

# Key Data Extraction and Scene Data Mining of PE Guiding Videos

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**Abstract:** This article is based on data mining research scene data mining in the key data extraction of physical education videos. Combined with the current status of physical education, the application value of scene data mining technology to sports events and physical education is analyzed. The results show that data mining enhances the probability of victory in football matches, basketball matches, and track and field matches, and data mining improves effective frame extraction in sports teaching videos. Data mining is a technology that quickly processes data and information, which improves the effective rate of teaching videos by 7.6%. It is widely used in 98.6% of physical education. The use of data mining in physical education can promote the development of physical education in colleges and universities.

**Keywords:** Key Data, Data Extraction, Scene Data Mining, PE Teaching Videos

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## 1. INTRODUCTION

Traditionally, the field of science has always had a scope. But the scope of research in scientific fields also changes over time, and may even mix with each other to form new fields of study. In order to adapt to the increasingly fierce market competition environment, comprehensively enhance the support level of network management operation and maintenance and network service capabilities, comprehensively improve customer satisfaction, and thereby enhance the core competitiveness of enterprises, under the guidance of the strategy of "leading quality, also plays an irreplaceable role in education management. In the past, data information was only used for routine data recording and statistical classification, but now data mining technology is used for daily student information statistics, teaching task records and data storage, etc., but also for managing data, processing these massive amounts of information, and Analyze, find out the connections between data, and provide powerful teaching strategies for teaching management. Data mining includes data preprocessing, data mining, analysis and application of results. Combining the school's teaching data and information, the introduction of advanced network information technology is used in school education management, teaching evaluation, paperless examinations, teaching records, student inductive learning and teacher teaching technology analysis [1-6].

efficient operation, and strong support", through Network optimization big data helps network optimization work. Exploring methods that can comprehensively train students to discover, analyze and solve problems is the fundamental goal of current higher education activities, o Current research on educational theory and educational practice is increasingly returning to real educational scenarios. It is now more and more easy for people to acquire and store various videos. How to automatically extract the information people need from video or image data by processing one or more images? This paper provides a new idea for optimizing the expressway private network combined with big data; According to multiple conditions such as chain, driving speed, etc., the real high-speed users are screened to achieve a balance between the recognition rate and the full recognition rate; combined with the identified high-speed users, the big data fusion correlation analysis is carried out. The so-called

constructivist learning theory puts more emphasis on student participation and student centrality, and hopes to allow students to actively complete the construction of knowledge through the use of "scenario", "collaboration", "conversation" and "meaning construction" links. It has aroused the strong interest of many researchers and businessmen. This not only requires a computer to visually observe video images like a human, and perceive the shape, [7-14].

In addition, the teaching videos of the students in this class can also greatly promote the teaching process. The development of primary school physical education videos is conducive to the teaching and research of physical education teachers, is conducive to the filling of the teaching content of indoor physical education theory courses on rainy days, is conducive to the immediate effect of student learning, is conducive to the long-term impact of resource preservation, and is conducive to inspiration and guidance. The author will talk about the application of sports skills teaching videos, position, and attitude of objects in the environment. The method provided in this paper uses IT methods to discover and solve network problems by mining a large amount of data, avoiding community problems. The KPI indicators are very good, but the user experience in the scene is very poor. Knowledge point planning, teaching videos of the students in this class can also greatly promote the teaching process [15-21].

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## 2. THE PROPOSED METHODOLOGY

### 2.1 The Physical Education Video

In the environment of the multimedia network age, teachers have the responsibility to make full use of new technologies to change the weak points of teaching. Sports application system

architecture of the Internet of Things technology: The application system of the Internet of Things technology in the sports field should be based on the main body with the attribute of "things" in the sports system, and the existing digital and information system that has gradually matured. With the application of the core technology of the Internet of Things, and following the principle of demand orientation, it will ultimately serve the various services and management of the sports industry. Physical and virtual "things" in sports, sports digitization and informatization are the basis of the application system; information perception, information transmission, and information processing technology are the technology environment of the application system of the Internet of Things; body area network, intelligent management of stadium facilities, Virtual training base, sports information service center and knowledge innovation base are the foreseeable vision of the application system. For example, in the process of basketball teaching, students can watch basketball basic teaching videos, combined with the teacher's personal demonstration and explanation. There are a wealth of excellent basketball teaching videos on the Internet, including wonderful basketball game scenes.

On the one hand, these video materials can arouse the enthusiasm of students in learning, on the other hand, they can also expose students to the style of top players, which can invigorate the classroom atmosphere while regulating the basketball teaching process. The same method can be applied to other teaching processes, especially skill items that are not familiar to physical education teachers themselves.

## 2.2 The Key Data Extraction of PE Teaching Videos

Research of video mining has just started, and its concepts, system structure, and technical methods are still in the background. Not clear enough. This paper is based on literature verification and tracking and analysis of research progress at home and abroad. How to improve the real user experience, analyze and solve problems through real scene users. this is a topic that all operators should pay attention to in the future. The establishment of the scene user system is urgent. The data mining technology module focuses on enabling students to understand various typical data mining methods and master representative mining algorithms.

The development and application of PE teaching videos is not only an opportunity, but also a responsibility. If the majority of PE teaching workers can effectively use PE teaching videos, they can make the teaching process more effective, students more active, and better teaching results. Such as: motion video panoramic image synthesis technology: panoramic image synthesis refers to a series of partial images describing a continuous scene to obtain a single image that shows the entire scene. In traditional applications, the panoramic image captures the static and non-moving background in the scene. In recent years, centering on assisting and guiding sports training, new requirements have been put forward for panoramic image synthesis. Sports video panoramas must not only fully construct the global background of the sports scene, but also require a series of foregrounds, namely athlete images, to be displayed on the background, so as to fully show the movement trajectory and the details of the action.

Clustering, classification, prediction, outlier analysis and machine learning are typical methods that are mainly explained. After the concepts and methods of data mining are integrated into the multimedia field, researches on multimedia

data mining have emerged one after another, such as medical image mining. The data includes soft mining data, hard mining data MR data, and asset management data. At present, there are big data platforms in various places. In China, the research on video mining technology has not been paid much attention. Reference [32] believes that video mining is to find hidden, valuable and understandable video patterns by comprehensively analyzing the audio-visual characteristics, temporal structure, event relationship and semantic information of video data, and then to obtain the trends and associations of video events, and to improve the performance of video events. How smart the video management is. At present, data mining tools basically include classification algorithms. Among them, the classification algorithms include Naive Bayes, decision trees, etc., which can process big data. This high-speed scenario user mining adopts a classification algorithm. This course will select the vending machine scene operating on campus to allow students to personally participate in the whole process of data mining.

## 2.3 The Scene Data Mining

In order to realize the optimized mining and integrated processing of big data in dense IoT scenes in the context of cloud computing, radio frequency identification and sensor fusion sensing methods are used to optimize the sampling and feature classification design of big data in dense IoT scenes to build dense IoT scenes. Scenario big data sampling model, using wireless sensor network technology to construct RFID data collection tags, under the ZigBee networking protocol, perform big data statistical analysis and fuzzy sampling in dense IoT scenarios, and adopt big data fusion scheduling methods to implement dense IoT scenarios Feature extraction and data analysis of big data.

The book "The Coming Era of Scenes" by Robert Scober and Sher Israel points out five elements related to the era of scenes: big data, mobile devices, social media, sensors, and positioning systems. They call these five elements "the five forces of the scene." They believe: "The five forces are changing your experience as a consumer, patient, audience, or online traveler. They are also changing businesses large and small." According to research firm IDC, there will be 3.5 billion in the world by 2015 Taiwan's networked products, coupled with 1.7 billion networked computers, it is obvious that the era of the "Internet of Things" has arrived. The most notable feature of this era is that technology has become more intuitive. It starts to understand where you are, where you might go, and helps you along the way. Take our most commonly used taxi-hailing software-Yidao or Didi as an example. These softwares are based on the scenes built by passengers in the ride area.

The scene here has become a way of thinking. This way of thinking advocates that the Internet and mobile Internet should be regarded as tools for connecting different individual manufacturing scenarios; the scene has also become a manifestation of ability, which is the use of the Internet and mobile Internet to complete the connection. The efficiency method, such as the wearable device detects that you have a travel plan today, it will tell you the weather conditions and the preferential information of staying in the hotel in advance, and when you arrive at the hotel, the hotel website will prepare it for you based on the analysis of your previous data Appropriate room and favorite food, and even prepare you the most used daily necessities and various things for tomorrow's disparity. According to the fusion result of related knowledge, design the relevance forwarding control protocol of IoT data,

and adopt deep learning strategies for big data mining and information fusion processing in dense IoT scenarios.

### 3. CONCLUSIONS

The above data can be transmitted to the system through the big data platform. The focus of the course is to explain its successful application cases in business, sports, media and other industries, so that students can master the general process of data mining implementation, and provide reference for subsequent practical links.

### 4. REFERENCES

- [1] Tao Qian. Research on the Cultivation of Sports Big Data Applied Talents [C]// Compilation of abstracts of the 11th National Sports Science Conference. 2019.
- [2] Zhang Huiqing. The application of association rule data mining technology in the research of college students' physical health [C]// Compilation of abstracts of the 11th National Sports Science Conference. 2019.
- [3] Wu Shanfeng, Lu Xia. Physical education curriculum analysis and management system design based on decision tree algorithm[J]. Modern Electronic Technology, 2019, 42(03):139-141+146.
- [4] Ma Zhenhao. Research on the guiding effect of college students' physical fitness test on physical education reform [J]. 2021(2019-4):136-137.
- [5] Mei Pengfei, He Xiaoping. Visual analysis of foreign education big data research[J]. China Education Informatization, 2018, 000(002):11-17.
- [6] Cong Rili, Li Zhendong, Yan Zhihui. Design of sports performance management system based on data mining[C]// 2018.
- [7] Xi Yin. Research on the Application of Data Mining in Sports Training Guidance[J]. Electronics World, 2020, No.586(04):35-36.
- [8] You Guiying, Wang Chengguo. Research on the promotion of physical health of students by college sports clubs based on data mining[J]. Youth Sports, 2019, 71(03): 25-27.
- [9] Zhang Shuhua. Design of college students' score data mining and physical fitness analysis system based on ID3 algorithm[J]. Modern Electronic Technology, 2019, 42(05):104-106.
- [10] Li Guowen. Design and implementation of a data mining-based student physical fitness test system[J]. Sports Time and Space, 2018, 000(018): 39.
- [11] Jiang Wenmei. Investigation and enlightenment on the status quo of physical exercise of college graduates from the perspective of "Internet +"[J]. 2021(2017-11):238-239.
- [12] WU Shanfeng, LU Xia. Design of physical education curriculum analysis and management system based on decision tree algorithm[J]. Modern Electronic Technology, 2019, 042(003):131-133,138.
- [13] Liu Zheng. Research and data analysis of college students' physical fitness test system [D]. Yunnan University, 2019.
- [14] Dong Xiaoxiao, Hu Yan, Chen Yanping. Research and analysis of undergraduate behavior portrait based on campus data[J]. Computer and Digital Engineering, 2018, v.46; No.344(06):137-141+199.
- [15] Lu Shuzhong. Examples of the advantages and problems of "micro-video" in the classroom teaching of elementary school physical education[J]. Physical Education, 2018.
- [16] Zhang Lei. PE classroom teaching should pay more attention to the "second half"-several issues worth noting in the lesson practice and conclusion [J]. Physical Education Teaching, 2019, 039(005): 40-41.
- [17] Qi Chenhui. Research on my country's preschool sports network attention from the perspective of big data [C]// Compilation of abstracts of the 11th National Sports Science Conference. 2019.
- [18] Wang Xiaochao, Liang Qing, Wang Qiaoxiu. Research on the structure and characteristics of adolescent sports consumption in Shenyang—Based on the perspective of data mining [C]// Compilation of abstracts of the 11th National Sports Science Conference. 2019.
- [19] Liu Yanqing. Sports performance management and physical fitness analysis system based on data mining [J]. Boxing and Fighting, 2019, 000(014): 12.
- [20] Zhong Xiaolu, Huang Dawu, Xie Bin. Research status of teacher educators based on Citespace III—Also on the research of physical education teacher educators [C]// Compilation of abstracts of the 11th National Sports Science Conference. 2019.
- [21] Wang Jinzhong. Evaluation of Basic Teaching of Computer Application Based on Data Mining and Visualization Technology[J]. Chinese and Foreign Entrepreneurs, 2020, No.679(17):206-206.
- [22] Zhao Peijun, Song Yan, Xu Shanshan. Research on the Public Service System of Big Data on Students' Physical Fitness in Tianjin [C]// Compilation of Abstracts of Papers of the Eleventh National Sports Science Conference. 2019.
- [23] Li Shoubang. Research on the application of data mining based on classification rules for college students' fitness test—Taking the third-year students of Xi'an Shiyou University as an example [J]. Journal of Xi'an Shiyou University (Natural Science Edition), 2018, 033(005): 120 -126.
- [24] Bai Wang Zisong. Research on Abnormal Detection and Visualization Technology in the Management System of College Students' Physical Fitness Test Scores [D]. Xiangtan University, 2018.