

Research Article

Application of Abnormal Network Traffic Classification in the Teaching System of Distance Political Course

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Based on the method of the abnormal network traffic classification system of the CNN network, the traffic is encrypted according to the split and capture strategy, which makes it difficult to find the most important value in the whole world. An unconventional network is proposed based on CNN. This method combines several substeps, such as image creation, image selection, sorting, and end-to-end structure, and automatic learning of indirect relations is detected from the required original input and output, and it is possible applicable globally. The ideology of the ideological and political courses and political system of these distance universities is aimed at ensuring the political direction of college students and ensuring a comprehensive understanding of socialism in order to effectively conduct higher education courses. The ideological and political courses of a certain college have different characteristics from other courses. The teaching system provides students with an independent learning environment. Students can use the courses, teaching materials, text, drawings, and video information provided by the system to deepen their understanding and application knowledge.

1. Introduction

The long speech recognition function is the enhancement of long-distance speech recognition, which means that the speech recognition can be verified along the long distance between the acquired sound source and the microphone. With the advancement of technology and the growth of time, short-term identification can no longer meet people's needs. People are more interested in improving the performance of DSR because it is not only widely used but also easy to be recognized by people—DSR computer integration is widely used in noise control systems in modern family cars, conferences, and automatic speech translation for communication between people with disabilities. In modern homes, remote voice recognition systems can be used to easily detect the interaction between people and household appliances, telephones, and entertainment equipment. As an effective defense mechanism, the detection of abnormal network traffic classification can detect unpredictable attacks and

provide important technical support for understanding the captured network status. The abnormal classification of network traffic refers to the type of network traffic that has a harmful effect on normal network usage, is different from normal traffic, and causes network performance to be reduced or even unusable. The causes of abnormal network traffic are divided into performance factors, which are caused by improper network structure design or improper use, such as improper flow control and network equipment failure. Ideological and political courses in remote universities always provide teacher courses, multimedia and information courses, and video conferences for most students. The use of static hypertext technology will help students enhance classroom knowledge and meet their personal needs. The knowledge connectivity component is always involved in connecting education with related knowledge and policy networks, which can expand students' knowledge, improve their complete understanding of knowledge, and increase students' interest in learning. Ideological and

political courses and policy types in distance universities can always increase the purpose of students' self-study. After studying the courses and policies under consideration, students can strengthen the test-related knowledge points to solve problems that students are not willing to check. Teaching system refers to a system in which teachers and students work together to achieve their learning goals. It consists of teaching staff, teaching information, teaching materials, and equipment. It includes three subsystems: control, implementation, and feedback. The control system determines the movement direction and internal flow of the entire system, and improves the performance of other systems. Teachers play an important role in prevention and enforcement. In the teaching process, teachers teach students and their activities always include the following: teachers should set teaching goals and plan teaching activities; in terms of organization, teachers should organize resources related to educational activities to achieve the teaching goals and organize content related to teaching activities; in teaching, teachers emphasize students' learning and provide help in learning; in assessment, teachers need to clearly understand students' cognitive status and achieve their goals. In order to accomplish these tasks, knowledgeable teachers must have positive teaching ethics, knowledge structure, teaching ability, personality qualities, and learn from each other.

2. Related Work

The literature describes the microphone signal model in the remote environment to represent the sensory response in the room. Next, it explains the basic concepts of remote speech recognition, including the output of advanced unit segmentation, speech format, speech format, keywords, and search algorithm [1]. The forward-looking components include prescreening as well as windows and configurations [2]. Therefore, the main function of remote language recognition has been developed [3]. The literature introduces the principle of the sound localization algorithm to the difference in the arrival time of the sound, and the use of the result can optimize the delay of each channel and the sound of the entire beam. On this basis, MVDR beamforming and superdirectional beamforming are performed to reduce cross-sectional noise [4]. Two post-Zelinski postfilters and McCowan refilters will be described later to further reduce residual noise. A Pocket sphinx encoding experiment based on the Ubuntu system was carried out to prove the effectiveness of the SDBF and MVDR repair methods in improving the language recognition in remote areas and checking the filtered beam links [5]. The literature introduces two adaptive acoustic models, MLLR and MAP, to compare the performance of the two algorithms through a simulation environment. The results show that MAP has a positive test result [6]. Next, we briefly show the shopping tools and the actual environment. The experimental structure and actual results confirm that MAP can reduce distant noise [7]. The literature introduces the IMAGE model used for simulation, respectively showing many main components of speech recognition, such as introductory speech

signal, speech output, acoustic modeling, speech structure, vocabulary, and search algorithm, and further explains this process [8]. The literature introduces the TDOA environment method for extracting preexposed audio sources and the beamforming microphone system used for DSBF to reduce interactive noise. These two beamforming modes use MVDR beamforming and SDBF methods, respectively. Next, two screening methods were used, one was after Zelinski and the other was after McCowan, to further filter the interventions and conduct a simulation system experiment [9]. Through the built-in Pocket sphinx speech recognition test in the Ubuntu system, the MVDR and SDBF beam methods have been proven to effectively improve the performance of the remote speakers, and beamforming and filtering have been proven to have better system performance [10].

3. Speech Recognition Enhancement and Abnormal Network Traffic Classification Model Design

3.1. Speech Recognition Enhancement. In an airtight situation, place a powerful mono sound source and surround M microphones. Usually, in addition to the direct sound signal on the side of the sound, the microphone also collects the audio signal (also called the return signal) that appears in the interior wall and background noise [11]. In the time domain, the mode of microphone settings can be described as:

$$y(n) = x(n) + v(n), \quad (1)$$

$x(n)$ can be further described as:

$$x(n) = d(n) + u(n). \quad (2)$$

Among them, $d(n)$ is accompanied by the direct direction of the spoken word, and the first spoken symbol $u(n)$ is the reverberation symbol of the latter. Therefore, $y(n)$ can be further defined as:

$$y(n) = d(n) + u(n) + v(n). \quad (3)$$

In the "STFT" section, patterns can be displayed as follows:

$$x_m(k, n) = d_m(k, n) + u_m(k, n). \quad (4)$$

In the middle, m represents the microphone serial number, and k represents the frequency point. Therefore, the mode of the MCLP filter can be displayed as:

$$u(n) = \sum_{m=1}^M \sum_{l=0}^{L_g-1} g_m(l) x_m(n - \tau - l). \quad (5)$$

In order to facilitate identification, combining formulas (4) and (5), the output signal passing through the MCLP filter can be displayed in the following way:

$$\hat{d}(n) = x(n) - \hat{G}^H(n) \tilde{x}_\tau(n). \quad (6)$$

Among them, the prediction $G(n)$ of the prediction filter is defined as:

$$\widehat{G}(n) = [\widehat{g}_1(n), \dots, \widehat{g}_M(n)]. \quad (7)$$

$$\widetilde{x}_\tau(n) = [x_1(n-\tau), \dots, x_1(n-\tau-L_g+1), \dots, x_M(n-\tau), \dots, x_M(n-\tau-L_g+1)]^T. \quad (8)$$

The best prediction filter question can be shown here:

$$\widehat{G} = \arg \min_G \sum_{n=1}^N \log \|\widehat{d}(n)\|_2^2. \quad (9)$$

The operating system is updated to:

$$\widehat{w}^i(n) = \left(\frac{\|\widehat{d}^{i-1}(n)\|_2^2}{M + \varepsilon} \right)^{-1}, \quad n \in \{1, \dots, N\},$$

$$\widehat{G}^i = \arg \min_G \sum_{n=1}^N w^i(n) \|x(n) - G^H(n) \widehat{x}_\tau(n)\|_2^2, \quad (10)$$

$$\widehat{d}^i(n) = x(n) - (\widehat{G}^i)^H \widehat{x}_\tau(n), \quad n \in \{1, \dots, N\}.$$

At this point, the least square problem in prediction can be described as:

$$\min_G \text{tr} \left[G^H \widehat{Q}^i G \right] - 2\Re \left\{ \text{tr} \left[G^H \widehat{R}^i \right] \right\}. \quad (11)$$

The definition of these two variables is as follows:

$$\widehat{Q}^i = \sum_{n=1}^N \widehat{w}^i(n) \widehat{x}_\tau(n) \widehat{x}_\tau^H(n),$$

$$\widehat{R}^i = \sum_{n=1}^N \widehat{w}^i(n) \widehat{x}_\tau(n) \widehat{x}^H(n). \quad (12)$$

Therefore, the prediction filter can be displayed in the following ways:

$$\widehat{G}^i = (\widehat{Q}^i)^{-1} \widehat{R}^i. \quad (13)$$

We checked the possibility of the proposed VFFQR-RLS algorithm and compared the average two-digit bit error rate of the adaptive algorithm, as shown in Figure 1.

In order to better reflect the return performance of the algorithm, we tested the above four performance indicators, namely SRMR, FWSegSNR, CD, and PESQ, as shown in Figure 2.

The comparison of the three algorithms' CD and PESQ is shown in Figure 3.

3.2. Classification of Abnormal Network Traffic. Hot exchange: The flow network or the flow network in the data packet is represented by the k-dimensional concept, and the flow n is represented by the following concept:

The delayed speech reverberation signal $\widetilde{x}_\tau(n)$ is defined as:

$$x_{1n} = x_1 \oplus x_2 \oplus \dots \oplus x_n. \quad (14)$$

Change operation:

$$c_l = f(w \cdot x_{i,l+h-1} + b). \quad (15)$$

Visual mapping:

$$c = [c_1, c_2, \dots, c_{n-h+1}]. \quad (16)$$

Cooling operation:

$$\widehat{c} = \max\{c\}. \quad (17)$$

Forgotten Door:

$$f_t = \sigma(W_f \cdot [h_{t-1}, x_t] + b_f). \quad (18)$$

Access package:

$$g_t = \tan h(W_g \cdot [h_{t-1}, x_t] + b_g). \quad (19)$$

Input gate: The operation of this component is the same as that of the forget gate, and the result can be used to increase the node's receiving capacity.

$$i_t = \sigma(W_i \cdot [h_{t-1}, x_t] + b_i). \quad (20)$$

Intermediate state: The unit value of the memory will be combined with the calculation result above.

$$C_t = f_t * C_{t-1} + i_t^* g_t. \quad (21)$$

Output gate: This time, the hidden layer value is obtained by calculating the central area of C_t and the output product o_t .

$$o_t = \sigma(W_o \cdot [h_{t-1}, x_t] + b_o),$$

$$h_t = o_t * \tanh(C_t). \quad (22)$$

HAST-NAD will automatically detect features based on raw flow data, and the required data must be raw flow data. Today, most defect detection methods use manual traffic patterns, and most public networks used for defect detection do not include raw traffic data, such as Kyoto2009, NSL-KDD, and so on. A small amount of data selected from the two databases ISCX2012 and DARPA1998 covers the original traffic [12]. They were released in different years, and the methods and types of attacks included are also different, which is especially possible to test the diversity of the methods discussed in this chapter [13].

If the SAM-HAST, calaamadiisana file has a small number of common errors, for example, the error date 07/32/1998 appears in the folder labeled Experiment/week 2, the format of the log traffic data stream DARPA1998 is not required. First, use the pkt2flow tool to split the original flow

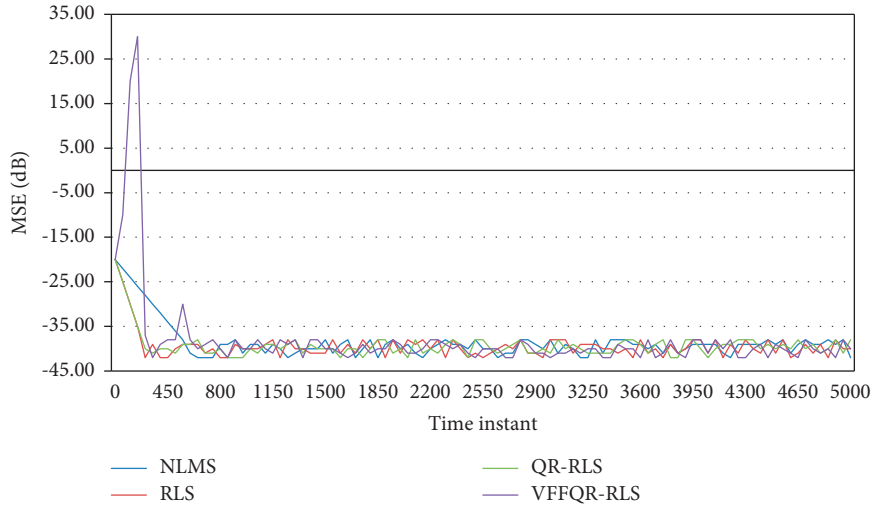


FIGURE 1: Comparison of adaptive algorithms with minimum average deviation error.

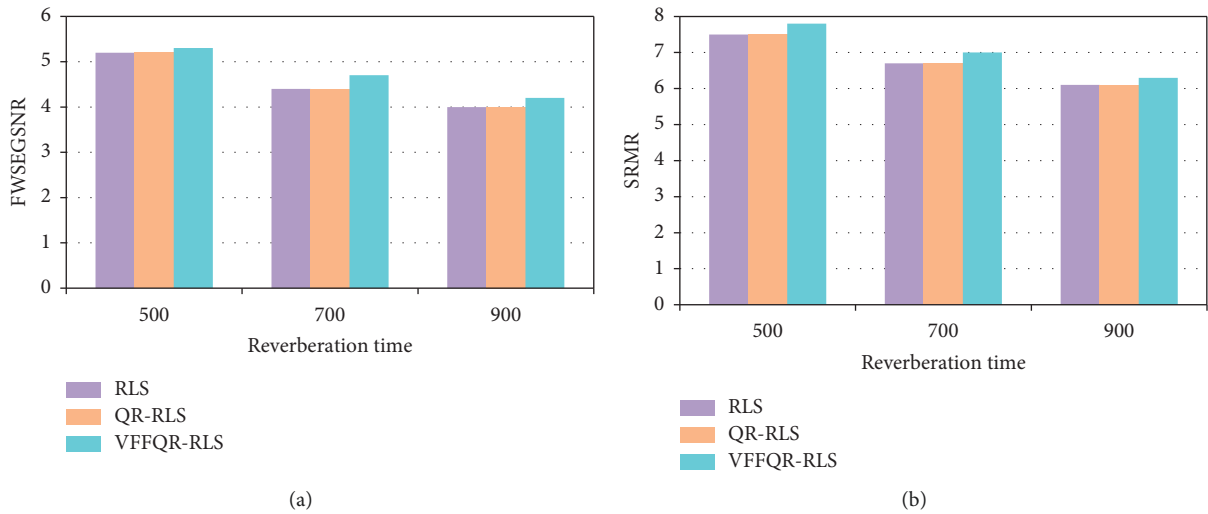


FIGURE 2: Comparison of three algorithms' SRMR and FWSegSNR. (a) Weighted segmented SNR in frequency domain. (b) Signal reverberation modulation energy ratio.

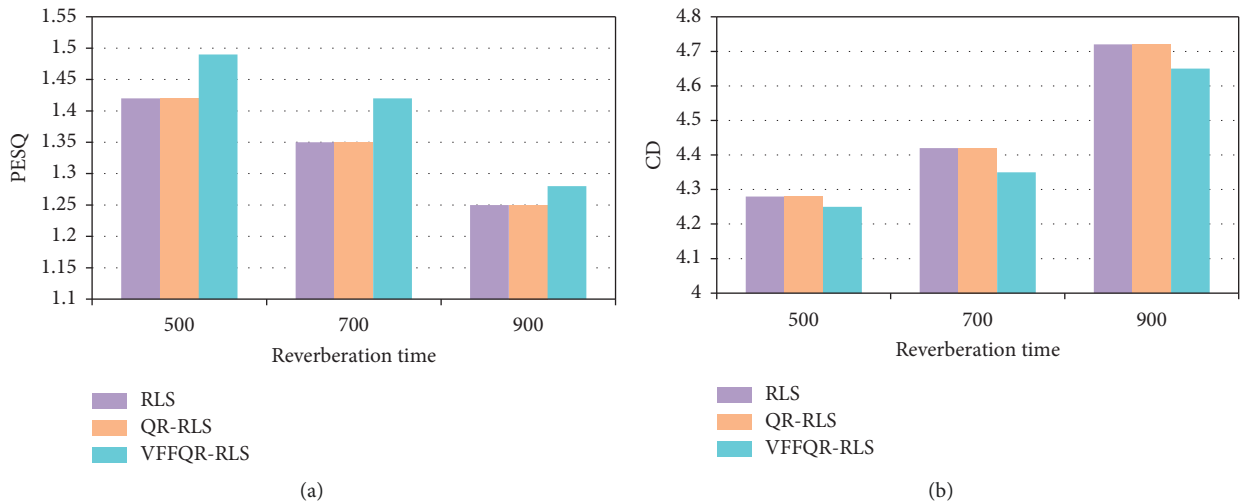


FIGURE 3: Comparison of three algorithms' CD and PESQ. (a) Spectrum assessment of perceptual speech quality. (b) Cepstrum distance.

into separate flows. Then, check the marked files and delete duplicate records and resolve conflicting records. Finally, the stream files are sorted according to the file tags. Table 1 shows the statistics of unplanned results.

Similarly, the stream data model of ISCX2012 data should also precede the stream format required by HAST-NAD, and the production process is similar to the DARPA1998 manufacturing process. It should be pointed out that according to the provider's instructions, the data on June 16 only contained files of 11 attack types, which have been deleted, and daily traffic is regarded as regular types. Since ISCX2012 has not yet conducted regular training and test distribution, the undistributed past results of the unit are consistent with the proportion of 60% in the established training and 40% in the regular test. Table 2 shows the statistics of unplanned results.

The special method is to store the known traffic vector by connecting the neural network and LSTM before performing the simulation of this arrangement. Regarding the data of each sample, there are 500 samples selected with different flows. The t-SNE number used in this unit is provided by the original author of the algorithm. Since the vector has only five dimensions, PCA steps beyond the original code will not be executed, and t-SNE will be automatically generated for dimensionality reduction. The obvious effect of the size reduction is shown in Figure 4.

The t-SNE traffic result is shown in Figure 5:

4. The Design and Practical Application of the Teaching System of Ideological and Political Courses in Distance Universities

4.1. System Requirement Analysis. In the process of designing and implementing the mobile teaching support system for college ideology and policy courses, we implemented the concept of software development and completed the three steps of application analysis, system design, and job identification [14]. In software development, application analysis is an important part of development. First of all, we need to start with a real understanding of ideological and political courses in colleges and universities, solve the problems and difficulties in teaching, meet the technical requirements, and then find a way to solve the problem [15]. We also need to start solving specific problems with technical conditions, and the procedure is technically feasible. By analyzing the performance, you can analyze the types of modules required in the system, analyze the possibility of doing so, and finally complete and verify the actual requirements [16]. By analyzing the application of the mobile teaching assistant system in ideological and policy courses, it can be determined that the functions of the system are consistent with the roles of students and teachers.

The requirement of this work is to determine the function of the mobile-assisted teaching system in the university's ideological and policy courses to meet the needs of students in the network teaching system. Relying on the profound understanding and effective application of the classroom learning of university psychology and ethics

TABLE 1: Summary table of DARPA1998 data set preprocessing results.

Traffic category	Training set		Test set	
	Quantity	Proportion (%)	Quantity	Proportion (%)
Normal	848990	34.36	458546	41.69
Dos	1551230	63.19	590618	53.70
Probe	47983	1.89	40217	3.57
R2L	6392	0.16	8051	0.63
U2R	228	0.02	217	0.01
Total	2456919		1089730	

TABLE 2: Statistics table of preprocessing results of ISCX2012 data set.

Traffic category	Training set		Test set	
	Quantity	Proportion (%)	Quantity	Proportion (%)
Normal	880716	97.17	592810	97.17
BFSSH	4078	0.36	2685	0.36
Infiltrating	6017	0.65	4007	0.56
HttpDos	2080	0.13	1382	0.33
DDoS	11663	1.37	8438	1.28
Total	905685		600443	

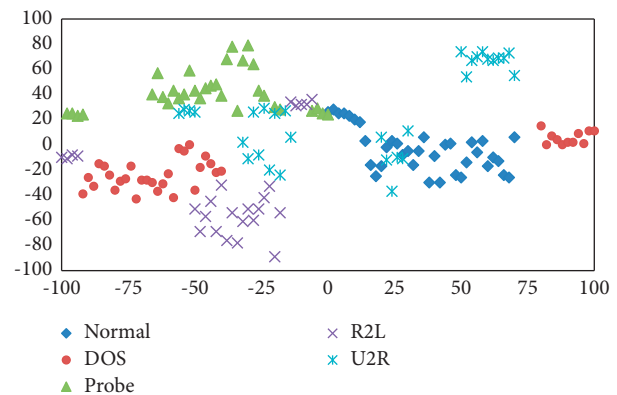


FIGURE 4: Flow vector network-visual SNE results.

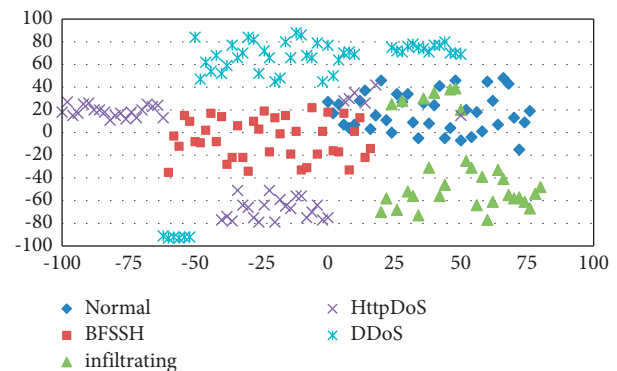


FIGURE 5: NAD network t system traffic visualization results.

courses, I believe that the main carrier of the mobile teaching assistant system in psychology and ethics courses is the university, so that students can make full use of their time to expand in-depth understanding of ideological and political courses, anytime, anywhere. Therefore, the system focuses on sports, while giving priority to the role of teachers and answering questions between teachers and students to provide suggestions and discussions. In order to improve the relationship between teachers and students, a private message format was developed. In general, in the analysis, we found that the mobile assistant teaching system in the college ideology and policy curriculum has four components, each of which has a different function.

4.1.1. Home Page Module. The homepage is responsible for the important task of attracting and stimulating college students' learning concepts and interest in policy courses. It includes browsing of recommended modules, browsing of discussion topics, browsing of specific site messages, and browsing of research content.

The first is the recommended function. The proposed activity not only emphasizes the impact of teacher guidance on students but also puts forward a number of suggestions that can show greater similarity. On this page, the teacher recommends courses to us, and the system gives a series of recommendations at the top of the system based on a specific recommendation algorithm, which enhances activities, helps students choose learning materials, and promotes students' learning progress.

The second is the task of discussion. It regularly engages students in academic dialogues by discussing texts, thereby establishing relationships between different students and different teachers and students.

Finally, it has a private messaging function on the site. Through this work, teachers and students, students and students can have direct communication and guidance, increasing students' direct support for teacher education, and teachers are also needed in the mobile learning space based on local networks today.

4.1.2. All Course Modules. All course materials are displays of all the resources outlined in the book, including lesson planning theory, practice theory, reference book theory, and video data theory.

The view of teaching lesson plans mainly includes classroom lesson plans of teachers in the teaching of ideological and political courses in colleges and universities, including different format types.

The case exercise view mainly includes some supplements to the content of the teacher in the teaching of ideological and political courses in colleges and universities, and some materials that can encourage students to study and discuss and practice improvement after class.

The data reference in the reference book view usually contains various content related to the ideological and political courses in the university. They are arranged in books, and different students can download them according

to their needs and hobbies, or download data for online sharing.

Course video views usually contain public courses on the same teaching topic offered by different teachers. This section will provide high-quality courses for ideological and policy teachers of various universities, so that college students can effectively choose and watch online videos. The research and development of this work combines high-quality knowledge and political knowledge and teaching resources in various schools and is related to improving students' learning and promoting students' independent learning.

4.1.3. Course View Module. Course review modules are usually played or viewed in different courses. It usually includes course introduction view, course catalog view, and course review evaluation view.

The introduction map of the course is usually to show the basic content of the course ideas and policies and to provide suggestions for teachers. Therefore, the students of the course can have a general understanding of the course.

The general view of the course catalog usually lists various ideological and political courses in chapter order to introduce course materials in an orderly manner. The course evaluation view is mainly used for the evaluation of the courses by the users of the mobile teaching assistant system, and it is also a course of course feedback. Good and popular courses are highly rated by students, and they are easier to be recommended in the homepage module.

4.2. System Structure Design. System design is an important link in the overall development of the system. In the previous chapter, we developed an overall plan to design a mobile teaching support system for the university's mentality and policy curriculum during the application analysis process. In this chapter, we will first introduce the general fixes for mobile teaching assistants, an Android-based ideological policy curriculum system for colleges and universities. After adapting to work, the mobile teaching assistant system was divided into a series of limited parts, and the system was slowly revised.

The most important part of the C/S development framework is to realize the application response interaction between the client and the server, which is the interaction between the client and the product, and analyze the information on the mobile device through the service response. When designing the mobile teaching program for college ideology and policy courses, we introduced a WEB server, which ensures rapid response to data in the form of a mobile network, which can then be sent to the client data packet. The interactive category is divided into client interaction category and server connection category; the client interaction category is divided into application technology category and result analysis category; server integration category has application processing category and data access category. The server is connected to the database, course information, and other databases.

TABLE 3: Functional test cases of mobile teaching assistant system for ideological and political courses.

Numbering	Test introduction	Function completeness/data correctness
CS001	Try user login	1. Users cannot register and log in normally. 2. Teacher registration and admission
CS002	Course theory test	1. Click to view the teacher's suggestions and enter the research perspective. 2. Personal suggestions are usually provided, please click on the tips to learn more about the suggestions. 3. Click on the scroll to recommend letters, and click to display the main activities
CS003	Course debate thinking test	1. Click the chat button to enter the conversation view. 2. Enter the topic view of the discussion, click to view, enable the view. 3. We can respond to the topic by clicking to see the overview. 4. Click the send button to skip the text editor

TABLE 4: Functional test results of the main modules of the teaching aid system.

Testing object	Function description	Interface	Perfect function
Login interface	Can input normally	Harmonious	Good
Registration interface	Whether the registration is normal	Harmonious	Good
Recommended interface	Is the recommendation normal	Harmonious	Good
Learning discussion interface	Is the reply normal?	Harmonious	Good
Private message function in the site	Whether the notification is normal	Harmonious	Good

4.3. *System Module Design.* The Android-based mobile teaching system for universities and university courses is a customer-based mobile learning system that provides many learning materials and supports users to share learning materials. Faced with extensive data collection, users can use mobile assistants to teach according to the teacher's suggestions, and the system will also recommend learning materials based on the algorithms recommended by them.

In the suggestion system, the system displays popular video course forums, website links, reference resources, current activity policies, current short comments, teacher recommendations, and so on. But for personal suggestions, algorithm suggestions should be used, and the preferences of specific users should be trained. Choosing someone is regarded as the user's preference for certain things. For example, if a student wants to watch the latest news about an issue, this policy may be the student's first choice. Therefore, we use the user preference model to judge users and recommend specific learning tools for current users. However, for a specific user, his current preferences are different from his future education preferences, and the user's interests will change with his or her anxiety. Therefore, due to the size of the current system, the factor is the user's preference.

All course materials are based on the basic functions of the Android-based mobile teaching assistant system, which is used for college students' mentality and policy courses. This is an important part of improving course materials and running courses.

All topics are a module that introduces all the courses in the thought and policy process. There are study plan theory, case study theory, electronic data reference, and video courses. Android-based mobile teaching customers should restrict all parts of the course, create various course materials and lists on the left side of the interaction, and create teaching plan instructions, textbook information buttons, case exercise buttons, and video buttons on the right side of the association. After the user clicks on the selected course part, all course parts in the current course will be entered. After the user selects the desired subject area, he enters the toolbar. After selecting the subject, enter the subject field.

Jump to different web pages of different products, and display the download function online.

The course viewing part has a video presentation, a course preview, a video recording view, a video rating view, and a video screen view. We found a combination of different perspectives in one interface. We first understand the concept and realistic vision of video politics and plan the course introduction, the visualization of video recording, and the visualization of video viewing according to the design requirements and different formats. For the snapshot screen view, we need the snapshot screen view to be completely transparent so that the video can be watched normally.

The most important task of ideological and political video broadcasting is the origin of the broadcasting video. First, the user clicks on the item that needs to be played, and then the system jumps to interact with the course materials. Course links include introductory insights, course overview insights, course review insights, visual effects insights, and pop-up insights. Connected to the video player, there are pause button, fast forward button, and horizontal screen button, which can control the video progress to provide high-quality video playback.

From the perspective of learning ideas and political processes, and the theme of game theory, we use the communication between the two stages. First, according to the test or module recommended for this system, the system will also provide a list of videos. Using these video tools, we designed VideoLitActivity to perform page operations, click to enter the video part of the course, and use Player Activity to view the course capture. Of course, real-time server access still has adapter classes, course introductions, course books, course reviews, and block viewing classes, such as the Video part, as well as the Basebean class, HttpContants class, and MyHttpClient class.

4.4. *Analysis of Test Results.* In order to test the robustness of the auxiliary teaching principles of mobile teaching in college ideological and political courses and the size of the gap, we tested the system through case experiments. It is

divided into overall inspection unit and system inspection to ensure that each task and overall operation are satisfactory. In order to obtain an objective audit to implement the system, it is necessary to perform a comprehensive audit. Table 3 lists the test cases applicable to the mobile assistant system in the university's concepts and policy courses.

Through the above use cases, we conducted a black box test on the system and checked each task. Table 4 lists the results of attempts to create an Android-based mobile learning assistant system for the mindset and policy courses of universities and universities.

5. Conclusion

Language recognition has been widely considered by scholars due to its wide application and management level. The research of language recognition in remote areas is inevitably the complexity of time course and remote environment. Many algorithms for long-distance speech avoidance come at the cost of increasing the complexity of the algorithm. Therefore, this article is based on an improved method of voice microphones, which is considered to be difficult to collect large amounts of data. A customized method to improve the auditory boundary is proposed. In addition to improving the speech effect of the conclusion, a remote area recognition system is designed and constructed. At the same time, the proposed algorithm is tested, and a series of verifications are carried out on the algorithm. Experiments have proved the feasibility and effectiveness of the algorithm. The B/S method is used for teaching infrastructure and strategies, and the B/S method is based on the instruction of modern information technology tools (such as digital technology, network communication technology, computer technology, and virtual reality technology). The learning environment that combines learning topics with ideological and political courses and modern technology not only adapts to the needs of the development of the times but also combines the reality of modern college students, educating students according to their proficiency, and application methods. Be consistent with everyone and promote the development of independent exploration spirit and learning ability. However, due to the lack of knowledge and information technology in some teacher networks, the network teaching system is not entirely feasible. Second, due to the lack of network personnel and technical management, the system cannot be maintained in time, and the speed of information changes is slow, which will also affect students' learning. The phenomenon of "Renren Network" is widespread on the school's intranet, lacking resources and technical support, and it is impossible to establish an ideological and political education network. In order to better meet the personal needs of the Internet environment and effectively complete the mindset and policy courses, schools must be supported.

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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