

Retraction

Retracted: Computational Technologies for IoT Networks Application in English Classroom Teaching

Security and Communication Networks

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Security and Communication Networks has retracted the article titled “Computational Technologies for IoT Networks Application in English Classroom Teaching” [1] due to concerns that the peer review process has been compromised.

Following an investigation conducted by the Hindawi Research Integrity team [2], significant concerns were identified with the peer reviewers assigned to this article; the investigation has concluded that the peer review process was compromised. We therefore can no longer trust the peer review process, and the article is being retracted with the agreement of the Chief Editor.

References

- [1] H. Liu, Y. Miao, and S. Zhang, “Computational Technologies for IoT Networks Application in English Classroom Teaching,” *Security and Communication Networks*, vol. 2022, Article ID 3877230, 10 pages, 2022.
- [2] L. Ferguson, “Advancing Research Integrity Collaboratively and with Vigour,” 2022, <https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/>.

Research Article

Computational Technologies for IoT Networks Application in English Classroom Teaching

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The purpose of this paper is to combine digital sensing technology with English character recognition in order to improve its overall effectiveness. In addition, this paper will comprehensively analyze the functional requirements of the digital system in teaching management and will clarify the functional goals that the digital system of teaching management needs to achieve. In addition, this study does an in-depth analysis of the many functions of the system and categorizes each of those functions into a number of distinct business operations. In addition, the English classroom teaching mode is improved with the help of machine learning, deep learning, and digital technology. In addition, an English classroom teaching system that is based on IoT Networks technology is constructed in this study. In addition to this, the study investigates the algorithmic flow of the functional structure modules of the system, develops each functional module of the system in detail, and elucidates the software design schemes at all levels connected to each functional module. In conclusion, the experimental research presented in this work validates the efficiency of the algorithm model presented in this paper. The findings of the study indicate that the digital English teaching system constructed in this work is effective, which supports the findings of the study.

1. Introduction

The advancement of information technology and the use of it in the teaching of English is a process that goes from surface level to more in-depth levels. Initially, the institution treated the computer as a tool for research and developed specialized computer classes in the same manner that it did Chinese and mathematics classes. After that, computers were required to assist traditional teaching, such as teaching demonstrations and individualized teaching software. Then, it is required to carry out a computer-based curriculum reform. This new curriculum is clearly different from the curriculum based on traditional teaching media such as books, chalk and blackboard, and slides, projections, and videos. Finally, the entire teaching system is required to be fully integrated with information technology, which makes fundamental changes in teaching objectives, teaching content, teaching methods, and teaching structure. From this evolutionary process, it can be seen that the degree of

integration of computers and education is getting deeper and deeper, and the impact on education is getting bigger and bigger [1].

One of the important requirements for autonomous English learning is to have the ability to collect a large amount of information and analyze and organize this information. Compared with traditional teaching, digital learning has a powerful advantage in information collection. Moreover, with these fast and flexible information acquisitions, students will be more autonomous and convenient in the selection and processing of information [2]. In digital learning, static textbooks are transformed into multimedia teaching resources that combine sound, images, graphics, text, animation, and video. At the same time, learning content is presented in a variety of ways, which improves the efficiency and quality of teaching information acquisition. The source of the information is being changed as a result of the rich knowledge information database of digital learning resources and the technologies that students may master,

such as web surfing and uploading and downloading information from the Internet. It provides rich and colorful materials with a strong sense of the times and realism for students' learning, effectively improves the quantity and quality of information, and successfully provides the possibility for students' independent learning [3].

This article builds an English classroom teaching system on top of digital sensing technology and makes use of digital technology in order to improve the traditional manner of English classroom instruction. In addition, this article combines experimental research to test the effect of the system with an analysis of the actual situation in order to increase both the intelligence of English teaching and the effectiveness of English teaching. Both of these aspects are addressed throughout the article.

2. Related Work

The building of network infrastructure has been finished in all of the world's developed countries, and all campuses of the world's universities have successfully established network connections. You are able to establish a connection to the Internet in real time if your school has an intranet. The establishment of a solid network infrastructure lays the groundwork for the development of information technology in educational institutions like colleges and universities [4]. The literature [5] constructed various digital management systems for school offices, such as scientific research information systems, logistics information systems, and financial information systems. Through the application of the information system, a digital campus management model has been realized. The school's teaching management staff can handle various businesses online on the basis of multiple platforms. In the case of diversified types of network access terminal equipment, school teachers and students can access the teaching system through Internet access anytime and anywhere, to grasp the dynamics of school teaching work in time, and to ensure the smooth development of teaching work [6]. Digital teaching systems can be efficiently linked with other information technologies to improve the efficiency of teaching management in colleges and universities have given that technologies like wireless broadband and optical fiber are widely employed abroad. In the enrollment process, the remote video technology is integrated with the teaching management system to realize the digital examination, remote interview, and other business processing for students.

In addition, it is feasible for the school to increase its awareness of the fundamental circumstances of the students through the use of remote interviews; this will allow for more efficient screening of the kids' quality and will make the admissions process more equitable [7]. In the teaching link, the teacher's classroom teaching process is recorded, and students can play the classroom teaching content at any time through the video-on-demand system, effectively improving the utilization rate of teacher resources. In the teaching link, a real-time broadcast of the teacher's classroom content can also enable students outside the school to have real-time lessons with students in the school through the network

classroom [8]. The distance classes of some famous schools in developed countries such as the United States have spread all over the world. Moreover, students located in different countries around the world can enjoy the same quality of teaching as students on campus without leaving their homes and can ask teachers to answer questions online through the remote online response system. The teaching digital system is exposed to a range of evaluation algorithms in the teaching quality evaluation link, and these scientific evaluation models are employed to conduct an objective digital evaluation of teachers' classroom quality. Through the evaluation results, teachers can clarify the lack of links in their teaching process and make targeted teaching improvements [9].

The literature [10] analyzed the business requirements of the information system in the management of university educational administration, designed the relevant functional modules of the information system, and completed the system development. The literature [11] used the J2EE software architecture to design the educational information system, divided the software into different functional hierarchical structures, and clarified the direct calling methods and coupling schemes at different levels. The literature [12] analyzed the security strategy of the teaching information management system, which effectively prevented network viruses from hacker attacks and ensured the security of teaching management data. The literature [13] adopted the cloud mode to design the architecture of the teaching management system and stored the data in a distributed structure, which effectively improves the security of the data. The literature [14] used the J2EE platform for system development and designs a teaching information management system that conforms to the process of college teaching management business. The literature [15] used NET technology to design and develop the teaching information management system, which has strong scalability. The literature [16] designed an information management system in line with the teaching management characteristics of higher vocational colleges and provided technical support for the teaching work of higher vocational colleges.

3. Digital English Character Recognition Technology

The point feature of the English picture, which also serves as the local feature of the English image, is the simplest and most frequently occurring unit for matching. Intuitively speaking, the point feature of an English picture is a local extreme point on the English image plane that has a considerable variation in brightness in multiple directions (two-dimensional). As shown in Figure 1, the neighborhood of English image point features is represented by a square, and the center of the square is the feature point of the English image. Then, for s_i in Figure 1(a), only when the translation vector is U , the difference between the target area and the domain window of s_i is small, so s_i is a feature point that is easier to locate. In Figure 1(b), there is no big difference between the window of point s_i and any area on a straight line in the English image, so s_i is not a feature point that is

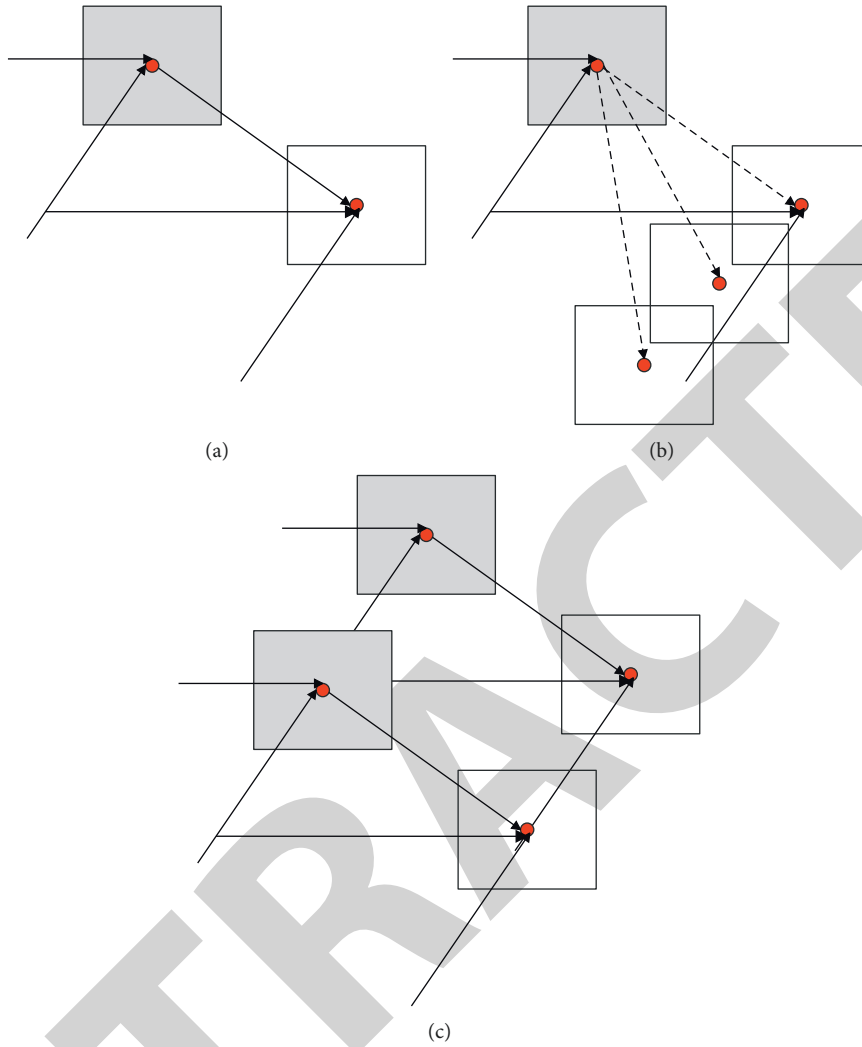


FIGURE 1: The detection of feature points in English images. (a) Easy to detect point features. (b) Point features that are not easy to detect. (c) Very difficult to detect point features.

easier to locate. The neighborhood of s , in Figure 1(c) does not include the texture details of the English image, and the difference between it and any region in the English image that does not contain texture is small, so it is also a point feature that is not easy to detect [17].

The difference between two English image area windows of the same size can be expressed by the following formula [18]:

$$E_{wssd}(u) = \sum_i \omega(s_i) [I_1(s_i + u) - I_0(s_i)]^2. \quad (1)$$

Here, $I_0(s)$ and $I_1(s)$, respectively, represent the brightness at the two English images s , u represents the translation vector of the English image, $\omega(s)$ represents the weight function related to the pixel position, and i traverses each pixel in the neighborhood window of the English image. Since the feature is performed in a single English image, it is impossible to compare regions in different English images. A method similar to the above

formula can be used to calculate the difference between the English image neighborhood window and its nearby neighborhood window (the displacement vector is Δu), which can be expressed by a similarity measure, and this similarity measure is called an autocorrelation function [19].

$$E_{ac}(\Delta u) = \sum_i \omega(s_i) [I_0(s_i + \Delta u) - I_0(s_i)]^2. \quad (2)$$

The primary method used by Harris corner detection is the gray-scale transformation of English images. The transformed gray-scale English images are then subjected to first-order derivation to produce the first-order derivative model of English images. It then positions a detector, modifies the immediate area, and moves the detector to determine the autocorrelation coefficient and detector similarity in all directions. Through the first-order Taylor expansion, the autocorrelation function can be approximated as follows:

$$\begin{aligned}
E_{ac}(\Delta u) &= \sum_i \omega(s_i) [I_0(s_i + u) - I_1(s_i)]^2 \\
&\approx \omega(s_i) [I_0(s_i) + \nabla I_0(s_i) \cdot \Delta u - I_0(s_i)]^2 \\
&= \Delta u^T H_{ac} \Delta u.
\end{aligned} \tag{3}$$

Here,

$$\begin{aligned}
H_{ac} &= \sum_{x,y} \omega(x,y) * \begin{pmatrix} I_x^2 & I_x I_y \\ I_x I_y & I_y^2 \end{pmatrix} \\
&= \begin{bmatrix} a & b \\ b & c \end{bmatrix}.
\end{aligned} \tag{4}$$

Among them, I_x is the first derivative of the pixel point $X = (x, y)$ in the x direction, the same is true, I_y is the first derivative of the pixel point $X = (x, y)$ in the y direction, $\omega(x, y)$ is the corresponding position weight function. R is the response value of a certain pixel of the Harris matrix. The Harris corner detection algorithm mainly uses the value of R to determine whether it is a corner or not. The calculation formula of R is as follows:

$$\begin{aligned}
R &= \det(H_{ac}) - \alpha \text{tr}(H_{ac})^2 \\
&= (ac - b)^2 - m(a + c)^2.
\end{aligned} \tag{5}$$

Among them, $\det(\cdot)$ and $\text{tr}(\cdot)$ are determinant and matrix trace operators, and α is a constant with a value of 0.04 to 0.06. If β is the set threshold, when $R > \beta$ is the local maximum value of the neighborhood around the point, this point can be regarded as a corner point only after these two conditions are met at the same time.

The principle of scale invariant feature transform (SIFT) is to use the original English image and Gaussian kernel convolution to establish the scale space and extract the scale-invariant features on the Gaussian difference space pyramid. SIFT is a widely used feature point detection method, which can efficiently handle changes in illumination, scale, and rotation. Because it transforms on different scales, the difference English image at different scales is obtained, which has a variety of features, such as invariant scale, invariant rotation, and invariant affine. The main idea of the SIFT algorithm is to find extreme points in the scale space to detect stable point features.

The basic idea of scale space theory is to introduce scale parameters into the English image information processing model, obtain multiscale spatial representation sequences by changing the scale parameters, and extract English image features at different resolutions in the scale space. The two-dimensional scale space is defined as follows [20]:

$$L(x, y, \sigma) = G(x, y, \sigma) * I(x, y). \tag{6}$$

Here, $L(x, y, \sigma)$ represents the constructed scale space, $G(x, y, \sigma)$ represents the introduced Gaussian kernel function, $I(x, y)$ represents the input English image, and $*$ represents the convolution operator. The expression of the Gaussian kernel function is

$$G(x, y, \sigma) = \frac{1}{2\pi\sigma} e^{-(x^2+y^2)/2\sigma^2}. \tag{7}$$

Here, (x, y) represents the x and Y pixel coordinates of the input English image, and σ represents the scale factor.

The scale space of the English image remains the same regardless of whether it is translated, scaled, or rotated. It exhibits diverse characteristics depending on the scale of the view. For instance, it displays the general outline information of the English image in the large scale space, whereas the specifics of the English image are displayed in the small scale space. Sift constantly samples the original English images based on the scale space, after which it collects a sequence of English photos of varying sizes, and then it develops the pyramid model of English images, going from large to small and from bottom to top. This model is arranged in reverse order.

The number of layers of the pyramid is mainly determined by the size of the original English image and the size of the English image on the top of the pyramid; that is, the number of layers is determined by the lowest layer and the highest layer, and the Gaussian pyramid is filtered by Gaussian difference [21]. As shown in Figure 2(a), each pyramid in the English image is Gaussian blurred with different parameters. In this way, each pyramid contains multiple blurred pyramid English images, which are called an octave.

SIFT point feature detection is performed in the scale space of difference of Gaussian (DOG), and the definition of DOG is as follows:

$$\begin{aligned}
D(x, y, \sigma) &= (G(x, y, k\sigma) - G(x, y, \sigma)) * I(x, y) \\
&= L(x, y, k\sigma) - L(x, y, \sigma).
\end{aligned} \tag{8}$$

Here, k is the scale expansion factor. In the actual calculation, the two adjacent layers of images in the Gaussian pyramid are subjected to a difference operation to obtain a Gaussian difference image, as shown in Figure 2(a).

The first step of sift point feature detection is completed by comparing two adjacent images of each dog in the same group. The extremum of the dog image is obtained by comparing the pixel of a certain point in the image with its neighborhood value. As shown in Figure 2(b), the size of the value of the point to be detected is compared with the 26 points of the upper and lower layers around it, and the extremum points satisfying both the scale space and the two-dimensional image are obtained. Figure 2(a) shows the dog pyramid model with 4 layers in each group. If we want to compare in the adjacent scales, we can only detect the extreme points in the middle two layers, and the other scales cannot be compared in the same group. If we need to detect S-scale feature points, the pyramid model of a dog must be a layer image, and the pyramid model is obtained by subtracting the two adjacent layers of the Gaussian pyramid, so we need a layer image (generally s takes 3~5 integers). The algorithms described above detect discrete extremum points rather than actual extremum points. SIFT can accurately estimate the subpixel position and scale of point features by fitting the three-dimensional quadratic function, removing

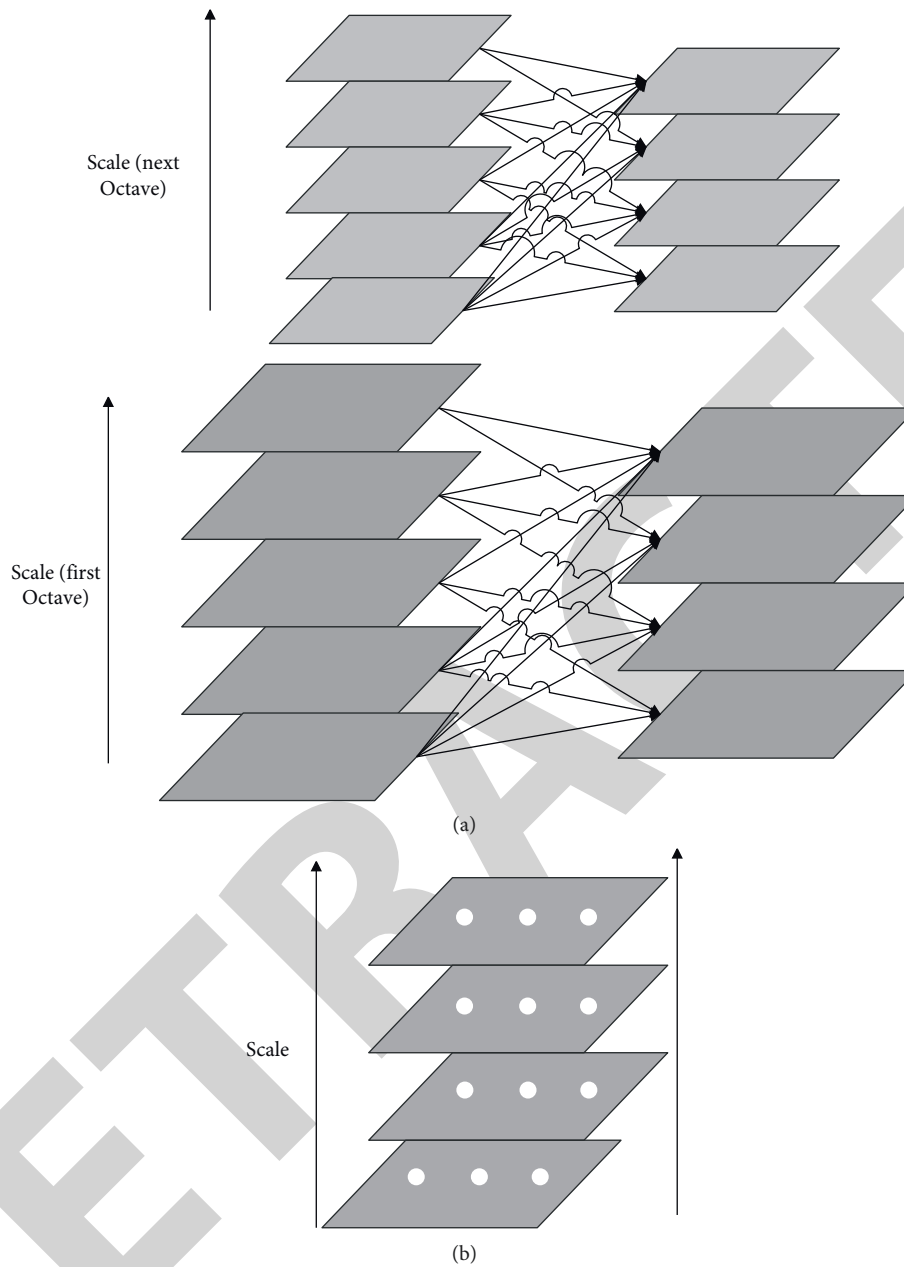


FIGURE 2: DOG pyramid detection. (a) Scale space and DOG pyramid construction. (b) Scale and image space extreme points.

low contrast point features and unstable edge response points to increase matching stability and antinoise capabilities. The relationship and difference between the extremum points of two-dimensional function in discrete space and in continuous space are shown in Figure 3. Continuous extremum search is realized through data fitting to reduce the error of discrete extremum.

The feature points detected by SIFT can not well represent the characteristics of the object, and the feature points detected by the Harris algorithm are less than those detected by the Harris algorithm. The feature points detected by the Harris algorithm are more uniform and rich, so the Harris algorithm and sift algorithm are combined to extract the feature points.

An important step of Harris–Laplace feature point detection is to construct a multiscale feature space and detect stable feature points in different scale space. The construction of scale space refers to introducing a parameter which is regarded as scale into the original image model, obtaining image information at different scales through continuously changing scale parameters, and obtaining image essential features at different scales.

By constructing a multiscale image space, Harris's second-order Hessian matrix is constructed in each layer of image space, and the scale features are different in different scale spaces. The second-order matrix represents the second-order partial derivative of a point in its neighborhood, that

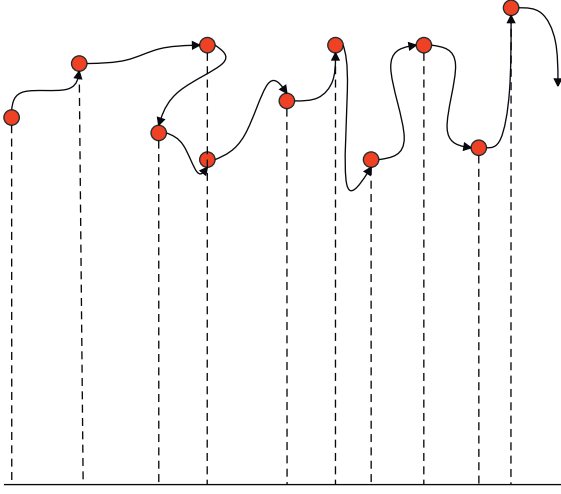


FIGURE 3: Example diagram of continuous extreme value search.

is, its gradient distribution, which is often used as the detection of feature points.

Harris' second-order differential matrix on a certain scale space image is expressed as follows:

$$\mu(X, \sigma_I, \sigma_D) = \sigma_D^2 G(\sigma_I) * \begin{bmatrix} L_x^2(x, \sigma_D) & L_x L_y(x, \sigma_D) \\ L_x L_y(x, \sigma_D) & L_y^2(x, \sigma_D) \end{bmatrix}. \quad (9)$$

Here, σ_D represents the differential scaling factor, and σ_I represents the integral scaling factor.

$$\sigma_D = S \sigma_I. \quad (10)$$

S is a constant, which is 0.7 in this paper.

$$\begin{aligned} L_x &= I(x, y) * G_x(x, y, \sigma_D), \\ L_y &= I(x, y) * G_y(x, y, \sigma_D). \end{aligned} \quad (11)$$

$$\begin{aligned} m(x, y) &= \left((L(x+1, y) - L(x-1, y))^2 + (L(x, y+1) - L(x, y-1))^2 \right)^{(1/2)}, \\ \theta(x, y) &= \tanh^{-1} \left(\frac{L(x, y+1) - L(x, y-1)}{L(x+1, y) - L(x-1, y)} \right). \end{aligned} \quad (13)$$

Here, $L(x, y)$ represents the pyramid gray-scale function on the scale image of the feature point at (x, y) .

Then, the gradient histogram is constructed. The horizontal axis of the histogram represents the gradient direction angle, and the vertical axis represents the cumulative value of the gradient direction amplitude corresponding to the gradient direction angle. In the space, it is divided into 36 equal parts, each of which is a column. The maximum value of the gradient histogram, that is, the peak value, is taken as the main direction of the image gradient. In order to make the feature point more robust, we

Here, $I(x, y)$ is the input image, L_x, L_y is the partial derivative of the function $L(x, y, \sigma)$ with respect to x and y , respectively.

In the next step, the Harris matrix $\mu(X, \sigma_I, \sigma_D)$ is calculated in different scale spaces, and the Harris response value R of each pixel in the image on different scale images is calculated.

$$R = \{R \cdot \det(\mu(X, \sigma_I, \sigma_D)) - \alpha (\text{trac}(\mu(X, \sigma_I, \sigma_D)))^2\}. \quad (12)$$

Here, $\det(\mu(X, \sigma_I, \sigma_D)) - \alpha (\text{trac}(\mu(X, \sigma_I, \sigma_D)))^2$, $\text{trac}(\mu(X, \sigma_I, \sigma_D))$ are the traces of matrix $\mu(X, \sigma_I, \sigma_D)$, α is an empirical constant, and its value is generally $0.04 \sim 0.06$. When α increases, the sensitivity of corner detection decreases, and the number of detected corners decreases. However, when α decreases, the sensitivity of corner detection increases, and the number of detected corners increases. In this paper, $\alpha = 0.04$.

Finally, the value of R is calculated, and Harris corner points on each image of different scales are extracted. First, a window of 3×3 is constructed with a certain pixel in the image as the center. If the R value of the center pixel is greater than the value of 8 points in the surrounding area and $R > \text{Threshold}$, Threshold is the threshold of the center pixel R value, then the pixel value corresponding to this pixel is the extracted feature point.

The feature description of SIFT first determines the main direction of the feature point, and the main direction is the main information that describes the feature point.

According to the extracted feature points on the scale image $L(x, y, \sigma)$, the gradient modulus value $m(x, y)$ and the gradient direction argument value $\theta(x, y)$ are obtained.

determine 80% of the histogram peak value as the secondary direction of the feature point.

In order to match feature points more accurately, we must describe feature points more accurately and fully. Experiments show that the 128 dimensional sift descriptor has good rotation invariance, so this paper uses 128 dimensional descriptor to describe the feature points.

Figure 4 shows a set of 2×2 seed points generated from a set of 8×8 regions centered on feature points.

This paper selects the 16×16 region centered on the feature point and then selects the sub-regions equally

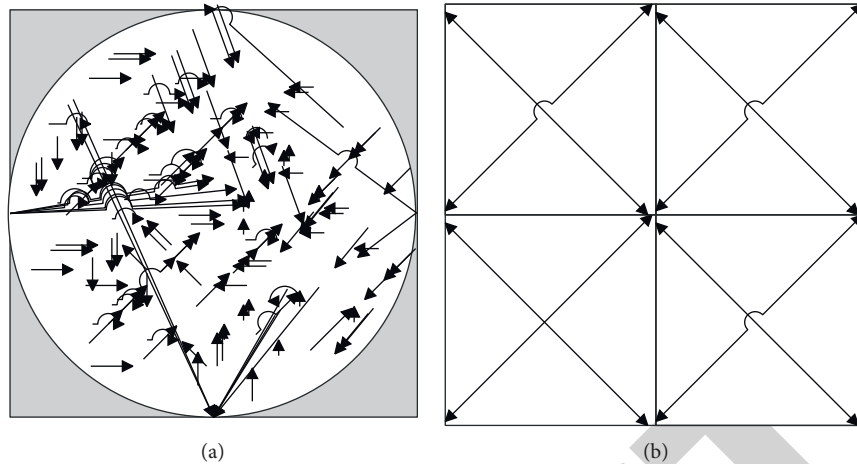


FIGURE 4: Generation diagram of feature descriptor. (a) Image gradient. (b) Feature point descriptor.

divided into 4×4 , so that a total of 16 sub-regions are generated. In each subregion, 360° is equally divided into 8 directions, the gradient direction of each point in the region is allocated to these 8 directions, and finally, each subregion forms a seed point. 16 subregions form 16 seed points b , that is, each feature point forms a $16 \times 8 = 128$ -dimensional feature vector, then this feature vector is our feature descriptor. The feature descriptor has rotation, translation, and linear invariance, which well characterizes the characteristics of feature points.

In order to reduce the influence of external light on the feature vector, the obtained feature vector is normalized.

4. English Classroom Teaching System Based on Digital Sensing Technology

The shared resource platform for digital English education and teaching is divided into three parts as shown in Figure 5: collecting materials, integrating teaching resources, publishing, and applying teaching resources. The online and collaborative learning environment grants varying levels of access privileges to its many users, and it offers standardized user interfaces for accessing a variety of instructional materials and information. For instance, the digital learning center that it provides can be used by the students of the school, and the shared resource integrated construction platform that it provides can be used by teachers and professional training institutions to retrieve resources, make networked education courseware, professional resource libraries, skills competition resource libraries, and so on. Moreover, the shared resource integrated construction platform that it provides can be used by the students of the school. In addition, the interactive shared resource application platform has the capability of providing shared resources for professional training institutions and schools that are comparable to one another.

The primary goal of English remote sharing application terminal management is to complete the life cycle management of secondary vocational institutions' network

shared resource data applications. Simultaneously, it develops matching development and configuration requirements for the network shared resource data applications that run on it in order to unify the distant sharing applications of school education and teaching management. As a lightweight web application, network shared resource data applications need to have the technical characteristics of web applications. At the same time, considering the operating environment of the network shared resource data application, the remote shared application education and teaching management platform stipulates that the network shared resource data application needs to include the following main files and related folders as shown in Figure 6.

The content of digital English teaching design mainly contains two parts: preclass knowledge acquisition and classroom knowledge internalization. According to the essential connotation of the flipped classroom, based on previous research, we set up a digital mixed English teaching design, as shown in Figure 7.

5. Performance Testing of English Classroom Teaching System Based on Digital Sensing Technology

This article builds an English classroom teaching system on top of digital sensing technology and makes use of digital technology in order to improve the traditional manner of English classroom instruction. Testing of the system's performance and verification of the system's ability to teach are both included in this paper once the model of the system's structure has been constructed. The simulation test is where the majority of the work for testing the system's performance is done. To begin, the author(s) of this study design various sets of tests in order to analyze the impact that digital English resources have, and then they carry out quantitative analysis by means of scoring systems, as shown in Table 1 and Figure 8.

The chart to the right demonstrates that the English classroom teaching system based on digital sensing

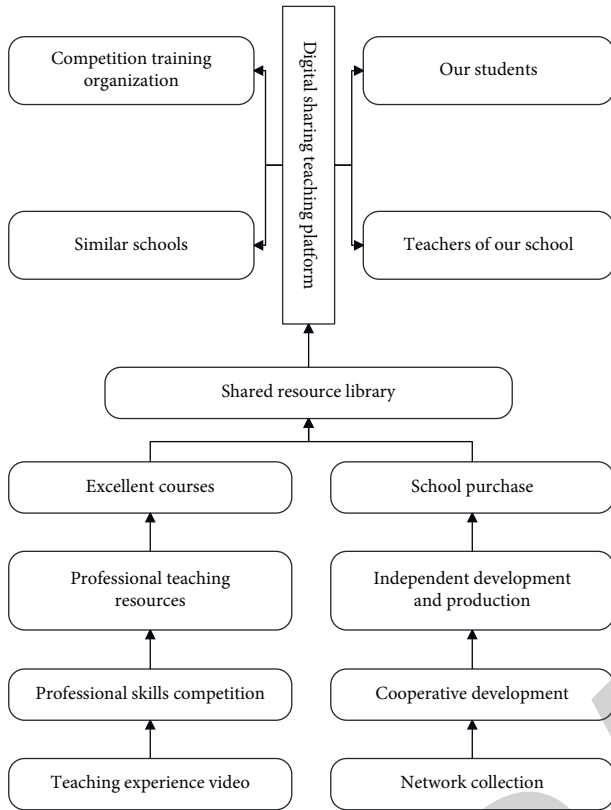


FIGURE 5: The application system of the shared resource library for digital English education and teaching.

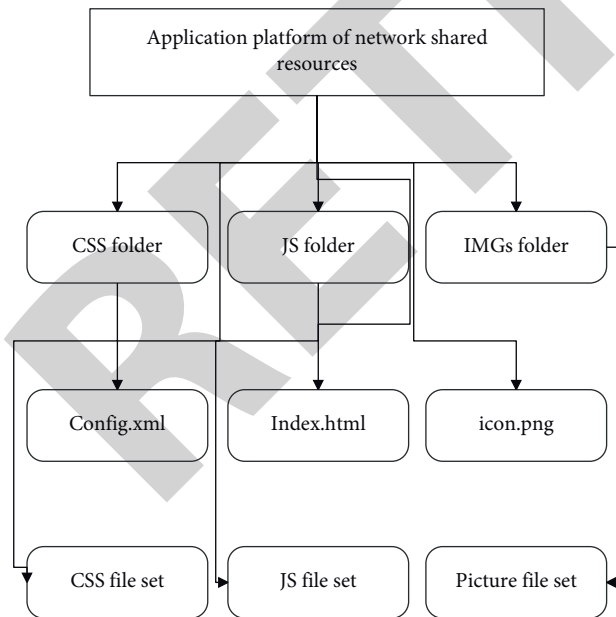


FIGURE 6: The tree organization of network shared resource data application in the network shared resource application platform.

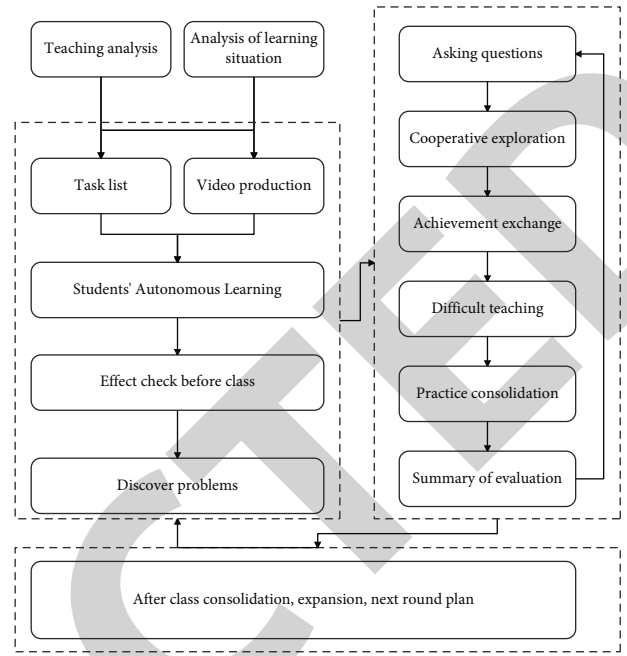


FIGURE 7: English classroom teaching system based on digital sensing technology.

TABLE 1: Statistical table of digital effect.

Number	Digital effect	Number	Digital effect	Number	Digital effect
1	78.4	27	89.0	53	85.0
2	81.3	28	79.3	54	80.4
3	87.6	29	84.0	55	78.8
4	88.2	30	86.5	56	86.1
5	86.0	31	84.3	57	79.5
6	81.5	32	82.6	58	79.9
7	76.6	33	83.3	59	84.5
8	88.7	34	85.1	60	76.3
9	82.5	35	79.3	61	88.1
10	76.1	36	76.7	62	85.1
11	78.3	37	81.9	63	88.3
12	78.4	38	79.6	64	88.6
13	81.6	39	78.8	65	82.8
14	86.7	40	77.2	66	87.9
15	77.4	41	78.3	67	80.5
16	81.9	42	79.3	68	77.2
17	88.5	43	85.6	69	88.7
18	81.4	44	78.4	70	79.3
19	84.7	45	87.6	71	80.8
20	88.1	46	80.9	72	84.2
21	80.8	47	80.7	73	80.3
22	88.9	48	78.2	74	87.2
23	77.0	49	81.7	75	78.8
24	76.8	50	78.1	76	77.1
25	83.9	51	76.4	77	82.6
26	86.6	52	76.4	78	87.6

technology that was constructed in this paper is able to effectively carry out the digital processing of English teaching resources. This conclusion can be drawn because

the chart shows this system. On this basis, this paper verifies the teaching effect of this system through experimental

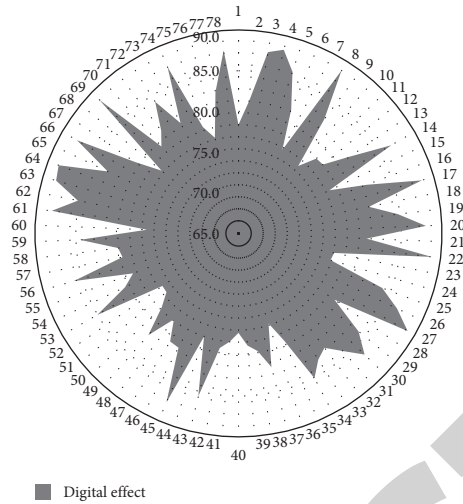


FIGURE 8: Statistical diagram of digital effect.

TABLE 2: Statistical table of the evaluation of the teaching effect of the English classroom teaching system based on digital sensing technology.

Number	Teaching effect	Number	Teaching effect	Number	Teaching effect
1	85.7	27	87.8	53	81.7
2	73.4	28	76.4	54	74.5
3	89.2	29	88.2	55	86.6
4	80.8	30	78.5	56	77.5
5	89.1	31	91.2	57	80.5
6	92.0	32	78.7	58	83.6
7	78.7	33	84.4	59	74.2
8	91.1	34	82.3	60	83.4
9	83.3	35	84.5	61	76.2
10	81.8	36	86.5	62	88.1
11	82.9	37	87.5	63	77.2
12	73.7	38	79.6	64	72.3
13	89.2	39	90.7	65	75.8
14	87.4	40	74.5	66	78.6
15	75.9	41	75.6	67	88.5
16	86.5	42	82.5	68	82.0
17	82.5	43	85.8	69	74.4
18	75.6	44	85.2	70	85.5
19	76.7	45	89.1	71	74.8
20	75.9	46	87.9	72	82.8
21	87.1	47	83.3	73	87.1
22	75.4	48	82.6	74	77.3
23	78.2	49	83.0	75	72.3
24	74.0	50	84.7	76	87.3
25	85.5	51	87.1	77	83.7
26	87.6	52	81.9	78	86.5

teaching methods, and the results obtained are shown in Table 2 and Figure 9.

From the above-given test results, it can be seen that the English classroom teaching system based on digital sensing technology constructed in this paper has a good teaching effect.

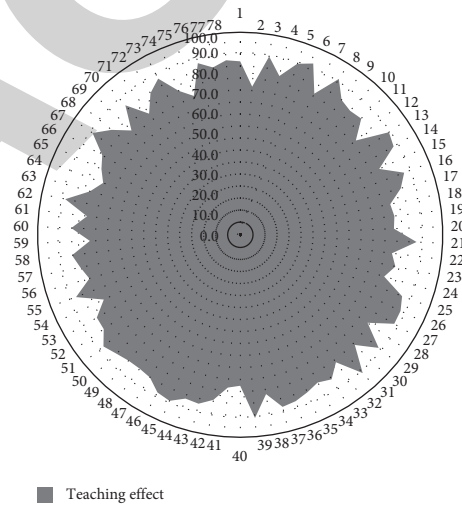


FIGURE 9: Statistical diagram of the evaluation of the teaching effect of the English classroom teaching system based on digital sensing technology.

6. Conclusion

The current level of computer networking, informatization, and digitization technology has rapidly developed thanks to significant advancements in all three areas. In addition, the older, more traditional methods of teaching English in a classroom setting have a growing number of problems, which have led to significant constraints on the quality of teaching and the amount of teaching coverage.

This article presents a complete analysis of the functional requirements of the digital system in teaching management and elucidates the functional goals that the digital system in teaching management needs to accomplish in order to be considered successful. In addition, this study examines the circumstances of system users, categorizing them as diverse participants such as students and teachers, and analyzes the

many functions of the system in great depth, breaking them down into several distinct business activities. This paper forms a system use case analysis plan, improves the English classroom teaching mode through digital technology, and builds an English classroom teaching system based on digital sensing technology. In addition, in accordance with the functional requirements of each participant for the system, this paper builds an English classroom teaching system. In conclusion, this article combines experimental research to verify the effect of the system with an analysis of the current situation in order to improve both the intelligence of English teaching and the effect of English teaching.

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 there are no conflicts of interest.

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