

Java Implementation of the All-round Collaborative Education Platform Based on Real-time Data Analysis Algorithm

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Abstract: This paper proposes a relatively complete multi-dimensional dynamic data mining system theoretical framework, constructs a multi-dimensional dynamic information representation model, establishes a time series mining model based on support vector regression machine, and a continuous input and output process neural network mining model. The new information teaching system with "multi-dimensional information processing and application in professional research" as the main structure has shown its advantages and characteristics in the current innovative education platform of colleges and universities in my country. This new information teaching system has played a positive supporting role in the development of relevant courses, innovative education platforms and students' innovative ability in colleges and universities.

Keywords: Online Platform Innovation, Targeted Teaching, Multi-Dimensional Information Data Mining, College Education

1. INTRODUCTION

With the development of science and technology, the performance of sensors has been greatly improved, and various multi-sensor information systems for complex application backgrounds have emerged in large numbers. In a multi-sensor information system, the diversity of information representation, information [1] capacity, and information processing speed have greatly exceeded the capabilities of traditional information processing methods. Therefore, in recent years, a new discipline-multi-sensor data fusion technology came into being [2]. Abroad, PI, ESP-iSYS, Industrial SQL Server and InfoPlus. The 2l real-time database adopts the revolving door compression algorithm, and Intellution Dynamics iHistorian [3] adopts the revolving door and the dead zone limit two compression algorithms at the same time. The trend extraction algorithm is commonly used in the existing [4].

The sliding window algorithm and the extrapolated online data segmentation algorithm are the closest to meet the requirements of the above dynamic data flow trend analysis. However [5], the former algorithm needs to use a linear fitting algorithm to model each arriving data flow element. However, the increasing number of enrollments and the distribution of majors after enrollment have made the teaching management of colleges and universities [6] very difficult. Problems such as complex student organization, excessive teaching resources, and the increasing demand for online teaching by teachers and students in the school have also brought huge risks and challenges to the school's [7] teaching management system. Therefore, various information technologies are applied to speed up the improvement of the teaching management system. And innovation is imminent [8].

However, the increasing number of enrollees and the distribution of majors after enrollment have made the teaching management of colleges and universities very difficult. Problems such as [9] complex student organization, excessive teaching resources, and the increasing demand for online teaching by teachers and students in the whole school have also caused problems [10]. The school's teaching management system has brought huge risks and challenges. To realize the

modernization of school education has always been our pursuit goal. To promote the modernization of the school with the informationization [11] of education is our basic idea and practice of running a school. Through more than ten years of exploration and research, the school has gradually formed the basic characteristics of "digital campus, research-oriented school", from the construction of the basic campus network to the integration of disciplines and information technology [12].

Xia Xuehua conducted research on teachers' teaching design ability, and proposed to make full use of the current Internet technology and help teachers improve their teaching ability with the help of multimedia teaching methods. In 2008, Tang Huiyun [13] conducted research on improving teachers' teaching skills. The development trend is analyzed and explained on how to improve teaching skills. In a word, online teaching exists in every country in the world in its various forms [14], but with the different levels of economic and technological development of various countries, the ability and popularization scope of online teaching are also different. Due to the rapid development of educational technology, a new concept of effective [15] resource integration of modern educational technology and online teaching system has emerged. On the premise of the realization of system functions, the system should be able to support at least 5,000 users to access online at the same time. demand, the average response time is less than 0.6 seconds [16].

The software system should have high availability, be able to support different types of browsers for access, and the system should run stably to ensure that data is not lost or inconsistent due to accidental data [17]. Therefore, the traditional manual management mode is no longer suitable for the needs of multimedia classrooms in practical teaching. Due to such an objective situation [18], it is necessary to research, design and implement a WEB-based software management system, which can be combined with the current booming mobile Internet technology. Auxiliary multimedia classroom integrated management system [19].

Compared with the level of information representation, data fusion can be divided into three categories: data layer fusion, feature layer fusion and decision layer fusion. Feature layer

state fusion [20] is the joint identification of feature layers. Data compression technology faces two key problems: First, the compression algorithm must provide a high data compression rate to support the mass storage characteristics of real-time database; secondly, the real-time recording and query function of real-time database requires the compression algorithm to have good speed performance in both compression and decompression processes, especially in the decompression process. middle. They are actually pattern recognition problems. Artificial neural network has many advantages such as parallel distributed processing, self-adaptation, associative memory and so on.

2. THE PROPOSED METHODOLOGY

2.1 The Real-Time Data Analysis

Algorithms

Adaptive resonance theory (ART) is a method proposed by Stephen Grossberg of Boston University and his colleagues in the study of human cognition, which can realize self-stabilization and self-organization recognition of arbitrarily complex environmental input patterns. network system. The process of implementing the revolving door compression algorithm is shown in the literature. Among them, "temporary data set" refers to all data points between the previous reserved data point and the new data point. These data points are stored in memory as temporary data. Dynamic data flow The basis of real-time trend analysis is to divide the data stream in real time according to a certain statistical characteristic index, so that the data in the divided data segments obey the same statistical model, and the adjacent segments obey different statistical models.

Two positive feedback loops are respectively formed, and their function is to suppress noise and enhance useful signals. A subscripted letter next to each open circle neuron indicates that neuron and its output. The quantities and their relationships in Figure 2 are introduced in the order from bottom to top as follows: x_j is the i th component of the input external pattern, and each component corresponds to a neuron. Compared with the temporary data set method, the slope comparison method only stores the data values with the maximum and minimum slopes, and if the slope formed by the new data and the last stored data is between the maximum and minimum slopes, no other tests are required.

2.2 The All-Round Cooperation In Education

The design of the student management module is essentially to create an electronic file that records the complete natural information of the students through the teaching management system, including the students' academic information, life information and growth trajectory and so on. As a common technology in computer programming, Java technology not only inherits the characteristics of C++ well, but also reduces the incomprehensible content in C++ while improving its ease of use, such as multiple inheritance. Java language has many advantages such as reliability, practicability, portability and independence. In terms of the performance of the integrated platform system, full consideration is given to users outside the school (teachers, students and parents, etc.), and the use of the C/S architecture model is not suitable for application requirements. Generally, teachers and students outside the school can access the Internet through the Internet, and the C/S needs to install a terminal The program is out of date, and the B/S architecture mode has greater flexibility. Users can

browse the resources of the integrated platform as long as they enter the address.

The teaching effect management use case is composed of three functions: student evaluation management, supervision group evaluation management, and expert recommendation management; guidance group evaluation management is composed of supervision group evaluation browsing, supervision group evaluation addition, and supervision group evaluation update functions; student evaluation management is It consists of Student Evaluation Update, Student Evaluation Browse and Student Evaluation Add and Student Evaluation Delete functions. In the online video teaching function, teachers or system administrators can upload teaching videos, create a directory for all videos in the same course, and realize directory management of video files. At the same time, they can also modify the video directory. Teaching videos can be on-demand according to personal learning plans and learning needs, and related video resources can be inquired.

2.3 The Java Implementation of the Whole-process, All-round Collaborative Educational Platform

The test question bank TestPool is used to obtain the parameters of the test question bank and the selection of the test papers. The KnowledgePoints database is used to select the test papers and identify the knowledge points of the test questions. Secondly, it is necessary to control the authority to access the system and its related resources to ensure the correct access and security of the system; finally, it is necessary to ensure the reliable operation of various functional modules of the software system, and to adopt redundant technology for key data and program modules in the operation of the system. Software reliability technology is strengthened to ensure high reliability of system operation.

The system plans to use the Java Web technology platform, and the database uses the MySQL database system. One of the difficulties in the management of multimedia classrooms is the arrangement of class schedules. The traditional manual method is inefficient and prone to errors. A better method is to regularly obtain the latest class schedule information from the existing educational administration system of the university, and save it after adjusting and arranging in the system. Because the educational system is an independent application system.

The full name of the J2EE standard (Java2 Enterprise Edition), this technology can simplify complex issues such as the development, deployment and management of enterprise-level solutions, and it is usually used in N-level Web architectures. It is actually a technology platform for designing, developing and testing automation software. . The relationship between student management and basic data, students make relevant records due to various reasons, such as transfer to school, sick leave, etc., but the basic data cannot be changed, and the color difference will be realized for the student. Arguments are stored as the basic elements of a cell array in . Once it is used, it can only be the last item in the output parameter list. The function determines the number of variables to store, and the function can specify the output arguments of all known functions.

In terms of daily management, according to the school's requirements, students are strictly managed during their stay in school. Students must apply for entry and exit.

3. CONCLUSIONS

This paper combines the incremental recursive least squares regression parameter estimation algorithm with the generalized likelihood ratio change point detection algorithm, and proposes a real-time trend extraction algorithm for data streams. The algorithm fully analyzes the constantly arriving data flow elements, system feasibility and the design requirements of each module. The distributed design makes the teaching management system realized. Guarantee the high starting point of system performance, adopt object-oriented software development method in development technology, choose JAVA language, adapt to the use of multiple platforms, and the code generation efficiency is also relatively high.

4. REFERENCES

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