way tracking of key information and information security. At present, the cold chain logistics of agricultural products also has its own weaknesses, and transformation and upgrading is the only way.

The defects of the cold chain of agricultural products are mainly reflected in the following two aspects: first, the degree of marketization of the cold chain logistics of agricultural products is not high. The cold chain market in developed countries is relatively mature, and the industry has formed outsourcing services to contract perishable agricultural products to high-quality cold chain logistics companies. With the tamper-proof characteristics of blockchain technology, RFID tags can be installed on warehouses, ports and cabs, and real-time temperature and humidity can be monitored by GPS to ensure that they are uploaded to the blockchain in a very short time, and data can be updated according to real-time changes, It ensures that all parties in the whole chain can obtain accurate time and temperature, effectively improving the efficiency of query and control of temperature conditions in cold chain operation.

This paper proposes a cold-chain logistics container monitoring platform based on blockchain technology. The purpose is to monitor the key information of each node of cold-chain logistics. At the data collection layer, the precise key data information is continuously monitored by installing sensors in the container, and is pushed to the IOT cloud platform through the real-time switch system. The IOT cloud platform stores the original data in Alibaba Cloud, Alibaba Cloud passes the filtered data to the local server Redis for storage. Relying on the information demand of the whole supply chain of cold chain food, the food cold chain logistics traceability system based on blockchain technology is divided into network layer, core layer, data layer and application layer. Based on the network layer, the raw materials, semi-finished products and finished products of cold chain food are introduced into the platform.

## 3. CONCLUSION

The food cold chain logistics traceability system based on blockchain technology can clearly divide the responsibilities of relevant subjects, improve the quality of cold chain food and the transparency of logistics information sharing, ensure the health and safety of cold chain food, and effectively promote cross-regional platform docking and cooperation, which can further strengthen the national epidemic prevention and control of cold chain food, and effectively reduce the possibility of "chain breaking" in the cold chain logistics industry. Thus, cold chain food information can be traced and recycled in both directions. Strengthen the establishment of mandatory standards and promote the healthy development of the industry. The government and industry leading enterprises should participate more in the formulation of standards to realize the healthy operation of the industry. In addition, in terms of cold chain logistics construction standards, industry leading enterprises should better do a good job in the overall industrial layout, establish an alliance system, and do a good job in resource distribution planning.

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# Study on Urban Proximity Prediction Based on Doppler Radar Gust Front Characteristics and Urban Microclimate Characteristics

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**Abstract:** Based on the state response of fractional order singular linear systems with impulses, the sufficient and necessary conditions for complete controllability and observability of fast subsystems are studied and given, and the criteria for complete controllability and observability of fast subsystems are further established. These assumptions are too strong to synthesize the controllability of slow subsystems and fast subsystems. The method proposed in this paper does not need these assumptions. The approximate controllability of Hilfer fractional order integro differential equations is studied by using the order method. The controllability and observability criteria of the system described by fractional order differential equations are derived. When the rank of its controllability discrimination matrix  $M$  and observability discrimination matrix  $N$  is full, the fractional order system is controllable and observable.

**Keywords:** Controllability; observability criteria; fractional differential equations

## 1. INTRODUCTION

China is a country with frequent natural disasters, especially meteorological disasters. For civil aviation, the weather conditions directly affect whether the aircraft can fly normally. Known as "invisible killer" and "air trap", low-level wind shear is an atmospheric phenomenon that seriously affects aircraft flight. According to statistics, aircraft accidents caused by low-level windshear account for about 30% of aircraft takeoff and landing accidents. Compared with conventional digital weather radar, Doppler weather radar can directly measure radial velocity and velocity spectrum width. The analysis and application of radial velocity field has opened up a new field for weather prediction.

This paper will mainly use the data collected by Taiyuan's new generation single Doppler weather radar in recent years to analyze the characteristics of non-precipitation echoes before the generation and development of different scale weather systems; Through their identification and comparison with precipitation characteristics, we can further reveal the indicative significance of non-precipitation echoes in the near forecast. The core of the extrapolation method is to use the radar data to obtain the velocity vector respectively through the wind field inversion and the optimal correlation technology of adjacent time and sub-space and use the velocity vector to predict the location and range of the next echo. For a long time, hydrometeorological departments have mainly used raingauges to observe urban rainfall at point-scale.

The rain gauge can accurately measure the rainfall process at its location. However, even in cities with relatively dense rainfall stations, it is usually necessary to use a single observation result to represent tens or even hundreds of square kilometers of rainfall. As mentioned earlier, rainfall, especially the rainfall on the urban underlying surface, has great spatiotemporal variability, and this "point for surface" observation method often cannot well describe the spatial

distribution characteristics of urban rainfall in theory, VVP can obtain nine variables, including mean wind field, divergence vorticity and gradient term of wind field. It is an ideal Doppler wind field retrieval method.

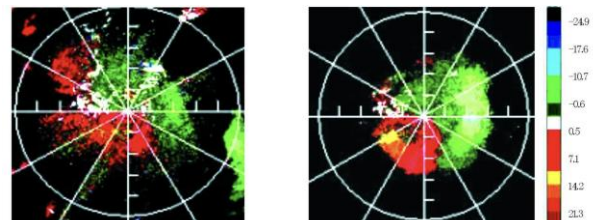


Figure. 1 Divergence non- precipitation echo on Doppler velocity field. (Sample image from search engine)

## 2. THE PROPOSED METHODOLOGY

### 2.1 Characteristics of Doppler radar gust front

In the actual calculation of nine variables, we will encounter the problem of ill-conditioned matrix, which seriously restricts the effective inversion of the vertical velocity field and other variables. The superposition of cold and warm advection and divergence makes the area of negative velocity area on the non-precipitation velocity echo map smaller than that of positive velocity area; The azimuth difference between the two zero velocity lines on the equidistant circle and the positive velocity zone is greater than 180°. These characteristics are completely consistent with the characteristics of large area precipitation on Doppler radar velocity map. It can be seen that the Doppler velocity image of non-precipitation echo is the same as that of large area precipitation, which better reflects the three-dimensional structure of the ambient wind at the station. The center of the initial array at time  $t_1$  of the array alignment is the starting point of the echo moving vector, and the center of the array

with the greatest correlation with the initial array at time  $t_2$  is the end point of the echo moving vector.

Find the corresponding moving vector for all initial arrays at  $t_1$ , and divide the obtained vector field by the time interval  $\Delta t$ . The TREC velocity vector field (hereinafter referred to as TREC vector field) is obtained. This section first evaluates the difference between the total rainfall estimated by radar and the surface rainfall stations during the period from July 2014 to September 2015. The specific method is to calculate the ratio of the total rainfall estimated by the radar to the total rainfall observed by the rainfall station for each station. Because the eight surface rainfall stations are evenly distributed within the radar observation range, the arithmetic average method is directly used to calculate the average value of the total rainfall ratio corresponding to each surface rainfall station. In the simulated uniform wind field with the initial wind speed of 3 m/s, some vortex wind fields are superimposed. These vortex wind fields have both auxiliary wind fields and auxiliary wind fields.

## 2.2 Urban proximity prediction based on urban microclimate characteristics

A superimposed vortex wind field with a maximum value of 11 m/s and a minimum value of 0.5 m/s. The whirlwind is located in an area with an azimuth of  $30^\circ \sim 70^\circ$  and a radial distance of 8~16 units of length. Figure 6 shows the wind speed of the simulated wind field, and Figure 7 shows the wind direction angle of the simulated wind field. The Doppler radar data since the operation of Taiyuan radar station has been back-checked, and non-precipitation echo samples have been extracted. The Doppler velocity image of elevation 5 b is disordered by the interference of ground objects, which will not be considered in this study, and different elevations (1.5 b、2.4 b、3.4 b) When estimating the TREC vector field, the CAPPI reflectivity factor field at each height is divided into  $18 \text{ km} \times 18 \text{ km}$ . An initial two-dimensional pixel array of  $18 \text{ km} \times 18 \text{ km}$ , with an interval of 5 km between the arrays.

Generally, the moving speed of precipitation echo is less than 100 km/h. In this paper, the maximum search radius is 10 km. The moving wind vector of the echo is obtained by cross correlation method for the echo at the front and back two times, and the quality control of this wind vector is carried out using the method given by Yan Hongmei et al. (2008).

The inverted wind speed and direction angle are shown in Figure 8 and Figure 9. Compared with the simulated wind field, it can be seen that the inversion of the uniform wind field is very good. In the vortex area, it can be seen that the inverted wind speed and direction angle have obvious fluctuations. The statistical results show that the stronger the Doppler velocity convergence of the non-precipitation echo is, the more conducive it is to the generation, development and maintenance of the precipitation system, and the more conducive it is to the expansion of the range of the discrete echo around the station to form a large range of precipitation.

## 3. CONCLUSION

Through data survey and case analysis, this paper deeply and systematically studies the velocity echo characteristics of non-precipitation echo and points out that the Doppler velocity characteristics of non-precipitation echo are closely related to whether the precipitation echo moves to the local station or not, and the generation, development, maintenance and

dissipation of precipitation system, and have a certain forecast advance. The experiment conducted in this paper uses ideal simulation data, there is still a certain gap with the real Doppler lidar data. The data measured by time lidar is not uniformly distributed. In the follow-up work, the algorithm can be improved according to the actual radar data mode.

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# Practical Exploration on the Cultural Consciousness of Ideological and Political Education of College Students in the Information Age

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**Abstract:** With the continuous development of the times, the society has higher and higher requirements for the comprehensive quality of college students. It needs not only single knowledge talents, but also comprehensive high-quality talents with cultural awareness and cultural self-confidence. Teaching practice has proved that ideological and political education plays a crucial role in cultural construction. Therefore, colleges and universities should actively explore how to scientifically use ideological and political education to improve college students' cultural consciousness and self-confidence and promote the construction process of our socialist civilized society. As a new concept, cultural self-consciousness is an innovative way to regulate the development of society and nation, which is also found and studied by ideological and political education in colleges and universities. It is of great significance to analyze the cultural characteristics, functions, and existing problems of ideological and political education for college students in order to improve their ideological and cultural quality.

**Keywords:** Cultural Consciousness; Ideological and Political Education; Information Age; Practical Exploration

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## 1. INTRODUCTION

The Sixth Plenary Session of the 17th CPC Central Committee highlighted the importance of cultural self-confidence and cultural consciousness and regarded them as one of the main goals of building a socialist cultural power. As we all know, college students are the inheritors and disseminators of the excellent traditional culture of the Chinese nation and shoulder the important responsibility of revitalizing the Chinese nation. Although college students have received cultural quality education for a long time, the importance of ideological and political education has not been highlighted in colleges and universities. The ideological and political education of college students is increasingly prominent in its important position and value in the current era, to carry out ideological and political education and cultivate their innovative spirit in this respect is a major task in the construction of China's new socialist culture. So, to analyze the ideological and political education innovation of college students from the perspective of cultural consciousness, we must first understand the cultural characteristics contained in the ideological and political education of college students.

In fact, education has always been a human practice of transmitting culture and knowledge. In essence, it is manifested as the mechanism of social inheritance and regeneration of culture through the role of "culturizing people". At the same time, from the etymological meaning of "culture", culture and education are also inseparable. Of course, the cultural nature of higher education is not only reflected in cultural transmission and creation. The value of cultural self-consciousness and self-confidence for the construction of social concepts is not only theoretical, but also has the corresponding functional structure and the support of social organizations and people.

## 2. THE PROPOSED METHODOLOGY

### 2.1 An Analysis of the Connotation of Cultural Confidence and Cultural Consciousness

The essence of the relationship between culture and universities is the relationship between cultural heritage and educational carrier. At present, most college students do not correctly understand and understand China's socialist core values, and some students do not even know what the socialist core values are. Based on this, colleges and universities should actively establish a teaching platform based on ideological and political theory courses, strengthen college students' identification with the socialist core values, and guide more college students to firmly believe in China's mainstream culture, should improve their cultural awareness and self-confidence. We can not only see clearly the current situation of ideological and political education, but also have a clear understanding of the future development, so that ideological and political education in colleges and universities can keep pace with the times in the context of challenges and risks.

On the other hand, analyzing ideological and political education in colleges and universities from the perspective of cultural consciousness can fundamentally reverse the concept of ideological and political education. The function of cultural integration is the basic function of ideological and political education for college students. It is also the goal of cultural selection and criticism, inheritance and dissemination, adaptation, and innovation. Higher education should help young college students learn and master the achievements of human culture. Because the objects of colleges and universities have higher mental abilities

Culture participates in the world cultural exchange and competition in the background of nation-state, but the strong



vitality of culture does not come from the political power of nation-state, but from the extensive and lasting value recognition of civil society. As Marx pointed out earlier: "People create their own history, but they do not create it at will, not under the conditions they choose, but under the conditions they encounter directly, established and inherited from the past." Universities should actively create a good campus cultural atmosphere, first, clear teaching objectives, in daily teaching work, we should not only pay attention to the cultivation of students' cultural knowledge, but also actively explore how to effectively improve college students' cultural consciousness and cultural self-confidence.

## 2.2 Innovation of ideological and political education in the perspective of cultural consciousness

Teachers should pay more attention to the teaching of ideological and political education, guide college students to correctly recognize the uniqueness and progressiveness of the excellent traditional culture of the Chinese nation and encourage more students to deeply study the connotation of traditional culture. Secondly, cultural self-conscious vision can promote innovation in the way of ideological and political education for college students. In the activities of human society, no matter what kind of practical activities, we will pursue an effective method, and ideological and political education is no exception. There is a research method in educational psychology, that is, to make the subject object have the consciousness of innovation, first make him feel the object, then experience the process, then understand the object, finally identify the object, and finally achieve innovation on the original basis. The ideological and political education of college students not only bears the mission of cultivating political successors, but also bears the mission of inheriting and creating human culture.

Therefore, the ideological and political education of college students should follow the law of cultural education as well as the law of political education, to continuously expand the cultural resources of ideological and political education of college students. Colleges and universities are the main carrier of national talent training, the intellectual reserve for the future development of the country, and the group strength for the cultural heritage and civilization development of the nation. The degree of cultural identity and cultural self-consciousness and self-confidence of the university population also has symbolic significance and sample value for social culture. What kind of cultural heirs to be cultivated in the higher education system is related to the strategic pattern of the country's participation in the world cultural competition, and more importantly, to the survival and extinction of the nation-state cultural genes.

## 3. CONCLUSION

Cultural self-consciousness and cultural self-confidence are the objective needs of building a socialist civilized society with Chinese characteristics. College teachers should actively change their traditional teaching concepts, first clearly recognize the main problems in the current ideological and moral education of college students, then explore the connotation of cultural self-consciousness and cultural self-confidence, and finally combine the actual teaching situation, give full play to the role of ideological and political education in improving college students' cultural consciousness and self-confidence. We should also recognize the national culture from a global perspective, and truly transform students' understanding of national culture from "self-awareness" to

"cultural consciousness", so that contemporary college students can become the direct beneficiaries, inheritors, disseminators, and cultural creators of the national culture, and ultimately promote the harmony and development of human social civilization.

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# Study on the Protection System and Capacity Building of Crop Germplasm Resources

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**Abstract:** Although remarkable achievements have been made in the protection and utilization of agricultural germplasm resources over the years, there are still problems. This paper summarizes the current situation of the protection and utilization of crop germplasm resources in Yunnan Province and puts forward development ideas and suggestions for the protection and utilization of resources in the future. It is pointed out that the protection and utilization of germplasm resources are not systematic, the utilization rate of germplasm resources is low, breeding innovation is difficult, there is a lack of large-scale "breeding and promotion integration" enterprises, the infrastructure is not perfect, and the use of land for supporting facilities is difficult, and relevant suggestions are put forward in order to provide reference for the protection and utilization of germplasm resources, the selection and promotion of excellent varieties and the development of seed industry in China.

**Keywords:** Protection system; capacity building; crop germplasm resources

## 1. INTRODUCTION

Seed industry is a strategic and high-tech core industry in China, and the level of cultivation of improved seeds reflects the core competitiveness of China's agriculture. At present, there are still some problems and deficiencies in the protection and utilization of germplasm resources and the selection and promotion of excellent varieties, which hinder the key technology of "bottleneck" of provenance and restrict the overall development of China's seed industry. Therefore, strengthening the protection and utilization of germplasm resources and the selection and promotion of excellent varieties is conducive to the development of the core technology of "stuck neck" of provenance, and the selection of a number of world-leading independent varieties, which is very important for ensuring China's food security and fighting a good turn for the seed industry.

First, the operation funds of germplasm resource nursery (bank) are difficult, and there is no special fund, which can only be supported by various projects and topics. It is easy to be restricted, safe preservation is difficult to guarantee, and loss risk coefficient is high; The second is that the protection and utilization sharing mechanism has not yet been established. The germplasm resources collected by some scientific research institutions have become private resources. The systematic overall collection work is insufficient. The collected germplasm resources are not complete and have been repeatedly saved, resulting in resource waste. China is still facing a very serious situation in the protection and utilization of crop germplasm resources.

On the one hand, although China's crop germplasm resources are very rich, there is a problem of insufficient protection in the protection and utilization of some specific crop germplasm resources, which makes some crop germplasm resources face the risk of disappearance or even some have disappeared. The scientific research institutions and breeding enterprises in the city have not many preserved characteristic germplasm resources. The utilization of germplasm resources is backward, and it is difficult to carry out germplasm innovation, resulting in serious homogenization of breeding

materials, lack of core germplasm resources for excellent traits, low breeding efficiency, and lack of outstanding large varieties.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Development and Utilization of Germplasm Resources Have Achieved Remarkable Results

Wild resources in situ protection sites are occasionally destroyed or encroached, and the indiscriminate mining of wild rare plants is serious. Fourth, there is a lack of effective supervision after the introduction of foreign germplasm resources, and there is a risk of alien species invasion; Germplasm resources in the province were randomly harvested and exported abroad, and some important species and genetic resources were illegally acquired by foreign countries, causing great losses. The protection of crop germplasm resources is a foundation, but it is very important for the national and social economy and ecological environment. Although the country has a medium and long-term plan for agricultural species, the survey and collection of crop germplasm resources itself cannot produce direct economic benefits, and the grass-roots agricultural technology extension institutions do not fully understand the importance of national protection of crop germplasm resources

Concentrate efforts to promote breeding projects and enterprises with core competitiveness, focus on supporting and cultivating 1 to 2 large and medium-sized "breeding and promotion integration" local enterprises, and avoid the "pepper noodles" support mode. Encourage and help key scientific research institutions and "breeding and promotion integration" enterprises to use germplasm resources for development, research, and breeding innovation.

Make full use of the achievements of agricultural scientific and technological innovation projects, social capital, and scientific research platform. Gather the personnel and equipment of various scientific research institutions and universities in Yunnan Province, and form a joint research

group of new varieties of characteristic and advantageous crops such as grain and oil crops, tea, vegetables, fruits, flowers, Chinese medicinal materials, coffee, nuts, etc., to give priority to the collection, identification and evaluation of germplasm resources of these crops, Through the combination of traditional and modern breeding technology, a batch of new germplasm with stable heredity, outstanding target traits and excellent comprehensive traits will be created. More perfect laws and regulations can better protect China's crop germplasm resources, and corresponding measures need to be taken to address the problems existing in current laws and regulations. On the one hand, some existing regulations and systems need to be upgraded to the legal level; On the other hand, it is necessary to integrate and continuously improve the corresponding contents of existing laws and regulations and introduce a highly targeted and applicable regulation on the protection of crop germplasm resources.

## 2.2 Thoughts On the Development of Crop Germplasm Resources

Focusing on the utilization of germplasm resources, breeding of new varieties, technology promotion, and transformation and application of achievements, we will increase the promotion and application of new varieties, new technologies, new equipment, and new models to provide key technical support for agricultural business entities. The key to developing modern breeding technology is to rely on high-end technical talents, improve the scientific research assessment and evaluation mechanism, and improve the treatment of talents, so as to attract and retain talents. On the one hand, scientific research institutions provide loose talent introduction and incentive policies, attract a group of high-end talents who understand molecular breeding, transgenic, gene editing and other technologies, and improve the development level of modern biological breeding technology in Yunnan Province

Because the protection of crop germplasm resources cannot bring direct benefits and has the characteristics of public welfare, it is certain that a large amount of funds will be needed in the process of carrying out the work. Without sufficient financial support, the protection of crop germplasm resources will be difficult to continue. Therefore, relevant departments need to take positive and effective measures to ensure that the protection and utilization of crop germplasm resources at the grass-roots level can proceed smoothly. Utilize the modern agricultural industrial technology system, integrate agricultural scientific and technological resources, innovate the system and mechanism, and select agricultural technologies that are highly relevant and driving to agricultural development for joint research, so as to realize the linkage innovation and supporting application of agricultural technologies.

We will form a strong joint force to promote agricultural science and technology, give full play to the important role of major agricultural scientific research projects, key disciplines, and key scientific research bases in gathering, discovering, and cultivating talents, and strive to build a batch of agricultural science and technology leading talents and innovation teams in various disciplines. Cultivate practical talents urgently needed for the development of agricultural and rural economy and provide strong technical support for the development of modern agricultural science and technology.

## 3. CONCLUSION

The protection of crop germplasm resources and the development and utilization of crop germplasm resources play a very important role in promoting the economic development of rural areas and the improvement of rural productivity in China. However, there are some problems in the protection and utilization of crop germplasm resources. This paper analyzes and summarizes the problems and puts forward corresponding practical and feasible suggestions for the problems, such as the need for close cooperation between various government departments, improving the mechanism of talent introduction and cultivation, performance assessment and evaluation, promotion mechanism, and adjusting and increasing the proportion of middle and senior professional titles in agricultural professional technology, Improve the welfare and professional identity, ensure that talents are "attracted, retained and used well", give full play to the subjective initiative of talents, and forge a modern talent team capable of winning the battle in seed industry, agricultural scientific and technological innovation, technology promotion and popularization.

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# Information Platform Design and IOS Software Implementation of Sino-Japanese Cultural Exchange Based on the Hierarchical Fusion Algorithm of Internet Information

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**Abstract:** Aiming at the characteristics of multi-source information in network security, this paper establishes a hierarchical network research based on information fusion to realize the project quality management function on the IOS platform. The elements extraction, situation assessment and situation prediction modules in the model are analyzed respectively. China's cultural symbols are still in ancient culture, which is not conducive to the establishment of China's national image. Only by working with the world's advanced cultural industry institutions to develop cultural products with both universal value and Chinese cultural elements, can we achieve cultural export to Japan and achieve a good cultural exchange between the two countries. The initial division of the community is completed according to the local maximum potential value nodes; the initial community is iteratively merged according to the distance between the local maximum potential value nodes, until all communities are merged into one community.

**Keywords:** Information Platform Design, IOS Software Implementation, Sino-Japanese Cultural Exchange, Hierarchical Fusion Algorithm

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## 1. INTRODUCTION

With the rapid development of Internet technology, the scale of the network has become increasingly large, the network applications [1] have become more complex and diversified, network security incidents have emerged one after another, and network security threats have become increasingly severe [2]. Traditionally, a single security defense means such as Firewall, IDS, VDS, etc. can no longer meet the new development needs of network security [3]. Research shows that community structures widely exist in various social networks. Nodes within the same community are closely connected, while different communities The connections between the nodes are looser [4].

Mining the community structure in social networks is helpful for studying the topology and properties of social networks [5], understanding the functions of social networks, and predicting the behavior of social networks. Give birth to love. The respectful, humbly and studious spirit of studying has been deeply appreciated by the seniors in the Jiangnan calligraphy circle in his "study tour" process [6]. He visited famous calligraphy masters in the south of the Yangtze River, his humble foundation. In the 1980s, Liu Hongyou, with great ambitions, began to work hard, study hard and practice hard, laying a solid foundation [7] for his future personal artistic development to follow the footsteps of the masters and learn the style of the masters. After the end of the Cold War, the concept of "soft power" appeared in international relations, and China has paid more and more attention to the growth of "soft power" in the [8] process of its rise. Through the survey of Japanese people about Chinese culture and its soft power, it is found that: in general, Japanese society lacks recognition of Chinese cultural values [9]. The subject of this thesis comes from the design and development work of Michao iOS version. The iOS platform is a smartphone operating system

launched by Apple, and one of the current mainstream smartphone operating systems [10].

Mi Chat is an instant messaging software based on social relations running on mobile terminals. Network security situation assessment can comprehensively [11] analyze various situational elements of network security, dynamically reflect the overall situation of network security, predict the development trend of network security [12], and provide important support for network security emergency response and active defense. Now a lot of even the code of communication software is not open to the public [13], and some software still needs to be charged. With Apple's iPhone and iPad products occupying a place in China, there are relatively few iOS-based software [14] development in the domestic market. We use Apple's products, and good application software needs to go to Apple's official website. Comprehensive categories Instant chat tool [15]: It has all the functions required for instant communication, such as text chat, file transfer, voice chat, video chat and other functions. In addition, it also has social functions such as space, circle of friends, groups, music, and games [16]. There is no specific user group for this type of software, and users have no specific purpose for using the software [17].

The interface and operation of Windows Mobile (Microsoft) are very close to Windows on the computer, which is very familiar and familiar [18] to the computer friends; all kinds of information and data saved in the computer or mobile phone can be easily shared; there are a large number of application software available [19] User choice. It just takes up high system resources and is prone to system crashes. Establish the concept of integrated development, realize the effective integration of various media resources and production factors [20], realize the sharing and integration of information content, technology applications, platform terminals, and talent teams, and form an integrated organizational structure

[21], communication system and management system; real social network. The community structure is often hierarchical. Communities in the network can be divided into different levels. Large communities can contain small communities, and small communities can contain smaller communities [22], that is, low-density large communities nest high-density small communities. Cohesion method is a typical method of social network hierarchical community discovery [23]. The method adopts a bottom-up approach, first treats each node in the network as a separate community, and then iteratively merges these communities until all nodes are in one community [24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Internet Information Hierarchical Fusion Algorithm

Complex network nodes are not isolated, but interact and connect. The topological potential field can be used to describe this effect and connection. This information is exchanged between communicating entities in XML form. It plays the role of the general transmission layer of XML structured data, so that the data can be transmitted to the most suitable resources with high efficiency. Because the application established based on XML has good semantic integrity and expansibility. Therefore, the XMPP protocol has good scalability. The full control of the project cost has a substantive content of the system, including the responsibility network of each department and each unit and the economic accounting of the team. It requires that the various stages of the construction progress of the project should be carried out continuously, neither omissions nor slack, and the cost of the construction project should be under effective control from beginning to end. On the basis of fully absorbing the advantages of the above models, a hierarchical network security situation assessment model based on information fusion is designed for multi-source heterogeneous data and large-scale backbone network security requirements.

The model consists of three modules: element extraction, situation assessment and also situation prediction. Situation assessment can become an important part of the process of information fusion processing. The key is: first, the purpose of situation assessment and the comprehensive processing of large amounts of the information by information fusion is consistent; second, situation assessment is between users and automated processing. It provides an interactive interface and builds a bridge; thirdly, the situation assessment focuses on the collection and management of the information, and implements the process of information fusion.

### 2.2 The Design of Information Platform for Sino-Japanese Cultural Exchange

Comprehensive and accurate extraction of network security situation elements is an important basis and premise for network security situation assessment. The elements of network security situation mainly include static network environment configuration information, dynamic network operation information and network traffic information. The data input by the network security situation assessment system comes from diverse data sources, usually with different data formats, so data preprocessing and data integration operations are required. Fundamentally speaking, the growth of China's cultural soft power mainly depends on the benign integration of China's domestic society and the implementation of foreign policies that can be accepted by the international community.

To improve the quality of cultural exchange, it is necessary to create internationalized mass cultural products, and to take the

form of non-governmental exchanges as much as possible. The instant communication on the mobile platform is very difficult, and the mobile network situation is complicated. Especially in China, due to the problems of interoperability between Internet access providers and mobile network operators, some networks are not reachable at all in many cases. How to solve the connectivity problem is a problem that must be considered as an instant messaging software on a mobile phone. There is no clear definition of data resources, and there are different types of data resources in all walks of life, so their understandings are not the same. Broadly speaking, data resources are a general term for all databases and data objects in them. Data objects of various themes, structures and forms can be classified into the category of data resources. Open an eclectic channel of thought, and promote the unity of principle and openness.

Confucius' concept of "harmony but difference" is the foothold and starting point for the international dissemination of Chinese culture. The concept of "seeking common ground while reserving differences" put forward by Premier Zhou Enlai should also be used for reference. Different from the traditional method, this algorithm starts iterative merging from the initial community after division, instead of starting from a single node, which can greatly reduce the number of iterative merging.

### 2.3 The Information Platform Design and IOS Software Realization

Specifically, it is first necessary to extract logs and scanning information from security devices such as IDS, Firewall, Snort, Ntop, and NetFlow, as well as multi-source heterogeneous data such as real-time alarms, virus logs, device status, and user-reported information. Cohesive hierarchical community discovery methods mostly reveal the hierarchical structure of the network through optimization techniques, which include modularity-based methods and random walk-based methods. Modularity is used to measure the proportional density of connecting edges within a community and connecting edges between communities. Modularity is used as a quality function of community discovery to open up new strategic channels for cooperation and promote the unity of locality and globality.

Kobayashi Yotaro, the leader of Fuji Xerox in Japan, believes that cultural exchanges are an important feature of Sino-Japanese relations in history. Enjoy the power of cost control; at the same time, the project manager should regularly check and evaluate the performance of each department and each team in cost control, and implement rewards and penalties. The FN algorithm performs community merging according to the increment of modularity, and the efficiency has been greatly improved. However, with the increase of the network size and the number of nodes, the time of the FN algorithm increases rapidly, so it is not suitable for super-large-scale networks. Promote in-depth cultural exchanges. Cultural exchange, in the final analysis, is the exchange of minds. Through cultural exchanges, we can transcend language barriers and build a bridge of friendship and understanding in the hearts of the two peoples.

We can't just take it, but also export it, because cultural-based advantages are the most fundamental, situational assessment is the core of situational awareness, and cybersecurity situational assessment focuses on the confidentiality, integrity and availability of the network. In the situation assessment stage, the obtained massive network security situation element data is firstly correlated and analyzed, and then the network

basic operation situation, threat situation, vulnerability situation and risk situation are respectively analyzed.

### 3. CONCLUSIONS

This paper proposes a hierarchical community discovery algorithm HCDTP fused with topological potentials. The algorithm firstly divides the initial community according to the topological potential of nodes. The dissemination of Chinese culture enriches the connotation of world culture. In turn, the vitality of Chinese culture is enhanced in the contact with other cultures of the world. Then the obtained initial communities are iteratively merged until all nodes in the network are in one community, and finally the community corresponding to the maximum modularity is selected as the final community structure.

### 4. ACKNOWLEDGEMENT

Foundation project:

Nanchong City Social Science Research "13th Five-Year Plan" 2020 Annual Project

Project Name: The Origin and Evolution of Emperor Saga's Chinese Poetry in Japan's "Three Collections of Edicts"  
Project Number: NC2020B169

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# Evolutionary Algorithm Simulation of Japanese to Chinese Buzzwords Based on Quantum Social Network Modeling

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**Abstract:**Based on the quantum social network theory, this paper conducts an evolutionary algorithm research on the law of Japanese catchphrase introduced into China and its changes in China. The network generated by this modeling method is comprehensively analyzed from the aspects of network degree, degree distribution, average shortest path, node aggregation coefficient, etc., which verifies the effectiveness of the modeling method. Starting from the language itself, from both internal and external perspectives, this paper explores the reasons for the popularity of Riyuan's animation language in China. One is to study from the internal causes of language; the other is to study from the outside of society.

**Keywords:** Evolutionary Algorithm Simulation, Japanese to Chinese Buzzwords, Quantum Social Network Modeling

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## 1. INTRODUCTION

With the rapid development of new media in our country, the popularization and use of smart phones, the usage rate of the two micro-ends continues to increase [1], and the channels for Riyuan animation to be introduced into our country have become diversified. As in the past, it came to the public world through TV and CD-ROM alone [2], and the large amount of input of Riyuan animation made Riyuan animation language further spread and spread on my country's network platform, such as homophony [3], typos, rare words, Loan words and pictographs, etc. Due to differences in language and culture, various Internet terms with local color have been formed around the world [4], and for those who do not understand the cultural context produced by Internet terms, their meanings are often difficult to grasp [5].

Internet catchphrase is a product of language development, with its unique characteristics of the Internet, catchphrase is a language mineral containing social culture [6], with important academic value and profound cultural significance. From a vertical perspective, buzzwords can not only demonstrate the evolutionary trajectory of language [7], but also reproduce the history of the times; from a horizontal perspective, buzzwords can not only present hot issues in today's society, but also demonstrate the psychological evolution of ordinary people. People have long noticed the existence of buzzwords [8], and have collected, organized and studied them as a special genre. As early as the 1950s and 1960s, the famous critic Soichi Otaku conducted research on the characteristics of buzzwords. Since 1984 [9], Japan has selected the "Japanese New Words and Popular Words Award" every year. With the development of the Internet, more and more users have begun to use social networks [10].

At the same time, the analysis method of social network has also attracted the attention of a large number of researchers [11]. However, real social network modeling is an interdisciplinary and extremely complex. In addition to the above-mentioned production descriptions with strong social attributes [12], traditional account websites also have a certain

stickiness to netizens. In the industry field, netizens with different cultural and geographical backgrounds [13] will browse news reports, ranging from international politics and economy to work and entertainment, and other aspects of life. After browsing news information, netizens often express their own comments and opinions [14].

The development and application of Japanese catchwords has become a cultural phenomenon. Nowadays [15], more and more Japanese buzzwords have been introduced into China, and then combined with the characteristics of China's local human environment [16], their semantics and usage have changed to a certain extent, and they have been widely accepted in Chinese society and become buzzword memes. Memetics based on Richard Dawkins could be more scientific [17]. The early models of social network modeling research include small-world network models, including the Watts-Strogatz model and the Newman-Watts model. Later developed to scale-free network [18], and its typical models are BA model and HK model. Among them, the HK model is the closest to the real social network, but there is still a certain distance between the two. Anime lovers, taking advantage of the openness of the network platform [19], constantly copy and paste the Japanese animation language, spread virally. In the Chinese language and culture, it affects the dissemination and use of Chinese Internet buzzwords [20].

The automatic acquisition of buzzwords is a research skill based on Chinese information processing. As a branch of natural language processing [21], Chinese information processing is a comprehensive discipline related to computer science, linguistics, mathematics, informatics, acoustics and other disciplines. Such information is processed and processed. In recent years [22], the innovation in the form of buzzwords, the enrichment of content and the speed of dissemination have made it increasingly penetrating and influential, and are widely used in various fields [23]. It not only appears in various media terms, but also appears in the language of official documents known as "dignified, plain and concise", and is also frequently used in speeches by party and state leaders [24]. By studying the usage of buzzwords in

official language. Faced with such a complex network structure, many researchers at home and abroad have carried out research in this area and proposed many algorithms for discovering social network relationships. Most of these algorithms are based on graph theory. The algorithm proposed in this paper does not. Starting from a traditional perspective, it is a social relationship discovery algorithm that combines text mining and topic models.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Modeling Quantum Social Networks

In order to study social networks, this paper uses graphs to describe their structure and the relationships between nodes. Based on graph theory, many network attributes have been explored, among which important attributes include: network degree, degree distribution, average shortest path, aggregation coefficient and community structure. The current mainstream language model is n-gram model (n-grammodel), This model is simple in principle and simple and straightforward to construct. Statistical language models are usually constructed as the probability distribution  $p(s)$  of a string  $S$ , where  $P$  seems to be the probability that the string  $S$  appears as a sentence.

Assuming that a sentence  $S$  is composed of  $k$  primitives ("primitives" can be linguistic units such as words, words, phrases, etc.), topic modeling of news texts requires a lot of news materials, and the commonly used methods to obtain text materials are: The methods include web crawling or downloading open news materials directly from the third party account website. Here, I choose the news data (SogouCS) opened by the Dog Lab as the news material for the research. 搜hu is the earliest account website in China. In an unweighted network, the shortest path between 2 nodes is the path with the least number of connections among all possible paths among the 2 nodes. The average shortest path of a network is the average of the shortest paths between any 2 nodes. For network  $G$ , use  $d(v_i, v_j)$  to represent the shortest path between nodes  $v_i$  and  $v_j$ . When  $n=1$ , the model uses the probability of occurrence of a single primitive for estimation, which is called a unigram language model; when  $n=2$ , the model uses the probability of two primitives appearing at the same time as an estimate, which is called a binary language model. The number of occurrences of word strings in n-grams in the corpus satisfies the binomial distribution.

According to the principle of the maximum likelihood. The original Sohu news data not only contains valuable content, but also contains some spam information such as broad universe, page jumps or page turning prompts, which are not helpful for text classification.

### 2.2 The Evolution of Japanese to Chinese Catchphrases

Today, the word "moe" that is widely used in our country comes from the Japanese catchphrase "moe え". "Meng え" originated from the Japanese ACG (Animation, Comic (comic) and Game (game) abbreviation) world otaku (in a narrow sense, it refers to people who are addicted, enthusiastic or proficient in animation, comics and video games). Language, it is said that it evolved from "burning". From a phonetic point of view, most of the Internet buzzwords are composed of homophonic, overlapping, and compound sounds. Compared with ordinary Internet language, they have significant individual characteristics.

For example, in our daily life, such a phenomenon often occurs. When netizens mention "high pressure", in most cases, they will use the homophonic "Yalishanda" to express, or use "Yalishanda" "Four characters plus a picture of a pear. High-frequency words refer to "words that are used more frequently in the basic vocabulary of the common language", that is, those that are closely related to our daily life and are used almost every day Common words, such as "I", "the", "morning", etc. These words are used very frequently, but obviously they are not buzzwords. First of all, high-frequency words are not of the times, and they do not reflect the local language background at that time. As a common term that has long existed in Japanese, "burning" originally means the state of something burning or burning, but in the developed period of Japanese ACG culture, The otaku who love ACG culture have extended it to a new meaning, a metaphor for a strong affection that is almost fanatical.

According to the book "Metaphors We Live By" written by American linguists George Lakoff and Mark Johnson, again, high-frequency words are not hierarchical, and high-frequency words belong to the most frequently used words in basic vocabulary. , with the characteristics of the whole people, they are well known and frequently used by all members of society, and there will be no barriers to understanding or use; while popular words will be affected by factors such as region, gender, age, and educational level. . Internet buzzwords is a corpus that aggregates the languages frequently used by netizens. With the help of globalization, the language between countries has been fully developed.

### 2.3 The Evolutionary Algorithm Simulation of Chinese Buzzwords Based on Quantum Social Model

It has nothing to do with the ACG world, and it has nothing to do with expressing emotions, but in our existing cognition, the burning fire is full of heat and dazzling light, which symbolizes passion, and also represents enthusiasm and warmth. The saying "passion is like fire" takes advantage of this characteristic of fire, and uses fire as a metaphor for enthusiasm, which is vivid and vivid. Recent studies have shown that the degree distribution of real networks is found to obey a power law. Power law means that the degree distribution function  $p(k)$  of network nodes satisfies  $p(k) \sim ck^{-\gamma}$ . where  $\gamma$  is a constant. Many real networks, such as social networks, are considered to be scale-free.

If a topic is of high quality, its tokenizers are often "exclusive", that is, these terms have already represented the topic and will not become tokenizers for other topics. For example, in the topic of "soccer", there are characterization words such as "football", "Messi", and "World Cup", and their probability in other topics should be very small. For example, in the characterization words of the topic "University", these The word should no longer appear. Based on these H rules, we quantitatively statistic the usage of large-scale corpora obtained from the Internet through the candidate set of network buzzwords obtained by using conditional random field word segmentation and rule extraction methods. The statistical results are modeled according to the time granularity, and the model distances in different time ranges are calculated to describe the characteristics of the Internet buzzword candidates at the level of usage. And the otaku's extreme love for some female characters in ACG corresponds to the fiery and unrestrained burning flame. Using the concept of fire to reconstruct the otaku's fanaticism for their favorite

female characters can be simple and straightforward. express the corresponding meaning.

Once this metaphorically restructured concept is used, it is easily accepted and widely disseminated. In the term distribution matrix output by the LDA algorithm, the term distribution of high-quality topics usually has the characteristics of uneven distribution, that is, the probability of the representative word is often relatively large, and the probability value of the lower term is obviously small. For non-high-quality topics, the characterization words are often composed of some scattered and random terms, and their probability values are low.

### 3. CONCLUSIONS

At present, there are more and more cultural exchanges between China and Japan, and the collision and influence of cultures are becoming more and more frequent. In the future, more and more Japanese catchphrases will be introduced into China and become Chinese catchphrases, or there will be more Chinese catchwords. The language was introduced into Japan and became a new language and catchphrase that the Japanese people liked to hear and hear. Through quantum social network and genetic evolution algorithm to analyze the propagation law of the two, it has the function of selecting the good and eliminating the bad.

### 4. ACKNOWLEDGEMENT

Foundation project:

Nanchong City Social Science Research "13th Five-Year Plan" 2020 Annual Project

Project Name: The Origin and Evolution of Emperor Saga's Chinese Poetry in Japan's "Three Collections of Edicts"  
Project Number: NC2020B169

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**Publisher :**

**Association of Technology  
and Science**

 **[www.ijsea.com](http://www.ijsea.com)**

**E-ISSN 2319-7560**

