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Research Article

Higher Education Multimedia Teaching System Based on the Artificial Intelligence Model and Its Improvement

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In order to improve the quality of multimedia teaching in higher education, this article analyzes the problems existing in multimedia education in higher education, improves the multimedia teaching system, and proposes a three-dimensional multimedia image surface extraction method based on crease. Moreover, this article uses the level set method to segment the Gaussian smoothed multimedia data to obtain the preliminarily divided target fault area and then extracts the fault surface as the feature of the target area. The analysis demonstrates that the multimedia teaching system of higher education based on the artificial intelligence model can effectively enhance the multimedia teaching mode and promote its further development.

1. Introduction

Online learning has the characteristics of open field, high complexity, and redundant information. The unreasonable use of media and resources may cause confusion and cognitive overload of learners and affect their academic performance. Cognitive load is the cognitive resources consumed by learners in the process of information processing and processing [1]. In addition, as the most important cognitive element in multimedia learning, cognitive load has a significant effect on the effectiveness of multimedia learning. How to accurately measure cognitive load is a pressing research issue that must be resolved as soon as possible.

Humans inevitably consume cognitive resources in the process of learning and problem solving, and the information elements that individuals can process in unit time are limited. Cognitive overload occurs when the number of cognitive resources required to process information exceeds the capacity of personal working memory resources [2]. Learning in a multimedia environment involves the use of different types of technical media. At the same time, different teaching media, resource presentation methods, and application of various clues make it difficult to effectively control the cognitive load of learners. Therefore, the problem of cognitive load in the multimedia learning environment is more worthy of study [3]. Mayer explored the cognitive process of learners in the field of multimedia learning and summed up the famous multimedia learning theory to balance the cognitive load level of learners. In addition to this, the basis of multimedia learning theory is the dual-coding theoretical assumption and the dual-channel theoretical assumption. Combining these two assumptions with generative learning methods, generative theories of multimedia learning assert that learners actively select relevant visual and linguistic information from learning materials. In addition, it stores visual and linguistic working memory separately by establishing a link between them. Furthermore, by allocating cognitive resources and working memory capacity to establish reference links and integrating mental representations and prior knowledge, the cognitive load effect will occur when the amount of information received by the learner exceeds the working memory capacity [4]. At present, the cognitive load measurement methods used in the field of multimedia learning include subjective measurement, behavior analysis, dual-task analysis, performance analysis, eye tracking, and physiological measurement. The application of various methods provides the possibility for the objectivity and accuracy of cognitive load measurement. This article uses the method of literature analysis to sort out the cognitive load measurement methods and related indicators used in the field of multimedia learning and analyze the advantages and disadvantages of various methods to provide reference for subsequent research [5].

The media network has the following characteristics: resource distribution, whether it is a physical resource or a logical resource, its functions show strong distribution, and users can share resources; real-time transmission, the signal is generally continuous, which requires that the transmission must have strong real-time performance, and if there is a delay, the quality of playback will be reduced; interactivity, in the multimedia system, users can process and modify information. From the above characteristics, the multimedia system is more complex, and the requirements for service quality are also higher [6]. Therefore, better service-aware control capability can help the system to detect problems more timely and reduce transmission delay. Based on this, related scholars have made the following research. Kim and Park [7] propose a comprehensive service quality monitoring system based on user perception. We analyze the security privacy affecting multimedia information data, construct the interaction model between security factors and network services, explore the location of important nodes, build a service quality perception platform, and effectively control service perception. Zawacki-Richter et al. [8] proposed a network service-aware control method based on stochastic learning. The network topology change is sensed through the heartbeat packet observation mechanism. At the same time, in order to reduce the observation error, a combination of Markov partial sensing and random learning adaptive sensing is used to achieve the purpose of sensing adjustment. However, the above two traditional methods cannot guarantee the service perception range, and due to the complexity and variability of multimedia networks, they cannot adapt to network changes, and the adaptive control performance is poor. In order to solve these problems, Yang et al. [9] proposed their study based on the QoS adaptive multimedia service awareness control method. QoS stands for quality of service, and this adaptive control technology can control various services under the condition that the network infrastructure remains unchanged. By understanding the requirements of multimedia services for QoS, combined with adaptive control theory [10], a QoS service-aware control model is constructed to improve service quality and make multimedia technology better serve users.

Multimedia technology is used in many different ways. Using multimedia in the classroom will have a positive teaching impact for university instructors. The university's new curriculum reform includes the addition of the general technology course as a new course. The purpose is to improve students' ability to creatively solve practical problems, stimulate students' interest in learning, and strengthen students' technical literacy through the application of technical ideas and methods [11]. The rapid development of society has made more and more teaching use multimedia technology, and the rational use of general technology at the university stage is also of great help to students, so as to expand students' knowledge in classroom teaching and learn from them. This increases the channels for students to acquire knowledge so that students can effectively understand the development of students while learning communication technology [12]. The university stage is a critical period for students to learn, and it is also an effective stage for students to cultivate in many aspects. Cultivating students' technical literacy is more conducive to students' understanding of multimedia, and in the process, they can also better understand the content of communication technology [13]. Therefore, in the process of teaching, teachers need to infiltrate communication technology into the classroom according to the specific content of classroom teaching, thereby effectively stimulating students' interest in learning. The development of communication technology is multifaceted. The most prominent one is that it is closely related to science and technology so that students and teachers can explore the mysteries of communication technology together. The application of multimedia technology in the classroom is also more conducive to students' memory of knowledge, so as to effectively improve the learning efficiency of students [14]. Communication technology is also a kind of technical learning, and it needs the correct guidance of teachers to cultivate students' technical literacy, thereby contributing to the all-round development of students. In order to improve students' technical literacy and general quality in the face of university communication technology, professors should actively encourage students to learn more about communication technology through multimedia. Students are essentially able to comprehend the educational importance of communication technology thanks to the professors' and students' cooperative cooperation [15]. Teachers skillfully use multimedia technology in the process of teaching to improve students' technical literacy, thereby effectively improving the effect of classroom teaching. The addition of multimedia technology at the university stage is more conducive to improving students' interest in learning. Compared with the traditional teaching mode, the rapid development of information technology is more conducive to students to improve their learning efficiency, and learning new content will become easier to understand, and teachers will become more effective in classroom teaching. Giving full play to the role of multimedia technology can effectively improve the quality of classroom teaching [16].

In order to comprehensively improve teachers' multimedia teaching technology and increase the design and integration of multimedia courseware, it should be divided and studied from two perspectives. Among them, it is necessary to strengthen the training of school teachers, increase the opportunities for teachers to learn and exchange experience, and strengthen teachers' ability to learn and master multimedia teaching technology through training, so as to effectively increase the design and integration of multimedia courseware and improve courseware. We design content and mode and use the learning and training of multimedia courseware teaching technology knowledge to improve their professional skills and promote the improvement of teachers' multimedia courseware design ability [17]. In order to enhance their ability to design multimedia courses, teachers must not only develop their own multimedia knowledge and abilities but also increase professional training opportunities in the field, create supportive work environments for them, and support the seamless integration of multimedia course materials into college history teaching [18].

For the application of multimedia courseware in college history teaching, the evaluation mechanism of multimedia teaching should be comprehensively improved. For the application of multimedia courseware in history teaching under the current rapid development of network environment, the extension and development of teachers' multimedia teaching ability needs to be established. On the basis of improving the multimedia teaching evaluation mechanism, on the one hand, increasing the implementation of multimedia informatization has a very important role and significance for all fields and aspects of teachers' teaching [19]. On the other hand, in the application of multimedia courseware, it is necessary to use multimedia information technology to design and prepare history courseware according to the fundamental needs of history courses and to use multimedia technology in course narration [20].

This article analyzes the problems existing in multimedia education in higher education, improves the multimedia teaching system, and improves the effect of multimedia teaching in modern colleges and universities.

2. Intelligent Multimedia Image Processing Technology

2.1. The Process of Extracting Teaching Information of 3D Level Set Based on Crease. In this research, a crease-based information extraction method for three-dimensional level set instruction is proposed. Figure 1 depicts the primary process. Before the process is implemented, Gaussian smoothing is performed on the ant volume data. Firstly, the three-dimensional data volume is segmented by the level set method, and the target area and background area of multimedia teaching information in the data volume are preliminarily divided. Since the target area of the multimedia teaching information segmented by the level set is a volume structure with thickness, further processing is required to obtain a three-dimensional surface reflecting the spatial topology of the target area. The skeleton structure of the target body can completely retain the topological shape information of the target body under the condition of reducing the redundant components of the original target body as much as possible. Therefore, this article regards the teaching information as the skeleton feature of the segmented data body to extract.

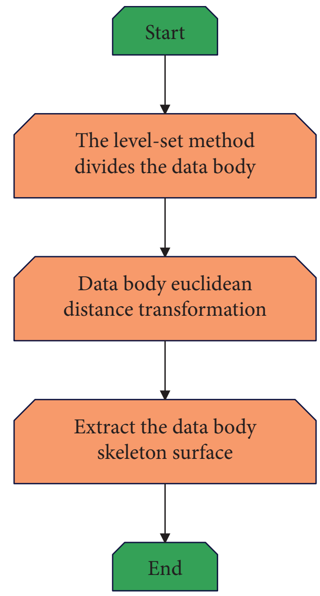


Figure 1: Schematic diagram of the process of extracting teaching information of 3D level set based on crease.

2.2. Level Set Partitioning of 3D Data Volume. For images with uneven gray distribution, the model establishes an image model to describe the real distribution of the image and combines the clustering properties of local gray values to construct an energy term to measure the correctness of region division.

The established image model is shown in formula (1). Among them, I is the data obtained by measurement and J represents the real data value, which measures the physical properties of the target itself. It is, therefore, assumed that h can be estimated with a piecewise constant, that is, J can be divided into N disjoint regions $\Omega_1, \Omega_2, \ldots, \Omega_N$, and this division must satisfy $\Omega = \cup_{i=1}^{N}\Omega_i, \Omega_i \cap \Omega_j = \varnothing$. When $\neq j$, for each disjoint area, there is a corresponding constant $c_1, c_2, \ldots, c_N$ as the mean value of the multimedia teaching information attribute value of each area. b is the deviation field used to measure the unevenness of the gray level. Since b itself is assumed to vary slowly, it can be considered as a constant in the local field. n is additional noise.

Next, this article discusses the clustering properties of local gray values. For each point y of the entire data domain Ω, with the point as the center and a given ρ as the radius, a circular domain $o_y \triangleq \{x: |x - y| \le \rho\}$ can be obtained. Based on the assumption that the deviation field d changes slowly, there is an equivalence relationship shown in formula (2) for points within o_y. Based on the assumption that J can be estimated with a piecewise constant, since for a point in each region Ω_i, its real data value $J(x)$ can be approximately replaced by a constant C_i, the image model of formula (1) can be approximated to the approximate model shown in formula (3). Moreover, it is approximately considered that the noise satisfies the zero mean, and the distribution obeys the normal distribution:

$$I = bj + n, \tag{1}$$

$$b(x) = b(y), x \in o_y, \tag{2}$$

$$I(x) \approx b(y)c_i + n(x), x \in o_y \cap \Omega_i. \tag{3}$$

The range of o_y is divided into N clusters by intersection with each Ω_i, the cluster centers of which are denoted as

$m(y) \approx b(y)c_i, i = 1, \ldots, N$. The gray value of the region o_y is divided by the K-means clustering algorithm, and the clustering criterion equation of each point y can be obtained as shown in (4). Among them, $K(y-x)$ is a nonnegative window function, also called a kernel function, which satisfies $K(y-x) = 0, x \notin o_y$:

$$\xi_y = \sum_{i=1}^{N} \int_{\Omega_i} K(y-x)\left|I(x) - b(y)c_i\right|^2 \mathrm{d}x. \quad (4)$$

The local clustering criterion function ξ_y is used as the evaluation index o_y to divide $\left\{o_y \cap \Omega_i\right\}_{i=1}^{N}$. The smaller the value of function ξ_y is, the better the effect of this division is. Therefore, when the optimal partition $\{\Omega_i\}_{i=1}^{N}$ is determined for the entire Ω, the value ξ_y of the local clustering criterion equation of all points y must also be the smallest. By integrating ξ_y over all points in the entire Ω domain, the energy term shown in (5) will be obtained. Both the final segmentation result of the image and the estimation of the deviation field can be obtained by minimizing the energy term shown in (5). In practical application, the kernel function K can be freely selected, and the truncated Gaussian function shown in formula (6) is used in this article. The radius ρ is the same as the domain radius of o_y, and its selection should be determined according to the actual degree of inhomogeneity of the 3D data volume:

$$\xi \triangleq \int \left(\sum_{i=1}^{N} \int_{\Omega_i} K(y-x)\left|I(x) - b(y)c_i\right|^2 dx \right) \mathrm{d}y \quad (5)$$

$$K(u) = \begin{cases} \frac{1}{a} e^{-|u|^2/2a^2}, |u| \leq \rho, \\ 0, |u| > \rho. \end{cases} \quad (6)$$

The value of the level set function takes a positive or negative sign, which can divide the data domain 2 into two disjoint regions Ω_1 and Ω_2. The function $\phi: \Omega \longrightarrow R$ is defined as the level set function, and the entire data body can be divided as in formula (7) by judging the sign of the function value. For the case of $N > 2$, it is necessary to specify multiple level set functions to divide the subregion $\{\Omega_i\}_{i=1}^{N}$:

$$\Omega_1 = \{x\colon \phi(x) > 0\}, \Omega_2 = \{x\colon \phi(x) < 0\}. \quad (7)$$

The membership functions of regions Ω_1 and Ω_2 are defined as $M_1(\phi) = H(\phi)$ and $M_2(\phi) = 1 - H(\phi)$, where H is the Heaviside function, and the energy function of (5) can be expressed in the form of (8) by exchanging the integration order. For convenience, $C_1, \ldots, C_N$ is expressed in the form of a vector $c = (c_1, \ldots, c_N)$, and the level set function ϕ, the vector c, and the deviation field b are used as variables for the energy ξ. Among them, in order to simplify the expression of ξ, the part shown in (9) is represented by e_i:

$$\xi(\phi, c, b) = \int \sum_{i=1}^{N} e_i(x) M_i(\phi(x)) \mathrm{d}x, \quad (8)$$

$$e_i(x) = \int K(y-x)\left|I(x) - b(y)c_i\right|^2 \mathrm{d}x, \quad (9)$$

The energy $\xi(\phi, c, b)$ defined above can be used as the data item of the energy function of the model, and the energy function of the model is shown in (10). Among them, $L(\phi) = \int |\nabla H(\phi)| \mathrm{d}x$ represents the area value of the zero-level contour of ϕ, so it can be used to constrain the smoothness of the contour. $R_p(\phi) = \int p(|\nabla\phi|)\mathrm{d}x$ is the signed distance function, where ρ represents an energy density function, which is defined as shown in (11):

$$F(\phi, c, b) = \xi(\phi, c, b) + vL(\phi) + \mu R_p(\phi). \quad (10)$$

$$p(s) = \frac{1}{2}(-1)^2. \quad (11)$$

This article uses the level set method for nonuniformly distributed images to process the ant volume data after Gaussian smoothing. The main steps of the method are as follows:

(1) The initial contour can be chosen at random because the model utilized in this article is not sensitive to that decision. Additionally, variables are set for the time iteration step size, the scale parameter used in the convolution operation, and the local clustering's neighborhood radius. At the same time, for the convenience of numerical calculation, the equations involved in the model are approximated.

(2) Next, this article performs iterative operations on the variables, c and b. The whole algorithm aims to minimize the energy function and guides and controls to update the values of c and b sequentially in each iteration process. This article uses formula (12) and combines the standard gradient descent method to iteratively update φ. Meanwhile, in each iteration, the formulas shown in (13) and (14) are used to update c and b, respectively:

$$\frac{\partial\phi}{\partial t} = -\delta(\phi)(e_1 - e_2) + v\delta(\phi)\mathrm{div}\left(\frac{\nabla\phi}{|\nabla\phi|}\right) + \mu\mathrm{div}\left(d_p(|\nabla\phi|)\nabla\phi\right), \quad (12)$$

$$\widehat{c} = \frac{\int (b * K) I u_i \mathrm{d}y}{\left(b^2 * K\right) I u_i \mathrm{d}y}, i = 1, \ldots, N 且 u_i = M(\phi(y)), \quad (13)$$

$$\widehat{b} = \frac{\left(IJ^{(1)}\right) * K}{J^{(2)} * \mathrm{K}}, J^{(1)} = \sum_{i=1}^{N} c_i, u_i . J^{(2)} = \sum_{i=1}^{N} c_i^2 u_i. \quad (14)$$

(3) In the process of each iteration calculation, the algorithm calculates $L(\phi) = \int |\nabla H(\phi)| dx$, that is, the area value of the evolution surface, and then calculates the difference between it and the area value of

the evolution surface after the previous iteration. Moreover, this article judges by the preset threshold T. If it is less than T, it means that the surface is in a state of convergence; that is, the contour surface approaches the boundary of the target body, and the algorithm ends. At this time, the area contained by the zero level set surface is determined as the target area of multimedia teaching information.

2.3. Extracting Multimedia Teaching Information with Skeleton Features. It can be seen from the foregoing that the skeleton structure is one of the main ways to describe the topological structure of objects in image processing. The skeleton is located in the center of the target body, and on the premise of completely retaining the shape information of the original target body, the redundant components of the original object are reduced as much as possible. The data volume for segmenting the target area of multimedia teaching information has been obtained in the foregoing, but the current multimedia teaching information structure is a volume structure with thickness. Therefore, this article regards the teaching information as the skeleton feature of the target area to extract and finally obtains a three-dimensional surface reflecting the spatial topology of the multimedia teaching information structure.

Distance transform has been widely used since it was first proposed and has important applications in digital image processing, motion trajectory planning, and navigation. Among them, the Euclidean distance transformation is more widely used because of its high precision and consistent with the actual distance. Usually, in a two-dimensional space, a binary image can be considered to contain only two kinds of points, where the value of the target point is 1, and the value of the background point is 0. After Euclidean distance transformation, the image is transformed from a binary image to a gray value image that looks very similar to the original image. The value of the target volume will rise layer by layer from the boundary to the interior as each pixel in the inner region of the target volume takes on the Euclidean distance between it and the closest background point.

The data to be processed in this article is three-dimensional, and the amount of data is relatively large. Therefore, the multidimensional Euclidean distance transform algorithm is used to process the data volume divided by the level set method. This method can effectively process multidimensional data and has high efficiency.

For binary data in three-dimensional space, the data points can be divided into target points and background points. O is used to represent the point set of the target body, and the complement of O, that is, the set of background points, is represented by $B = \overline{O}$. Any point in the 3D data volume I is denoted by $X = (x_1, x_2, x_3) \in Z^n$, and $m = |0|$ is the number of points inside the target volume. The value of X for each point is defined by

$$f(X) = \begin{cases} 1, X \in O, \\ 0, X \in B. \end{cases} \quad (15)$$

The neighborhood of point X is $N(X)$. When g is a point in three-dimensional space, its neighborhood range is defined as the 26-neighboring points of point X (except X is the boundary of the three-dimensional data volume), which can be represented by

$$N(X) = \left\{Y | Y = (y_1, y_2, y_3) \in I, |y_i - x_i| \leq 1, 1 \leq i \leq 3, Y \neq X\right\}. \quad (16)$$

At the same time, the definition of the boundary point set of the target body is given. They belong to the background points and the adjacent points of the target point. The boundary point set can be represented by

$$S = \{Y | Y \in B, \exists X \in O\colon Y \in N(X)\}. \quad (17)$$

For any point X, its Euclidean distance transformation is to find the point with the smallest Euclidean distance between the background points and the point X. At the same time, it is equivalent to finding the point in the boundary point set S that can make the minimum distance between X and the background. g represents the Euclidean distance transformation from the original three-dimensional data volume I to the distance field data volume I', and d represents the Euclidean distance. The expression of function g is shown in

$$\begin{aligned} g(X) &= d(X, B) = d(X, S), \\ &= \min\{d(X, Y), Y \in S\}. \end{aligned} \quad (18)$$

For any point v in the target point set, the closest point to the background is defined as $NP(X)$, as shown in formula (19). Often, there may be multiple points with the smallest Euclidean distance, in which case one of them is generally chosen at random. When $X \in S$, $NP(X)$ also has a corresponding definition as shown in formula (20), and for the points in the boundary point set, the Euclidean distance is 0:

$$NP(X) = \text{argmin}\{d(X, Y), Y \in S\}, \quad (19)$$

$$NP(X) = X, X \in S. \quad (20)$$

The whole algorithm starts from the boundary point, then advances the search target point inward layer by layer, saves the points of each layer through the container queue

Q

Z

$d\min(Z) = d(Z, NP(Y))$, and then iterates continuously

$NP(X)$

until the entire queue is empty. For any point X in the target point set, information such as its nearest boundary point $NP(X)$ and the minimum Euclidean distance $d_{\min}(X)$ between them is recorded. The main operations for queues are insertion points from the tail of the queue and removal points from the head of the queue.

Step 1: The algorithm traverses the three-dimensional data volume processed by the level set method and determines the value of each data point. If the value is negative, we mark the point as the target point and add it to the target point set O. If the value is nonnegative, we mark the point as a background point and add it to the background point set B, where the value is 0, and we

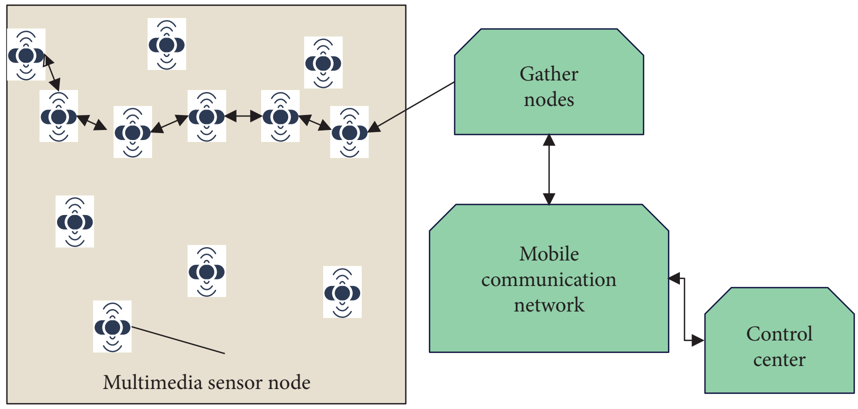


Figure 2: Structure diagram of multimedia network system.

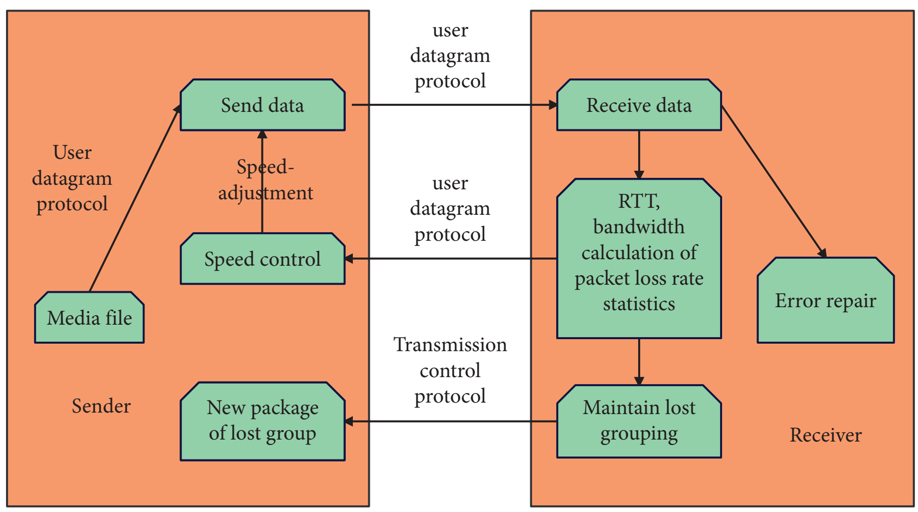


Figure 3: Quick transmission process of command information.

mark it as a boundary point and add it to the boundary point set S.

Step 2: The algorithm initializes all the point information in the target point set O, and the minimum distance point $NP(Y)$ between it and the background is initially empty, and the minimum Euclidean distance $NP(Y)$ between it and $d_{\min}(X)$ is initially positive infinity, and the queue Q is initialized to the boundary point f.

Step 3: If the queue is not empty, iterative processing is being done because the target point has not yet been processed. For each point Y in the queue, the algorithm advances towards the interior of the target body through its set of adjacent points $N(Y)$. If the neighboring point Z of the target point has not been processed and the minimum Euclidean distance $d_{\min}(X)$ recorded by Z is larger than the minimum Euclidean distance between Z and $NP(Y)$, the algorithm inherits the minimum distance point $NP(Y)$ from Y to the background point, that is, $NP(Z) = NP(Y)$ and $d\min(Z) = d(Z, NP(Y))$. Then, the algorithm adds Z to the queue, and removes Yr from the queue Q if all the neighbors of Y are processed.

Step 4: When the third step is over, the last recorded $NP(X)$ and minimum Euclidean distance $d_{\min}(X)$ of all target points will be optimal. Therefore, the algorithm replaces the value of the target point itself with the recorded $d_{\min}(X)$ and updates all point values of the background point set to 0.

Step 5: The Euclidean distance transformation is completed, and the operation is ended.

3. Higher Education Multimedia Teaching System Based on the Artificial Intelligence Model and Its Improvement

The classic multimedia network system mainly includes multiple sensor nodes, a convergence node, and a control center. The architecture is shown in Figure 2.

In the embedded multimedia terminal control system, any function needs to complete the task instruction through information transmission. However, with the rapid increase of media files, the system control rate will slow down and the

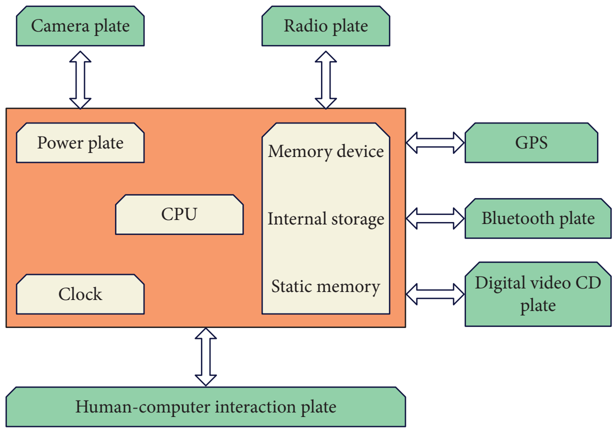


FIGURE 4: The overall hardware architecture of the multimedia terminal control system.

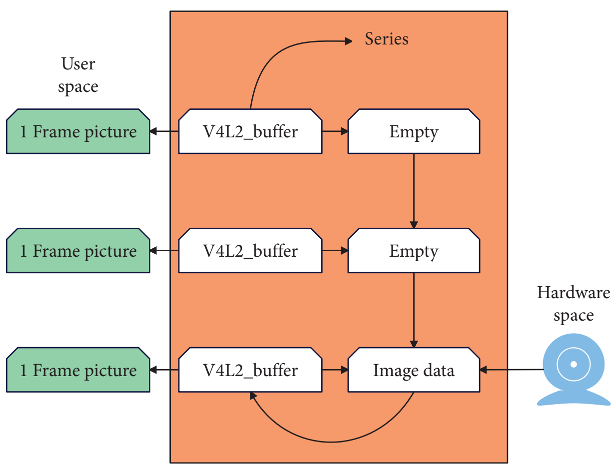


FIGURE 5: Operation instruction code.

resource consumption will also increase. In order to improve the real-time data transmission rate, the EMFTP proposed in this article can make the system have better timeliness, reduce resource consumption, and improve the overall performance of the system. EMFTP mainly adopts transmission control protocol (TCP) and user datagram protocol (UDP) and uses application layer control to complete the fast transmission of instruction information. Its architecture is shown in Figure 3.

The core of the embedded vehicle multimedia terminal control system hardware is the Freescale *i*. MX31 processor. It consists of power supply board, storage device, video monitoring board, radio board, GPS navigation board, Bluetooth board, human-computer interaction board, DVD board, etc., as shown in Figure 4.

Since the Windows CE 5.0 system has a camera driver, the application program only needs to use the system call function to open the camera equipment and clarify the image information contained in the camera. This article uses the Linux video device driver V4L2 to manage the camera image information, and its working principle is shown in Figure 5.

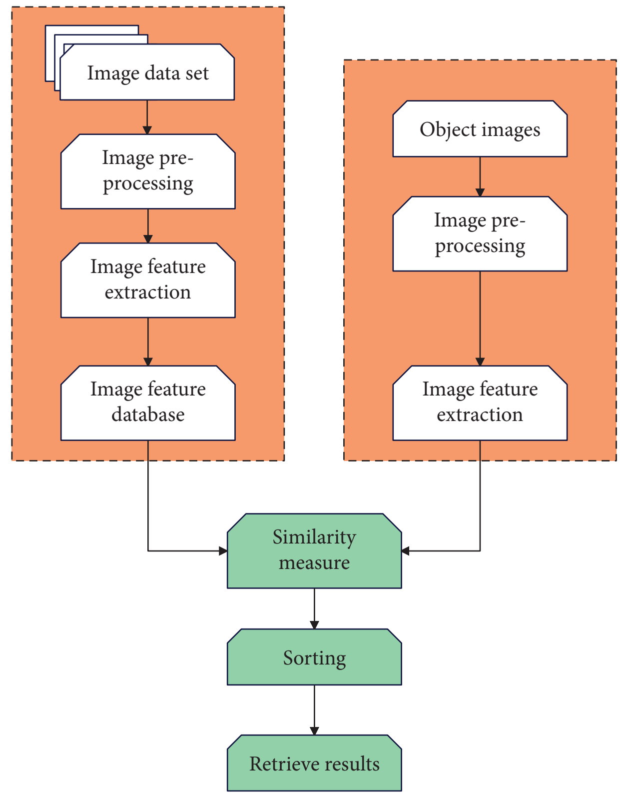


FIGURE 6: Principle framework of image retrieval method.

This work extracts picture features, fuses the extracted features, and enhances the accuracy of image retrieval by combining a variety of features after a thorough analysis of the original deep learning. The framework of the fast retrieval method for multimedia image information based on improved deep learning is shown in Figure 6.

This system is based on C/S architecture, uses MySQL database to store data, and uses C++ development environment to generate audio and video codec library to send and receive streaming media data, as shown in Figure 7.

The structure of the GUI is not fixed, which facilitates flexible changes in the future. For example, instead of putting several functions in one window, the windows are divided by function so that the function of each window is concise and simple. In this layer of program development, visual programming tools are mainly used, such as 4GL's visualBasic and PowerBuildep DelDhi. It is mainly used to check the legitimacy and validity of data input and to control the amount of data input. Through simple control, the amount of data exchange between this layer and the functional layer can be reduced, which is especially important in network transmission. Figure 8 shows the system architecture.

Figure 9 shows a case diagram of image recognition of multimedia teaching courseware by the higher education multimedia teaching system based on the artificial intelligence model.

On the basis of Figure 9, this article conducts multimedia teaching evaluation for the higher education multimedia

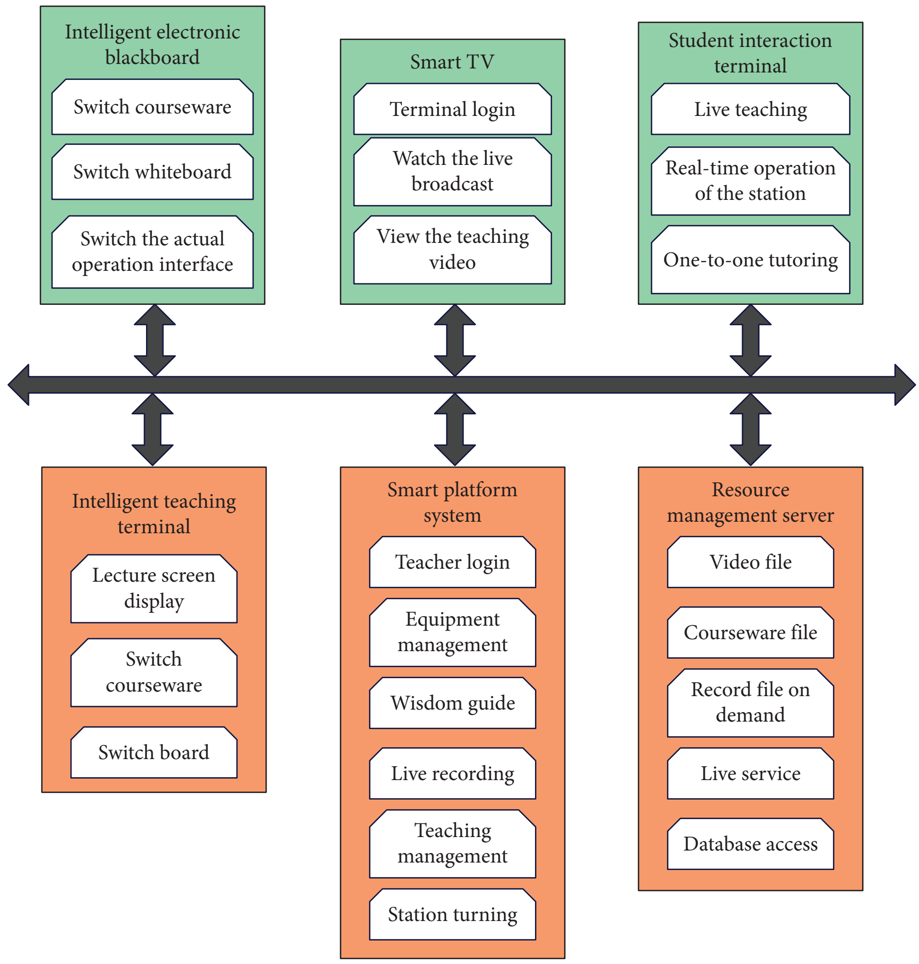


Figure 7: Architecture diagram of the multimedia teaching system.

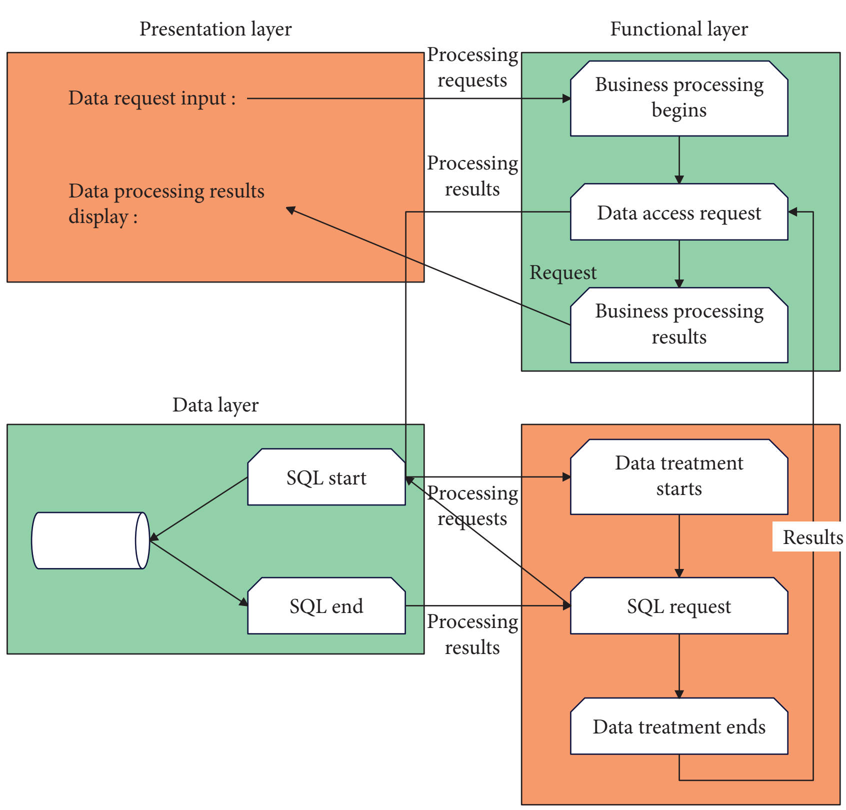
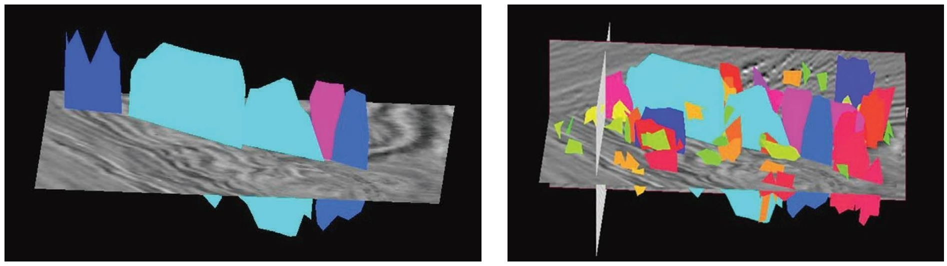


Figure 8: System frame structure.



(a) (b)

Figure 9: Case diagram of image recognition of multimedia teaching courseware by higher education multimedia teaching system based on the artificial intelligence model: (a) case 1 of multimedia stereo image recognition courseware and (b) case 2 of multimedia stereo image recognition courseware.

Table 1: Teaching rating of higher education multimedia teaching system based on the artificial intelligence model.

Num	Teaching improvement	Num	Teaching improvement
1	88.28	15	84.65
2	85.35	16	87.29
3	84.60	17	83.51
4	84.29	18	88.15
5	87.33	19	88.58
6	83.19	20	87.80
7	88.82	21	83.44
8	83.26	22	86.78
9	86.50	23	86.04
10	88.39	24	86.54
11	87.42	25	84.75
12	87.41	26	84.52
13	86.36	27	84.92
14	83.32	28	85.56

teaching system based on the artificial intelligence model proposed in this article and obtains the results shown in Table 1 through the final results of multiple evaluation statistics.

It can be seen from the above analysis that the higher education multimedia teaching system based on the artificial intelligence model can effectively improve the multimedia teaching mode and promote the further improvement of multimedia teaching.

4. Conclusion

University is a very critical period in a student's academic life, and there is a lot to be learned. Since general technology is only a unified examination subject, students' attention is not high. The students' initiative, freedom, and originality in the learning process will be severely hampered if the standard teaching method is employed to impart knowledge. Additionally, as they learn, pupils will eventually tire out and lose interest in what they are learning. Therefore, appropriate use of multimedia display can effectively stimulate students' various senses and thereby improve learning efficiency so that students' learning life becomes no longer boring and effectively improve teaching quality and teaching efficiency. This article analyzes the problems existing in multimedia education in higher education to improve the multimedia teaching system and improve the effect of multimedia teaching in modern colleges and universities. The analysis shows that the multimedia teaching system of higher education based on the artificial intelligence model can effectively improve the multimedia teaching mode and promote the further improvement of multimedia teaching.

Data Availability

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

Conflicts of Interest

The author declared that there are no conflicts of interest regarding this work.

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