Research Article

Artificial Intelligence of Internet of Things Based on Machine Learning and College Student Management

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Under the background of the development of higher education, according to the characteristics of college student management, after analyzing its background and practical significance, this study constructs an intelligent college student management system of Internet of things based on machine learning. The data volume of the Internet of things is huge, so ensuring the normal and efficient operation of the system is the primary goal. In this study, the data management model of the system is constructed with the help of cyclic neural network in machine learning algorithm to predict the data and optimize the computer program. At the same time, the system data are filled and classified by the k-nearest neighbor model, and the data are trained and simulated by constructing a safe bilstm neural network system. Because the information related to students in the university database involves personal privacy, in order to ensure the security of the system and avoid relevant data leakage, in the judgment standard of configuration error data flow, this study calculates the monitoring abnormal data and loss function through the dark network flow and ip2vec algorithm, so as to establish the system abnormal monitoring model and identify the system error data flow. Finally, it constructs the college student management system and expounds on the basic requirements of the system use cases. After a series of tests of system performance, capacity, and stability, the results meet the basic requirements of system operation, which provides a certain reference for the application of college student management in the future.

1. Introduction

The normal operation of students' work in colleges and universities is the basic to ensure the primary education and teaching work, so it is called "the second classroom." With the proposal of the goal of quality education, students' after-school activities in addition to basic teaching are increasing, including collective activities such as community activities, social practice, and practical training, as well as personal activities such as mental health and ideological and political education [1]. Therefore, student work needs to cover all work related to students in colleges and universities from enrollment to graduation. This is undoubtedly a huge task. The traditional student work management mode cannot adapt to the development of modern colleges and universities and cannot cope with the transformation of students' learning and life mode in the new era. Therefore, combined

with the progress of science and technology, the reform and development of colleges and universities, and the actual needs of student work in the new era, it is urgent to build an intelligent, humanized, efficient, and safe college student management and service system [2]. The intelligent student management system can save the human and material resources of the school and change the time wasted in the process of hierarchical communication of traditional paper documents, save school resources, reduce the pressure of student work offices and confidential files, improve the overall operation efficiency of the school, and further maintain the operation of basic education and teaching [3].

With the advent of the information age, while information technology has brought great changes to society, all walks of life have also realized innovation and upgrading with the help of information technology [4]. The traditional working mode cannot adapt to modern society, and the

intelligent working mode in various fields has gradually become a social consensus. The traditional working mode depends on manual rules and knowledge base, so it is easy to have errors and safety problems. The intelligent working mode depends on the assistance of computer technology. All kinds of intelligent terminals are an important part to ensure work efficiency [5]. The research and development of the Internet of things include subthemes in many fields. Among them, machine learning algorithm, cloud computing, big data, and other technologies are the basic technologies to realize intelligent work [6]. In addition, with the expansion of the scale of the Internet of things and the continuous increase of equipment, the security detection technology of intelligent work system is also the basis to ensure the smooth implementation of the work [7]. The data classification algorithm based on machine learning can collect a variety of data generated in the operation of the equipment in real time, monitor the working state of the equipment in real time, submit abnormal data, and ensure the security of the data, which is used to detect the abnormal activities of network equipment [8]. This is not only the basic principle of intelligent work mode but also one of the objectives of this study.

2. Related Work

The Internet of things has great development potential, and the research on the Internet of things is also deepening. The definition of Internet of things in the literature is very broad; that is, it allows individuals to establish connections with other individuals through certain ways at any time, place, and other states [9]. The literature explains it from the perspective of technology. The Internet of things refers to the global network of uniquely addressable interconnected objects based on standard communication protocols [10]. According to the description of the Internet of things in the literature, the Internet of things should cover many functions, such as data exchange, data tracking, voice interaction, and privacy protection. At the same time, the system should also have certain class scalability and be suitable for emergencies in a variety of operating environments [11]. Due to the increasing number of Internet of things devices at this stage, more stringent requirements are put forward for the existing Internet of things system. For example, it is mentioned in the literature to reassess the expectation of the Internet of things, carry out large-scale expansion, reconstruct the architecture of the Internet of things, etc [12]. The literature emphasizes that the huge system of the Internet of things is a heavy task for any operating system. How to solve the storage and transmission of massive data is an important task to be considered in the research of Internet of things technology for a long time [13]. Therefore, these problems are explained in the literature, and it is pointed out that these problems can be solved by data mining technology and machine learning algorithms. The literature expounds on the advantages of machine algorithm [14]. Because machine learning involves a large number of data calculation, edge calculation is one of the important methods to solve the problem of large data volume. In addition, there are data

training and reasoning methods of deep neural network. Agree, the literature also explains that the edge computing method is to save data transmission time and improve the performance of the system through preprocessing after storing the data in the edge node of the Internet of things [15].

The research on the intensive management of college students' work and computer system assistance began in the 1990s, especially after the gradual popularization of Internet application. The literature introduces the intensive management mode of college students, which ensures the efficient operation of the system and enables the school collective to play the overall function [16]. Especially with the help of computer technology, student information is shared, which is conducive to the connection between various parts, so as to improve the organizational efficiency and ensure the security and privacy of student information. In particular, the literature points out that the use of college student achievement management system can correctly examine the current learning situation for both teachers and students [17, 18]. It can not only reduce the workload of academic staff but also help students understand their real achievements as soon as possible and improve learning efficiency. The literature mentioned that the establishment of college student management system and the realization of artificial intelligence education need to integrate the knowledge of multiple disciplines, including computer technology, artificial intelligence, educational science, and other fields, expand talent training in the field of intelligent education, and cultivate comprehensive talents for AI-driven education and social and economic development. For the construction of intelligent university management system, the literature expounds that the university student management system used to be based on LAN and assisted in the form of web page access, which needs to be upgraded constantly. In the modern environment with the rapid development of 5g network, with the popularization and application of mobile devices, the university information management system is more mobile and can be used flexibly with a variety of mobile terminals. At the same time, the literature also points out that with the continuous development of the Internet of things system, the system security needs to be improved. The powerful function of computer not only brings convenience to the society but also produces problems such as privacy disclosure. Therefore, the problem of security is particularly important in the college student work management system. Similarly, this is also one of the research focuses of this study.

3. Research on Key Technologies of Internet of Things Based on Machine Learning

3.1. Cyclic Neural Network. Machine learning algorithm is mainly based on the previous data experience to predict some possible behaviors, so as to optimize the main computer programs. This is also the working method of artificial intelligence. This section mainly adopts the cyclic neural network algorithm. The calculation of forgetting gate, input gate, and output gate is shown as follows:

3.1.1. Forget the Door. F-LSTM formula is as follows:

$$\overrightarrow{f_t} = \sigma\left(\overrightarrow{W_f}, \left[\overrightarrow{h_{t-1}}, x_t\right] + \overrightarrow{b_f}\right). \tag{1}$$

B-LSTM formula is as follows:

$$\overleftarrow{f_t} = \sigma\left(\overleftarrow{W_f}, \left[\overleftarrow{h_{t-1}}, x_t\right] + \overleftarrow{b_f}\right). \tag{2}$$

3.1.2. Input Gate. F-LSTM formula is as follows:

$$\overrightarrow{i_t} = \sigma\left(\overrightarrow{W_i}, \left[\overrightarrow{h_{t-1}}, x_t\right] + \overrightarrow{b_i}\right),$$
$$\overrightarrow{\tilde{c}_t} = \sigma\left(\overrightarrow{W_c}, \left[\overrightarrow{h_{t-1}}, x_t\right] + \overrightarrow{b_c}\right), \tag{3}$$
$$\overrightarrow{c_t} = \overrightarrow{f_t} \times \overrightarrow{c_{t-1}} + \overrightarrow{i_t} \times \overrightarrow{\tilde{c}_t}.$$

B-LSTM formula is as follows:

$$\overleftarrow{i_t} = \sigma\left(\overleftarrow{W_i}, \left[\overleftarrow{h_{t-1}}, x_t\right] + \overleftarrow{b_i}\right),$$
$$\overleftarrow{\tilde{c}_t} = \sigma\left(\overleftarrow{W_c}, \left[\overleftarrow{h_{t-1}}, x_t\right] + \overleftarrow{b_c}\right), \tag{4}$$
$$\overleftarrow{c_t} = \overleftarrow{f_t} \times \overleftarrow{c_{t-1}} + \overleftarrow{i_t} \times \overleftarrow{\tilde{c}_t}.$$

3.1.3. Output Gate. F-LSTM formula is as follows:

$$\overrightarrow{o_t} = \sigma\left(\overrightarrow{W_o}, \left[\overrightarrow{h_{t-1}}, x_t\right] + \overrightarrow{b_o}\right),$$
$$\overrightarrow{h_t} = \overrightarrow{o_t} \times \tanh\left(\overrightarrow{c_t}\right). \tag{5}$$

B-LSTM formula is as follows:

$$\overleftarrow{o_t} = \sigma\left(\overleftarrow{W_o}, \left[\overleftarrow{h_{t-1}}, x_t\right] + \overleftarrow{b_o}\right),$$
$$\overleftarrow{h_t} = \overleftarrow{o_t} \times \tanh\left(\overleftarrow{c_t}\right). \tag{6}$$

3.2. Configuration Error Data Flow Determination. When configuring the judgment algorithm of wrong data traffic, this study obtains the correlation degree between the packet information in the dark network database and the actual data value of the Internet of things, so as to judge the wrong traffic. If we want to associate the two, we need to clear, filter, and select the data. After filtering out the wrong configuration data caused by system error, the remaining data are detected. Suppose D is the IP address list of the dark network, and the probability distribution is shown in the following formula:

$$P_{\mathrm{misc}}\left(d_i\right) = \frac{n_{\mathrm{src}}\left(d_i\right)}{\sum_{\forall d_j \in D} n_{\mathrm{src}}\left(d_i\right)}. \tag{7}$$

There are two main ways to define the probability distribution of dark network data. One is to assume that the dark network source will be detected in a random and uniform distribution. At this time, the probability of malicious data source accessing the dark network is shown in the following formula:

$$P_{\mathrm{mali}}\left(d_i\right) = \frac{1}{|D|}. \tag{8}$$

Another definition method is to assume that the dark network source is detected according to the normal distribution. At this time, the probability of malicious data source accessing the dark network is shown in the following formula:

$$P_{\mathrm{mali}}\left(d_i\right) = \frac{1}{\sigma\sqrt{2\pi}} e^{-(x-\mu)^2/2\sigma^2}. \tag{9}$$

Then, suppose that the probability of the system capturing the data generation source is $P(Di)$, and $P(Di)$ is also used as the probability of S_i accessing a specific data combination, then

$$P(D_i) = P\left(D_i = \{d_{i1}, d_{i2}, \ldots, d_{im}\} D_i| = m\right) \times P\left(|D_i| = m\right). \tag{10}$$

Assuming that there is an incorrectly configured data source in the system, then the first item in formula (10) is obtained as follows:

$$P_{\mathrm{misc}}\left(D_i = \{d_{i1}, d_{i2}, \ldots, d_{im}\} D_i|\right) = \frac{1}{K} \prod_{\forall d_i \in D_i} P_{\mathrm{misc}}\left(d_i\right). \tag{11}$$

For malicious data sources in the system, the first item in formula (10) is obtained as follows:

$$P_{\mathrm{mali}}\left(D_i = \{d_{i1}, d_{i2}, \ldots, d_{im}\} D_i|\right) = \frac{1}{K} \prod_{\forall d_i \in D_i} P_{\mathrm{mali}}\left(d_i\right). \tag{12}$$

Then, the Bayesian probability normalization constant k is used to make the sum of probabilities 1, that is

$$K = \frac{|D|!}{m!\left(|D| - m\right)!} \times \frac{1}{|D|^m}. \tag{13}$$

According to the characteristics of abnormal data, the source with wrong configuration can only access one or several targets, while the malicious source can access relatively more target space, which poses a threat to the security of the system. Therefore, the probability of accessing the dark network address is also the main basis for judging whether a source is an error source or a malicious source.

The probability distribution modeling method of error data source is as follows:

$$P_{\mathrm{misc}}\left(D_i\right) = \frac{1}{K(e-1)|D_i|!} \prod_{\forall d_i \in D_i} P_{\mathrm{misc}}\left(d_i\right). \tag{14}$$

The probability distribution modeling method of malicious data source is as follows:

$$P_{\mathrm{mali}}\left(D_i\right) = \frac{1}{K|D_i|} \prod_{\forall d_i \in D_i} P_{\mathrm{mali}}\left(d_i\right). \tag{15}$$

3.3. Abnormal Network Traffic Monitoring Algorithm. This study calculates the abnormal data through the 2vec algorithm. Among them, ip2vec algorithm is an important

part of the system model in this study. The data source and target network can be embedded into the vector together and encoded with the help of encoder. The two automatic encoders jointly train the decoder to decode the message format characteristic information and finally identify whether it is abnormal network traffic. Because the network traffic with similar content usually has a certain similarity in coding characteristics, the method of decoding message format characteristics and attack model characteristics with the help of ip2vec algorithm has certain applicability, which can map the traffic of devices with similar functions to a wider space and improve the operation efficiency of the system. The loss function of the model is calculated as follows:

The loss function of the classifier is as follows:

$$L_{avd1}(\Theta_c) = -\sum \log\, p(l_i|\text{Encoder}(x_i; \Theta_e); \Theta_c). \quad (16)$$

The loss function of the encoder is as follows:

$$L_{avd2}(\Theta_e) = -\sum_{i=1}^{M}\sum_{j=1}^{N} \text{H}(p(j|\text{Encoder}(x_i; \Theta_e); \Theta_c)). \quad (17)$$

The loss function of the decoder is as follows:

$$L_{\text{decoder}}(\Theta_e, \Theta_d) = \sum_{i=1}^{L} L_{\text{seq 2 seq}}^{i}(\Theta_e, \Theta_d^i). \quad (18)$$

The total loss function of the model is as follows:

$$L_{\text{total}}(\Theta_e, \Theta_d, \Theta_c) = L_{avd1}(\Theta_c) + L_{avd2}(\Theta_e) \\ + L_{\text{decoder}}(\Theta_e, \Theta_d). \quad (19)$$

4. Implementation of Intelligent College Student Management System of Internet of Things

4.1. System Use Case Requirements Analysis. College student management involves all aspects of students' school life, and due to the large number of students, it is easy to encounter a variety of problems in the process of work development. Therefore, the primary goal of this system design is to integrate the work contents at all levels of student affairs management, make the business operation flow, and simplify the whole student service process. Through the analysis of college student work business, it can be concluded that according to different business categories, it is mainly divided into user levels such as students, teachers, parents, administrative personnel, and school level leaders, as well as departments at all levels such as class, age, secondary college, student work office, and logistics office. The system needs the help of campus network to realize the work application, processing, and query of all user levels and departments at all levels. In addition, the use method of the system should be simplified as much as possible to meet the operation level of different users.

This section takes the student operation as an example to show the student behavior use cases of the university

management system. Among them, student groups, including students and graduates, can query personal information in the system. The student behavior use case is shown in Figure 1.

In the college student management system designed in this study, student achievement query is the basic module of this system. In order to pursue the stability of the system, the system is designed by data flow modeling. The data flow of the basic layer is shown in Figure 2.

In the student achievement management module, first, the school system administrator adds the basic data of the system, establishes the data entry grid, maintains the system functions during the use of the system, and processes various transaction requests and results. At the beginning of the semester, the data management personnel of the Academic Affairs Office add student information in the units of departments, majors, and classes, and reasonably arrange corresponding teachers according to the course opening plan of each specialty and the syllabus and teaching plan of each course. After the basic information of the system is added, teachers can log in to the system to view their schedule-related information and enter and confirm their grades after the final examination. Once the result is confirmed, it is not allowed to modify it without application. After confirming the results, the data manager of the Academic Affairs Office informs the students to query. In addition to students and teachers, teaching related staff, educational administrators, teaching leaders, and counselors can also log in to the system to query students' scores.

4.2. Design of Database Table. In the construction of college student management system, this study uses Access2000 database system to convert the collected data into the actual data model supported by the computer system. The database table design of this study mainly includes student information structure table, teacher information structure table, student achievement information structure table, course information structure table, student discipline violation information registration table, and comprehensive evaluation list.

The student information table is mainly used to store the basic information of students, including student number, name, gender, and photo. The field description is listed in Table 1.

The teacher information table is mainly used to store the basic information of teachers, including teacher job number, major, class name, and teacher category. The field description is listed in Table 2.

The student grade information table is mainly used to store the student's grade information of various subjects, including class, student number, semester, and course. The field description is listed in Table 3.

The course information table is mainly used to store the extended information of each professional course, including semester, course name, teacher number, and classroom. The field description is listed in Table 4.

The student discipline violation information registration form is mainly used to store the student's performance
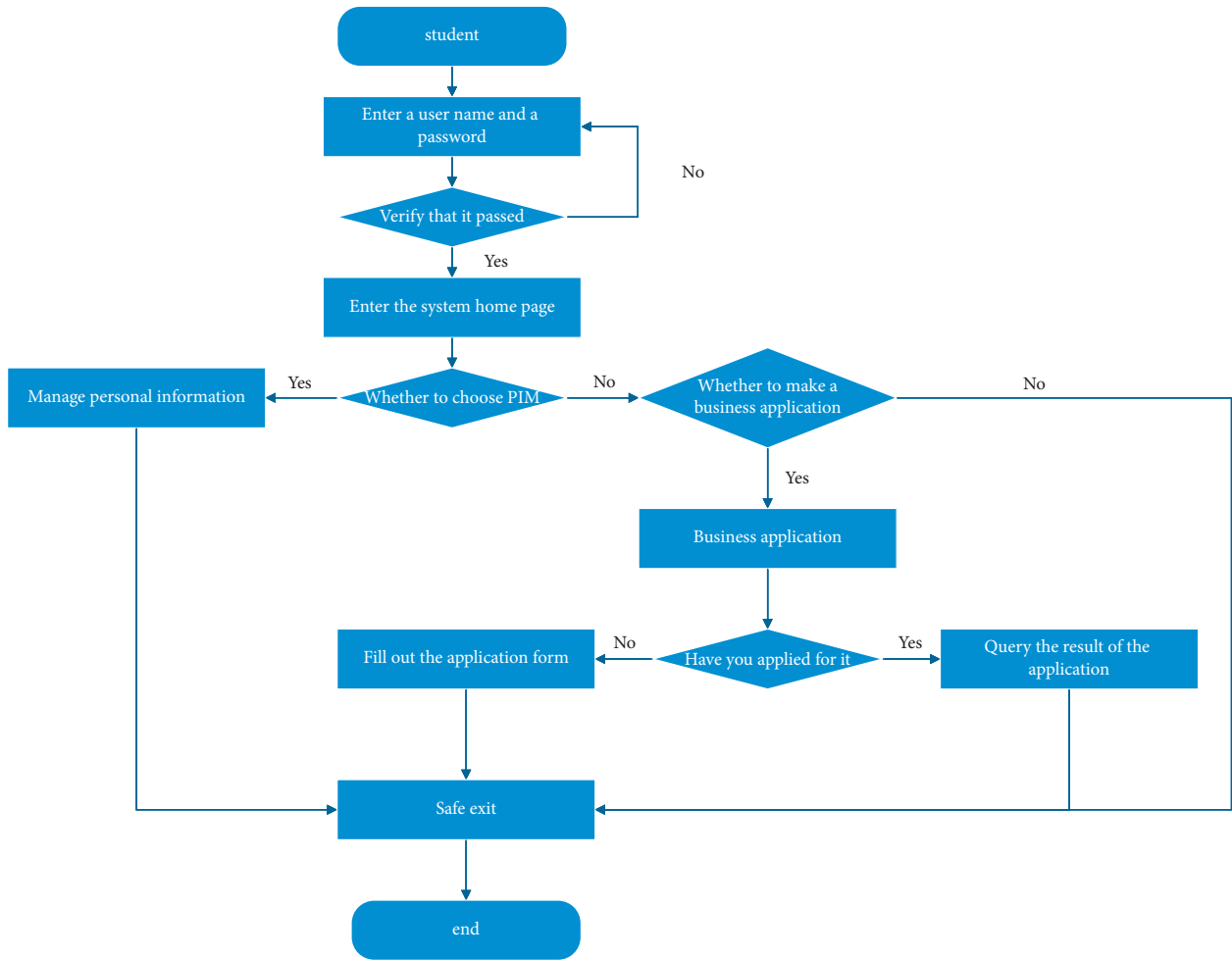
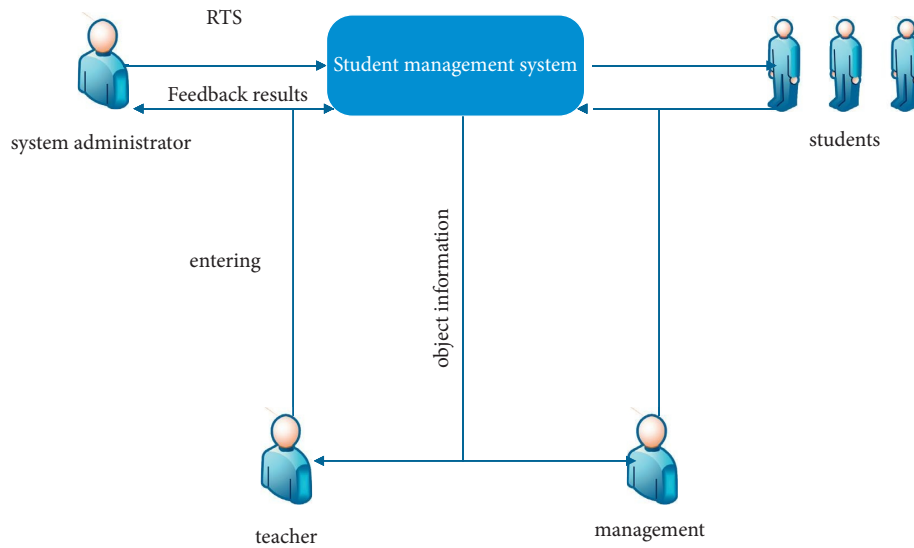FIGURE 1: Student behavior process.

FIGURE 2: Data flow diagram of student achievement management module.

information of various subjects, including class, student number, semester, and course. The field description is listed in Table 5.

The comprehensive evaluation information table is mainly used to store students' comprehensive evaluation score information, including semester, grade ID, actual

TABLE 1: Student information structure.

Field description	Field identification	Field type	Width	Whether it is allowed to be empty	Primary key
Student ID	studno	Integer	—	N	Y
Name	studname	Varchar	20	Y	N
System	xino	Integer	—	N	Y
Professional number	zhuanyeno	Integer	—	N	Y
Class number	banno	Integer	—	N	Y
Age	age	Integer	—	Y	N
Gender	sex	Integer	—	Y	N
Nationality	minzuno	Integer	—	Y	N
Student category	ksno	Integer	—	N	Y
Address	address	Varchar	—	Y	N
Telephone	telph	Varchar	8	Y	N
Photo	ptotono	Varchar	8	Y	N

TABLE 2: Teacher information structure.

Field description	Field identification	Field Type	Width	Whether it is allowed to be empty	Primary key
Teacher number	teacherno	Integer	—	N	Y
Teacher name	teachername	Varchar	20	N	Y
System	xino	Integer	—	N	Y
Name	xiname	Integer	20	N	Y
Profession	subject	Integer	—	N	Y
Gender	sex	Integer	8	Y	N
Teacher category	leixin	Varchar	—	N	Y
Telephone	telph	Varchar	—	Y	N
Photo	ptotono	Varchar	—	Y	N
Classification	lessonname	Varchar	—	Y	N

TABLE 3: Student achievement information structure.

Field description	Field identification	Field Type	Width	Whether it is allowed to be empty	Primary key
Student ID	admin	Integer	--	N	Y
Classification	lessonname	Varchar	20	N	Y
Name	name	Varchar	20	Y	N
Semester	xueqi	Varchar	20	Y	N
Class	banno	Integer	—	Y	N
Professional number	zhuanyeno	Integer	—	N	Y
Professional name	zhuanyename	Varchar	20	Y	N
System	xmo	Integer	—	Y	N
Classification	lessonname	Varchar	—	Y	N
Fraction	fenshu	Integer	—	Y	N
Type	leixing	Varchar	8	Y	N

TABLE 4: Course information structure.

Field description	Field identification	Field Type	Width	Whether it is allowed to be empty	Primary key
Semester	xueqi	Varchar	20	N	Y
Curriculum	lessonno	Integer	--	N	Y
Classification	lessonname	Varchar	20	Y	N
System	xmo	Integer	--	Y	N
Professional number	zhuanyeno	Integer	--	Y	N
Grade number	Imo	Integer	--	Y	N
Class number	banno	Integer	--	Y	N
Teacher number	teacherno	Integer	--	Y	N
Student number	studnum	Integer	--	Y	N
Classroom	room	Varchar	8	Y	N
Week	week	Varchar	8	Y	N

TABLE 5: Student discipline violation information registration form.

Field description	Field identification	Field Type	Width	Whether it is allowed to be empty	Primary key
Semester	xueqi	Varchar	20	N	Y
System	xmo	Integer	—	Y	N
Professional number	zhuanyeno	Integer	—	Y	N
Grade number	Imo	Integer	—	Y	N
Class number	banno	Integer	—	Y	N
Student number	studnum	Integer	—	Y	N
Accommodation information	roominfo	Varchar	—	Y	N
Disciplinary date	wjrq	Varchar	—	Y	N
Disciplinary type	wjlx	Varchar	—	Y	N
Cause of discipline	wjyy	Varchar	—	Y	N
Remark	wjbz	Varchar	8	Y	N
Add a person	addman	Varchar	8	Y	N

TABLE 6: Comprehensive evaluation information.

Field description	Field identification	Field type	Width	Whether it is allowed to be empty	Primary key
Semester	xueqi	Varchar	20	N	Y
System	xmo	Integer	—	Y	N
Professional number	zhuanyeno	Integer	—	Y	N
Scholar logo	xh	Varchar	—	N	Y
Grade ID	degreeid	Varchar	—	N	Y
Actual score	score	Number	—	N	Y
Review status code	appshzt	Number	—	N	Y
Original score	ysfz	Number	—	N	Y
Score value remarks	fzydbz	Varchar	—	N	Y
Remark	wjbz	Varchar	8	Y	N

score, and approval status. The field description is listed in Table 6.

4.3. Analysis of Simulation Results. In order to further verify the stability of the system, the detection accuracy of abnormal traffic intrusion is analyzed. First, SVM and K-means classifiers are trained on the original target network traffic, and the auxiliary data set trained by the classifier is classified and trained to obtain the target recognition results. The experimental data are shown in Figure 3.

The blue part represents the classification results based on the original target network traffic, and the yellow part represents the classification results of the auxiliary data sets newly generated by training SVM, K-means, and other classifiers. It can be seen that the auxiliary data sets improve the monitoring accuracy to varying degrees, which proves the effectiveness of the machine algorithm in the field of data target recognition.

In addition to the test of target recognition accuracy, combined with the recognition accuracy, this study makes statistics on the number of hidden nodes in each data set, and the results are shown in Figure 4.

It can be seen from Figure 4 that when the number of hidden nodes is less than 100, the training accuracy and test accuracy gradually increase with the increase of nodes. The training accuracy continued to rise until the hidden nodes reached about 550 and began to decline gradually. The test accuracy gradually shows a steady state when the
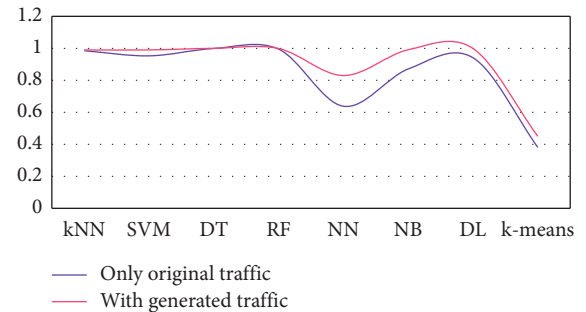

FIGURE 3: Classification performance of abnormal traffic in terms of accuracy.

hidden node is about 150 and begins to decline when the hidden node is about 550. Therefore, it can be concluded that the optimal number of hidden nodes of the system is about 550.

Finally, this study constructs a relatively complete intelligent college student work management system based on machine learning algorithm and carries out performance test. The test content mainly includes business function, data function, and system function, including student authentication management, large data test, stress test, and resolution test. During the system test, the maximum number of concurrent users is 500, the average processing success rate is greater than 99%, the average time is less than 1 second, and the maximum time is 2223 milliseconds. The system response time curve is shown in Figure 5, and the specific function test results are
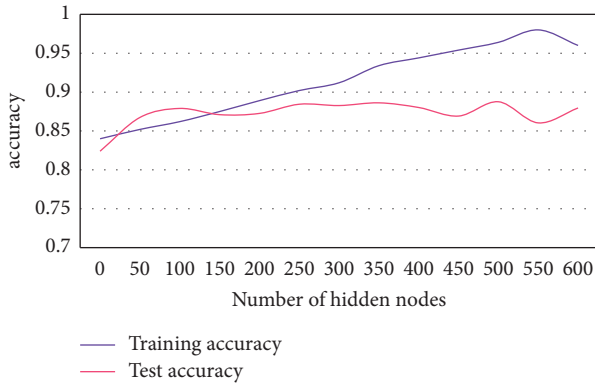
FIGURE 4: The accuracy increases with the number of nodes.

FIGURE 5: System response time curve.

listed in Table 7. It proves the effectiveness and enforceability of the college student management system designed in this study.

5. Development Strategy of College Student Management Based on Artificial Intelligence Application

5.1. Management Strategy of Intelligent College Student Work. From an economic point of view, the use of college student management system will greatly improve the efficiency of the overall work of the school and save a considerable part of the cost. First of all, the development of the system makes the computer replace the complex labor of manpower, which is very convenient for the collection, sorting, archiving, retrieval, and use of students' materials. Second, student information does not need to be transmitted in paper form. In addition to the necessary student status information, it can be digitized, which reduces the waste of resources in the school and saves the material storage pressure of confidential archives. In addition, this study designs a relatively simple and feasible student information management system, which occupies less resources. Generally, the campus network server can meet the operation requirements of the system, can bear the minimum 300 user load, and can still operate normally in the peak period.

Starting from the system development environment, the university student management system based on machine learning can support a variety of data types, provide comprehensive control instructions, and cooperate with the development of various work of the school. It can also ensure the modularity of the code, which is feasible for the later system maintenance and the expansion of the new system. At the same time, the monitoring scheme of abnormal flow data is added in the design process of the system, and the security of the system is also well guaranteed.

College student management system has a wide range of users, including students, teachers, administrative staff, school leaders, and logistics department, and other user groups with different roles and functions may have the right to log in to the system for data operation in their respective fields of responsibility. Different user roles have different use
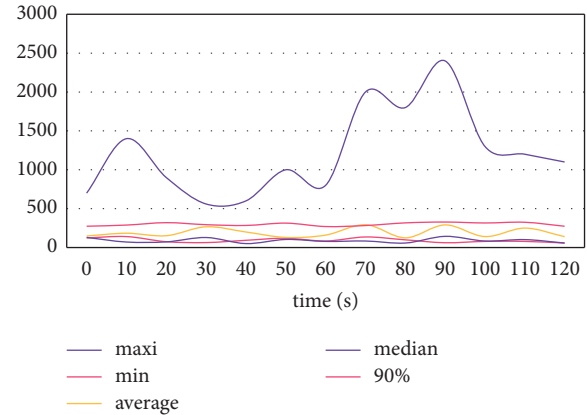
methods and permissions for the system, and the student information they can view is also different, which protects the privacy of students to a certain extent. At the same time, the use of computer student management system reduces the possibility of a large number of data contact. Therefore, compared with the traditional student data management mode, it can improve the security and confidentiality of student information. In order to further maintain the stability of the system, the designer needs to strictly follow the relevant standards in the overall architecture, software and hardware, database, report programming, input program, and other aspects of the student management system and set the viewing and modification permissions. In the system, the public information and personal information viewing authority are classified and designed to avoid data leakage caused by too complex data exchange process. In the functional modules such as system review and evaluation, we strictly follow the computer and assist manual inspection and confirmation to avoid too much human interference and ensure the fairness of the system.

The construction of college student management platform needs to start from the actual situation of the development of colleges and universities; combined with the school running philosophy and characteristics, the actual needs of school management are taken as the premise, and the cultivation of professional talents is taken as the goal. The design of student management system platform needs to follow the principle of integrity, organically combine the essential requirements of serving students with all links of student management, and integrate the coordination and cooperation of school level departments into the overall application of student management system. In addition, the data statistical content of the student information management platform should not only include performance management, mental health analysis, and other data but also provide enrollment data analysis, student learning analysis, and other aspects, with deeper data mining functions. This puts forward higher requirements for the design of college student management system. The construction of each functional module of the system should be gradually improved and continuously optimized to give better play to the overall advantages of the system.

TABLE 7: System function test results.

Test case	State	Result	Remarks
Business functions			
Certification management	It has been executed	Test passed	
Selection management	It has been executed	Test passed	
Student work management	It has been executed	Test passed	Functional testing
Student performance management	It has been executed	Test passed	
Student apartment management	It has been executed	Test passed	
Data function			
Big data volume test	It has been executed	Test passed	
Load test	It has been executed	Test passed	Performance testing
Pressure test	It has been executed	Test passed	
Unauthorized access	It has been executed	Test passed	
System function			
Resolution test	It has been executed	Test passed	
Browser test	It has been executed	Test passed	Compatibility test
Platform test	It has been executed	Test passed	

5.2. Intelligent College Education and Teaching Management Strategy. At this stage, with the support of artificial intelligence and other technologies, the intelligent teaching platform has preliminarily realized the real-time monitoring of the classroom and the analysis of students' learning situation, which is not only conducive to teachers' supervision of students' learning but also can dynamically manage the classroom according to students' actual classroom behavior, but also conducive to the interaction between students and teachers, and feedback their own problems to the learning platform in time. Interactive classroom depends on the realization of human-computer interaction technology but also requires teachers to master the intelligent teaching platform. In this context of intelligent education, to create an interactive classroom, teachers should timely change their traditional education and teaching mode and gradually adapt to the construction of online courses in the new era. First of all, in terms of teaching methods, teachers can use the intelligent teaching platform to create teaching situations, which is the same as the actual offline teaching methods. The intelligent teaching platform should also have complete classroom activities such as classroom guidance, teacher-student interaction, and Q&A, classroom practice, and chapter test. Second, in addition to basic teaching activities, the intelligent teaching platform also includes the integration of a variety of online resources and the construction of high-quality courses, as well as diversified and targeted teaching design case sharing, which is conducive to teaching mutual assistance between different teaching teams. Finally, with the help of new technologies such as multimedia, speech recognition, and virtual reality, the intelligent classroom platform can carry out a variety of teaching activities around students, increase the fun of the classroom, provide targeted teaching content, and further promote the improvement of students' comprehensive quality and personalized development.

In addition to the support of schools and the change of teachers' team teaching concept, the overall education management system based on Internet of things, artificial intelligence is inseparable from the efforts of all fields of society. First of all, we need to strengthen the research and development of the core technology of educational intelligence and constantly apply artificial intelligence and other technologies to the education industry. For example, the data training and prediction algorithm based on machine learning studied in this study can be used to predict students' learning behavior in the classroom management system and can also push appropriate educational resources based on students' learning interests. Another research direction of machine learning, deep learning algorithm can analyze data information such as text, image, and language, so as to identify the learning performance of students in the learning system and carry out intelligent evaluation and personalized push. In addition, various search engine technologies, data mining algorithms, language processing systems, and other computer technologies can improve technical support for the construction of intelligent classroom management system.

In a word, the management of college students in the context of artificial intelligence of the Internet of things is inseparable from the efforts of many parties. It not only needs the basic technical support of science and technology, society, and education system but also needs teachers to improve their students' management ability and the change of new educational ideas. Only with the joint efforts of the internal and external environments, we can promote the establishment of intelligent student management system faster.

6. Conclusion

With the continuous expansion of the scale of colleges and universities, the number of students also increases. In addition, the student-centered education goal requires that college education should cover many aspects, including education and teaching, community activities, mental health, ideological and political education, and comprehensive quality. Accompanied by not only educational pressure, but also makes the management of students' affairs in colleges and universities more complex. Therefore, it is

very important to change the traditional student management mode with the help of modern computer technology. It can save a lot of manpower and material resources for colleges and universities and ensure the smooth, efficient, and intelligent operation of students' education and teaching. Starting from the actual needs, this study designs an intelligent college student work management system based on machine learning. The computer program is optimized with the help of cyclic neural network, and the k-nearest neighbor model is used to fill and classify the system data. At the same time, considering the security of campus database, the system anomaly monitoring model is established through dark network traffic and ip2vec algorithm to identify the system error data traffic. Finally, the university student work management system is constructed. The intelligent student work management system is one of the strategies to adapt to the development of colleges and universities in the new era. It can improve the efficiency of student management and service, so as to assist the development of basic education and teaching. We hope this study can provide some reference for the application of college student management in the future.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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