Security of Higher Vocational Student Management Information Platform Based on Internet IP Cross-Validation Algorithm

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Abstract:The algorithm first uses the improved PSO optimized K-means algorithm (IPMeans) to cluster the intrusion data and increase the aggregation degree of the same data type. The promotion of education management informatization construction requires cooperation between higher vocational colleges and information technology companies, and cooperation with information technology companies. Brother colleges and universities cooperate and build together; at the same time, a high-quality information technology talent team is formed; the construction of information resources co-construction and sharing system is accelerated; the original unreasonable education management mechanism is reformed. Then the processed data is divided into 10-CV, and then use the cross-validation method to further improve the BP algorithm. The simulation results show that the BP algorithm based on cross-validation is better than the traditional BP algorithm.

Keywords: Higher Vocational Student, Management Information Platform, Internet IP, Cross-Validation Algorithm

1. INTRODUCTION

Network intrusion [1] refers to the illegal operation of system resources without user authorization. With the continuous in-depth research in recent years, the intrusion detection model with machine learning algorithm as the core has become a research hotspot in the field of network security. In the modern society in which my country's comprehensive national strength and technological development level are constantly improving and progressing [2], the Ministry of Education also proposes to promote the development of vocational education informatization, extensively and thoroughly implement the establishment of an informatization service platform, and improve the e-government of vocational education ability [3].

As a typical data-driven modeling method, neural network has been deeply and widely studied. Among them: Single hidden layer feedforward neural network (SLFNN) has been widely used in many fields due to its strong learning ability. application [4]. A reasonable artificial neural network model should have a reasonable number of hidden layer nodes, and be able to obtain the comprehensive result of the global minimum point [5].

In view of the slow convergence speed of the existing neural network BP algorithm, many researchers have done a lot of research on it from different perspectives. The standard has promoted various colleges and universities to manage students through networking and informatization, and promoted the construction of an informatization platform. As far as the response policy is concerned, it is very necessary for higher vocational schools to carry out informatization construction [6].

In the management of student information in colleges and universities, new difficulties and challenges have been ushered in. With the development of the Internet industry [7], it is a necessary development trend to combine students' information management work with the Internet, and to

establish an efficient student management informatization platform, thereby improving the quality of management and promoting the all-round development of higher vocational colleges [8]. In the modern society in which my country's comprehensive national strength and technological development level are constantly improving and progressing, the Ministry of Education also proposes to promote the development of vocational education informatization [9], extensively and thoroughly implement the establishment of an informatization service platform, and improve the e-government of vocational education ability [10].

As an emerging interdisciplinary science, education management applies the theories and basic ideas of two types of disciplines, one is education and the other is management, and then aims at various educational practices to manage the existing in the education system [11]. To study the problems, so as to reveal the general laws existing in education management. To ensure a high detection rate and reduce the system training time, the corrected kernel function SVM algorithm proposed by Jing Xiaopei et al. [12] solved the imbalance problem of training samples.

However, due to the complexity and diversity of network data, it is still difficult for intrusion detection systems to train network data [13]. Entering the talent information of digital campus and information campus into the school's information service platform to promote the modernization of management education in higher vocational colleges is one of the key points to realize and comply with the requirements of modern digital campuses [14]. And the complete and efficient information digitalized campus service platform is also the management of higher vocational colleges into the normative governance system of the Ministry of Education. However, the Back Pro pagation (BP) algorithm, as a commonly used learning algorithm for single-hidden layer feedforward networks, has obvious defects, that is, the iterative method

based on gradient descent has a slow convergence speed and is easy to fall into local minima [15].

In the standard BP algorithm, the choice of the learning rate greatly affects the convergence speed of the algorithm: if the learning rate is too large, it may cause the network to oscillate or even diverge; on the contrary, if the learning rate is too small, the network converges slowly [16]. The traditional student management requires a lot of manual operations, so in the actual work, it is necessary to increase human input to ensure the normal operation of student management. Information construction can improve work efficiency and reduce the pressure on students and staff in vocational schools [17].

2. THE PROPOSED METHODOLOGY

2.1 The Internet IP Cross Validation Algorithm

K-Means algorithm [18] is to use the advantages of the global search ability of the particle swarm optimization algorithm, optimize the initial k value before the K-Means algorithm clustering, and then divide the data set D into k classes sj for The research on leave-one-out cross-validation algorithms has achieved some results.

Here, the specific derivation process is omitted, and the main results are given directly. If the standard is met, the next set of training data is learned, otherwise the training samples are used to learn to modify the weights. In order to get a good learning effect, both training samples and validation samples should participate in learning as much as possible and generally, 10-fold cross-validation is selected.

2.2 The Higher Vocational Student Management Information Platform

The information management in the school can unify and standardize the integration of students' information materials, and store the entire information in a large database. Different from traditional student information management, information management completely avoids the loss of student information and materials, and also greatly The problem of recording and finding student information is greatly shortened. At present, the main body responsible for student management in most vocational schools is full-time counselors, and their work is mainly focused on daily ideological education for students in vocational schools.

Since many counselors are the direct managers of students, counselors have a lot of student management affairs every day, including student leave, examination notices, scholarship evaluations, etc. They do not fundamentally improve work efficiency; various management departments within the college, work content Inconsistent, lack of teamwork spirit, failure to reasonably establish a student information sharing platform, which seriously affects work efficiency and brings difficulties in normal operation. In higher vocational colleges, the campus card is the most common and the highest utilization rate. Therefore, this has also become a The most important part of promoting the construction of digital campus has become the foundation of important reference information provided by campus informatization construction, and is the main line of connecting various applications on campus by means of informatization.

Informatization management can greatly reduce the workload of school management, but also reduce the workload of teachers. Teachers can quickly learn about students' dynamics based on online data searches, and can also avoid problems

through informatization management. Partial conflict. Its running time increases in a quadratic trend with respect to the number of samples, which is not suitable for dealing with large data sets. Compared with ELM NLOO, the ELM 10F algorithm also has obvious advantages in running efficiency, but it is slower than the ELM FLOO algorithm. Informatization Technology not only needs to use information technology in work, but also needs to integrate information management ideas into daily work to carry out work, establish corresponding management systems, and cooperate with information construction. Under the background of modern science and technology era, higher vocational schools, as national professional talent training bases, have a positive impact on the development of higher vocational colleges by improving the awareness of information construction. Leaders of higher vocational colleges need to strengthen the concept of informatization, enhance their awareness of development in the new era, and strengthen the construction of student management informatization platforms.

2.3 Manage The Security of The Information Platform

At present, many higher vocational schools are backward in understanding and simply use some software in their work, without formulating management systems according to the actual needs of information management work, which makes the actual use very rigid. In the absence of systematic planning, many functional systems are independent. In the construction of vocational student management informatization, as the legal awareness of modern vocational college students gradually increases, it is necessary to clarify the development direction of student management work first. According to national laws and school rules and regulations, establish and improve the management system, combined with the specific work situation of the college. The campus network security ability is weak, etc.

Secondly, among the colleges and universities taking courses, colleges and universities in the central and western regions account for 67.5%. From one aspect, it reflects that the teaching platforms and teaching methods of colleges and universities in the central and western regions are relatively simple, and the teachers' informatization teaching ability is relatively lacking. However, although the construction of student information platform plays an important role in the management of higher vocational schools, it also has some problems. With the great increase in the number of students in vocational schools, various information materials about students have also increased, and the software used in the big data statistics in the school's internal background is gradually difficult to bear.

3. CONCLUSIONS

Security of the Higher Vocational Student Management Information Platform Based on Internet IP Cross-Validation Algorithm is studied in the paper. We use the novel technology to design the novel ideas and in the future, the applications will be applied.

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