Image Analysis System of Intelligent Smart Home Based on VR

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ABSTRACT With the increasing aging today, the rich life experience has become a topic that people are urgently concerned about. This research mainly discusses the research and application of VR-based smart home image analysis system. This research combines the intelligent design and implementation of the image analysis system of VR technology. The system uses 2D image processing, segmentation, and recognition to filter out information that is of interest to the image, which is helpful for a reasonable plan for smart homes. During the experiment, a mixed model was used to model the background scene, the background difference method was used to detect the moving target in the image, and then the face detection of the moving target was performed. Through such simple real-time image processing, the necessity of real-time video monitoring is realized. After that, the abnormal image data can be saved to provide effective evidence, and the system will issue a warning after detecting the abnormality, which can effectively monitor specific areas such as home. 110 frames of video clips of people actually walking indoors are used for face detection. Experimentally, the acquisition speed of the VR technology camera is 24 frames per second, and the resolution is 420×250. The research results show that image processing is an indispensable part of the intelligent process of video surveillance. It can also be said that the image processing technology of VR technology is more suitable for the smart and suitable home.

INDEX TERMS Image analysis, VR technology, smart home, demand level, image quality.

I. INTRODUCTION

A. BACKGROUND AND SIGNIFICANCE

With the recognition of the nature of the project by the country and enterprises, under the importance of sustainable development, the number of emerging companies in the modern smart buildings and high-tech industries, and users of the working environment, has continued to improve rapidly. With the improvement of quality requirements, the living space has gradually formed a potential demand for the construction of high-quality and efficient equipment management services.

The virtual simulation training system is used for the use of a virtual architecture, analyzes these data, develops quantitative training indicators and reasonable training programs, and provides better recommendations for suitable old homes.

B. RELATED WORK

A hyperspectral image is a large data set in which each pixel corresponds to a spectrum, thereby providing high-quality details on the sample surface. Dorrepaal believes that hyperspectral images are characterized by dual spectral and spatial information, so that qualitative and quantitative information can be obtained from the sample. The time series hyperspectral imaging data contains multiple hypercubes, and each hypercube presents samples at different time points, so other factors need to be considered in the data analysis. He provides a step-by-step tutorial for time series hyperspectral data analysis, and provides detailed command line scripts for Matlab and R calculation language in the supplementary data [1]. His research proposed a specific program for hyperspectral data analysis but it was not applied in practice. Mario Haut believes that hyperspectral images are characterized by large size and large size, which are difficult to process and store. He has developed several techniques in
the past few years to perform hyperspectral image analysis on high-performance computing architectures. However, the application of cloud computing technology has not been popularized. There are many potential advantages to using cloud computing architecture for distributed hyperspectral image analysis. He proposed a cloud implementation of the popular K-means algorithm (developed with Apache Spark) for unsupervised hyperspectral image clustering [2]. His research carried out effective distributed processing of large hyperspectral image data sets, but did not further improve the algorithm. Dermoscopy continues to develop in the field of digital image analysis. Mendonca believes that dermoscopy has become a common tool for dermatologists to evaluate pigmented lesions, but it has a steep learning curve and the current reporting/grading scheme is highly subjective, making it difficult to achieve inter-observer consistency. Having more algorithms for processing dermoscopy images can lead to more consistent interpretations. In addition, the existence of such digital imaging data will allow the application of more advanced computer-aided diagnosis (CAD) methods in this field, allowing data to be shared among clinicians through a common database and electronic medical records [3]. His research provides extended access to imaging data for various skin conditions, but the specific area of imaging has not been explored in depth. Target slide digitalization brings pathology to a new era, including powerful image analysis capabilities. Bouzin believes that although it is a powerful prognostic tool, it has not been used in routine clinical practice to automatically analyze digital images for immunostaining worldwide. Two automated methods were used to immunostain digital biopsies from patients in two independent cohorts to stain membrane or nuclear markers. The first one is based on the count of stained cells divided by tissue, while the second one depends on the proportion of stained area in the tissue section. It also evaluates and validates the different steps of image preparation, such as automatic tissue detection, wrinkle removal, and scan magnification. For all test marks. In order to obtain the same reliability, the quantification of the stained area is faster and easier to fine-tune [4]. He studied the quantitative correlation of stained cells and stained areas, but the specific degree of correlation has not been explored.

C. INNOVATION AND CONTENT
In this research, through the relatively independent application of image analysis and VR technology in the industry at this stage, according to the complementary advantages of the two, this paper proposes to combine image analysis technology and VR technology. Expanding the application value of VR technology in the industry, it is proposed that VR technology is not just a tool for displaying smart homes, but can be integrated into the green building design process according to its characteristics. The main contents are as follows.

1. Through the research status of VR technology at home and abroad, in-depth exploration of the core concept of VR technology.
2. Reasonably control the related concepts and operating mechanisms of VR technology, and further study the related formulas when using VR technology.
3. Carry out in-depth experiments on image recognition based on VR technology, and analyze the quality and demand of VR technology related presentation scenes.
4. Perform image simulation analysis on the experimental data of VR technology to further understand the best plan of the related operation of VR technology.

II. VR IMAGE ANALYSIS

A. OPERATION MECHANISM OF VR TECHNOLOGY
The interaction of the device is the main part. In addition to changing the image according to the movement of the head, the user can also see the interface switch, power switch, image browsing, the user’s center image is white, and can be based on the movement of the head. It is selected at the key position at this time point, so the button selection is a very single operation. Interactivity is the most basic feature, reflecting the advantages of this new media art form. Whether you choose a role established in the media or create a new identity for yourself in the play, participants can change the direction of the story according to their imagination, so that the plot can continue to develop.

Gesture-based motion-sensing interaction is a step further than screen-based motion-sensing interaction. Add an operation game pad on the screen. The user can influence the content of the screen by controlling the game pad. Gesture interaction design is a promising development direction for close interaction scenarios. Action-based interaction design is a combination of screen interaction and gesture interaction, while also adding action functions. The whole system includes the identification of relevant data of movement and the analysis of data to present. Through the action system, users can move freely in the virtual environment. Only when the movement of the virtual world is consistent with the movement of the real world can the meaning of VR be established intuitively.

B. FLOW OF IMAGE ANALYSIS
The specific flow of the image analysis system is shown in Figure 1. First, the light source data and related data...
need to be collected to facilitate the further construction of subsequent scenes. After the construction of a specific scene is completed, the initial position of the viewpoint needs to be further adjusted. When the visible point reaches the optimal position, the data needs to be further transmitted to the light field to further adjust the imaging. At this time, the light to be interpolated in the light field also needs to be further determined. After the interpolation calculation of the light field is completed, the image can be completely presented [9].

In a communication network using the JTAG protocol, the communication between clients is as follows. The client first establishes a connection with the server, then sends the letter to the server, and then the server forwards the letter to other clients. The information in the JTAG network can also be sent to the non-XMPP network through the information protocol conversion of the intermediate gateway. China’s 3D graphics generation technology is relatively mature, but an important element is the method to solve the problem of accurate generation. In order to achieve real-time goals, the virtual 3D generation process needs to at least ensure the refresh rate of graphics [10]. Next, you need to extract images from different viewpoints from the same scene to generate 3D graphics. Virtual reality is an important condition for realism. That is to say, as the user’s position and direction change, it is necessary to generate real-time 3d graphics images and form real-time dynamic visual effects in this process. The real-time graphics form not only requires the support of a graphics accelerator card, but is also associated with very important computer vision technology. This is because the operation of the virtual real system includes input and output, dynamic simulation, and graphic operations, so a more effective method is to connect the input and output devices to the graphic database, and at the same time implement complex calculations on the computer. However, the user can still modify the angle to generate a view of continuous smooth images [11], [12].

For the sound data presented by VR, the contrast of vowels and instant trebles is high, and the contrast of fricatives is low [15]. Variable contrast has two main disadvantages. The average contrast is guaranteed. Some real-time applications need to reduce the contrast according to the communication channel even if the contrast is high. The average contrast is obtained by dynamically adjusting the quality of the variable contrast to obtain a specific contrast. This will solve the problem that the average contrast cannot be guaranteed. Because the average contrast is adjusted in real time, the overall quality is slightly lower than variable contrast. Silence detects whether the encoded sound data is silent or noisy. Because the contrast code is always on when the variable code is variable, only when the contrast code does not change is used as a parameter setting, the detection mute command is not continuously sent. After correcting the background noise, you can stop the data transmission. By enhancing perception, noise and distortion can be reduced during encoding and decoding. In this way, there will be a big difference between the decoded sound and the original sound, but the sound playback effect is very good. The delay algorithm refers to the specific delay of the transmission process such as the delay of the audio codec, the delay of the narrowband (8kHz) operation, and the delay of the broadband operation [16].

D. APPLICATION OF VR-BASED IMAGE ANALYSIS

VR-based image analysis has very important uses in many aspects, and the use of VR image recognition technology for different situations has high potential for the development of image recognition.

1) IMAGE RECOGNITION TECHNOLOGY FOR ARCHITECTURAL DESIGN

The communication method is the architectural design for the application of the image recognition technology of the designer and the user. There is not much change in the connection between the designer and the user’s program. The 2D design drawing and the designer’s oral preference are designed for the user to understand the deviation of the design. The impact of the actual structure cannot satisfy users. Even though The Times was developed, there are also means of expression such as roaming animations and solid models, but the roaming animations represent the route set by the designer. The detailed display of the solid models is insufficient to display the design scheme unilaterally. The emergence of VR technology has created a new method of visual design [17], [18]. Based on the underwater function of VR technology, users and designers can experience the building from the original perspective before the building is completed, so it can more intuitively display the building space that the previous two-dimensional map cannot understand. Using VR technology, the designer feels the scale of the space from the initial perspective, adjusts the unreasonable space within the time, and maximizes the utilization rate of
the building space. Since the observation of the VR scene is a comprehensive panoramic extension, the traditional 3D model cannot find a small problem with the infinite zoom of the VR scene, so all the details of the project have sufficient completion, which affects the expansion effect [19]. In short, only a high degree, the completion of the project will bring good experience. Due to the application of VR technology, higher requirements will be put forward for the completion of the project. Like freehand drawing and computer drawing, if the operation method is different, the project completion requirements are also different [20], [21].

2) MINE MINING
The fully mechanized virtual reality system of coal mines uses advanced virtual reality technology to construct highly simulated virtual mine application scenarios. It reads the data provided by the corresponding monitoring system through the system data interface, and corresponds to the purpose of realizing 3D visualization data. operating. The design and implementation of the system combined with virtual reality technology, and the use of high-quality development platforms when users use the system, have achieved embedded expansion. Through the introduction of the alarm prompt function of the system equipment, the user roam the overall status of the operation status of the fully mechanized work surface equipment, fully understands the overall status of the actual status of all equipment and the environment, with clear monitoring, efficient learning, and real-time analysis. The purpose is to enable miners to quickly understand the main issues of equipment use, maintenance and monitoring. Based on the geographical environment, panoramic virtual reality (VR) is a technology that studies the two-dimensional representation of the state of space through graphical computing. The visualization of road environmental information data is the ultimate goal pursued by the system. The system places all the objects of the fully mechanized mining interface in the 3D virtual reality world, and realizes the visualization of data simulation through advanced simulation [22], [23].

3) HOME IMPROVEMENT INDUSTRY
The main purpose of the product is to reduce the initial and mid-term communication time costs between designers and users. It can be seen from the cost of the machine that the purpose of the company is only to provide the price, which is a very cheap phone VR device [24]. Then, according to the design drawing, output and formula control, the designer inputs in the micro range controlled by the designer. In order to satisfy their creativity and experience, the owner adjusts and experiences the feelings of the experimenter. Later, in order to stimulate consumption and consumption activities, the company may add furniture manufacturers to the scene. In the next section, the product attributes are analyzed according to the clues of the owner and designer of the target group, the usage is investigated, the functional requirements are refined, and finally the effective requirements of the product are refined through cross-analysis [25].

4) TROUBLE INSPECTION
After the system reaches the designated position according to the pre-planned path, it adjusts the mutual position between the camera and the electrical appliance, finds the best shooting angle, and shoots infrared and visible images. By analyzing the thermal distribution map of the infrared image, the temperature distribution data of each point in the image is obtained, the abnormal temperature point on the image is found, and the type of machine failure is analyzed. Use the image segmentation algorithm to segment the fault point from the image and find the correct location of the fault point. Then, use visible images for analysis, use infrared images and optical images for image registration, correctly identify the type of equipment failure, and improve the efficiency of circular inspection [26], [27].

E. METHODS OF IMAGE ANALYSIS

(1) A single (time) step \( u(t) \) calculates the velocity component in different directions as follows.

\[
 u(t) = u_i(t - \Delta t) R_i^L(\Delta t) + u_i(t) \sum_{i=1}^{n} (t + \Delta t)(t - \Delta t)
\]

(1)

In order to better describe the dynamic characteristics of the particles in the free diffusion phase \( u(t) \), the motion trajectory of each particle is divided into several discrete segments experienced by the same time interval, which is called (time) step \( \Delta t \). For a single (time) step, the velocity component in the horizontal plane and vertical direction is regarded as a fixed length, that is, in a single step, the speed does not decay. In addition, there is interference caused by gravity.

(2) The formula of motion mathematical model based on image recognition technology is as follows.

\[
\sigma_\lambda = \sigma_\lambda^0 \left[ 1 - R^L_i(\Delta t) \right] \left( x_i - \Delta t + u_i(t) \Delta t + R \right)
\]

(2)

The mathematical model \( \sigma_\lambda \) using motion attributes describes the motion law of particles. To make the description more visual and intuitive, you can define some non-motion attributes for each particle and establish the relationship between non-motion attributes \( x_i - \Delta t \) and time \( u_i(t) \). The relationship, combined with the relationship between the motion attribute expressed in the formula and the time \( \Delta t \), can depict the real-time dynamics of all the attributes of the particles, and then realize the real-time dynamic characteristics of the particles.

When recognizing an image, usually infrared rays are used to detect the recognized object. The relevant formula is as follows.

\[
 e_0(\nu, T) = \frac{8\pi h\nu^3}{c^2} \left( \frac{1}{e^{\frac{h\nu}{kT}} - 1} \right) (h_1v_1 - h_2v_2)(h_2v_2 + h_3v_3)
\]

(3)

\[
 e_0(\lambda, T) = \frac{5\pi HC}{\lambda^5} \left( \frac{1}{e^{\frac{h\nu}{kT}} - 1} \right) \frac{hc}{e}
\]

(4)
Infrared recognition method is widely used in various fields, because it can provide accurate object-related information.

(4) Many fault anomalies of electrical equipment are expressed by the thermal anomaly coefficient $\zeta$. The infrared image $F(i,j)$ of the electrical equipment is captured by an infrared camera to obtain the thermal radiation of each point of the equipment.

$$U_0 = k\zeta T^5 \int_{\lambda_1}^{\lambda_2} e_0(\lambda, T) R(\lambda) d\lambda = k\zeta E_0(T) \quad (5)$$

$$F(i,j) = 0.221 \ast R(i,j) + 0.577 \ast G(i,j) + 0.144 \ast B(i,j) \quad (6)$$

III. VR IMAGE RECOGNITION EXPERIMENT

A. EXPERIMENTAL EQUIPMENT

The relevant hardware main equipment in the experiment is shown in Table 1. VR needs to generate 3D images in real time. Therefore, based on the premise of the complexity and quality of various graphics, the content of the refresh rate is effectively improved. In addition, VR rendering also requires sensors and 3D rendering technology. Hardware devices that generate tracking data, such as VIVE’s Lighthouse location tracking technology, the Get Last Poses call pauses on the Steam VR Render Render Loop, automatically links to the location of the header device, and sends the steamvr-utils event to the new location event Notice. Move to all the required locations to track the device’s Unity objects, such as the title and the controller Unity object Controller, and continue to listen to notifications of new gesture events to determine the device’s location so that it can be updated to a VR image in real time.

| Numbers | Hardware       | Vendor                  |
|---------|----------------|-------------------------|
| 1       | Menu button    | USA                     |
| 2       | Trackpad       | CA                      |
| 3       | System button  | UK                      |
| 4       | Status light   | Pulling the company     |
| 5       | Micro-USB port | And the company         |
| 6       | Tracking sensor| French                  |
| 7       | Trigger        | Japan                   |

B. PRESENTATION OF EXPERIMENTAL SCENES AND CONTROL OF EXPERIMENTAL FACTORS

T pixels and L pixels can interpolate pixels in the same row or column. However, the M pixels must depend on the sub-pixel T pixels of the same column for interpolation. Therefore, if you first look for the pixel position in the horizontal direction and then look for other positions in the same column, you only need to buffer the pixels in the horizontal direction. Searching other columns can replace the pixels of the buffer with the pixels corresponding to the level without adding the overhead of the buffer. Pass h performance test. In the 235/HEVC reference software HM16.2, Visual Studio 2013 test environment, the test sequence is partyscene 883 × 390, the resolution is 832 × 480, the frame rate is 50fps, when only 10 frames are encoded, it takes more than 4 minutes. Through the design of the fractal motion estimation interpolation structure, real-time encoding of 4K (3840 × 2160) ULTRRA hd video at 50 frames per second can be achieved on the Xilinxvirtex-5 platform running at 300 Hz. Different test platforms have a certain impact on the results, but it is different to fill the gap.

C. EXPERIMENTAL PROCESS

(1) Image acquisition test. The system has been tested for more than 2 months and the software part of the video capture system will work normally. Can process images at 10 frames per second. Meet practical applications and achieve goals. However, due to the continuous operation of the recording system for a long time, the hardware of the recording card will be heated and cannot function normally, and the data collection may fail. After this happens, restart the machine after shutting down for more than 10 minutes. The accident time of the collection card is not clear, the range is 4~5 hours. (The following test data is acquired under the condition of normal operation of the acquisition card).

(2) Web page creation. In the system design, the BOA of the Web server is used to create a web page, the HTML language is used to create a static web page, and the C page and HTML are used to create a static web page, and finally a CG file is generated. The purpose of a static web browser is to send an alert message when an intrusion detection algorithm calculates an intrusion. The system is built by the design of two related web pages. According to Boa information, a Web server is used on the design home page of the building, and an index related to the server interface is used. Describe the cgi page that uses “HTML” and c language program to display the alert, and the target animation link page is photo. A moving target was detected in the “the HTML” display camera.

(3) Serial communication between the home gateway and the coordinator. The peripheral of the development board coordinator is simple, because there is no LCD screen, so sending the home gateway data sent by serial data debugging to the display of the PC serial debugging tool can confirm the correctness of the transceiver data. First select the correct port, then set the parameters related to the wave rate and ARM, send the parameters related to the wave rate, the wave rate is set to 33408, 8 data bits, the stop bit is 1, and then click the “open serial port” button Then, the button changes to “Close Serial Port”, if you can open the serial port, you can wait to receive serial data. Otherwise, you will not be able to open the serial port prompt.

IV. VR IMAGE RECOGNITION ANALYSIS

A. ANALYSIS OF EXPERIMENTAL RESULTS

The demand for providing scenes under different VR image analysis effects is shown in Table 2. Each parameter corresponds to component data that can move on acceleration. The parameter change of the two control points means that the
data changes the mechanical state through mechanical action. The VR technology simulation engine needs to analyze the parameter changes between the control points and update the acceleration state of the VR scene according to the preset short time interval. The simulation engine calculates the state of the VR accelerator for each time period based on the physical limitations of the VR scene accelerator. In this way, VR interaction can see the accelerated smooth movement according to the inherent physical characteristics (in accordance with the actual accelerator movement). For the control point list, the engine executes each of the two control points.

The quality of the scenes provided under different VR image analysis effects is shown in Table 3. From the overall data in the table, as the VR image analysis effect continues to increase, users’ satisfaction with VR technology is also increasing. However, the satisfaction of the first group of data is relatively low, so for the first group of data, the overall data is low, and the overall data collection quality is also low. The data value of the second group of data is slightly higher, and the corresponding user satisfaction is also increasing, and the quality of the relative VR technology presentation scene is also increasing. The overall data of Group 5 fluctuated relatively, and the data of the remaining two groups increased slowly.

The real-time performance of VR image analysis is shown in Figure 4. In the experimental environment, a relatively simple scene background model is adopted, and the background is white without face. If there is a face on the wall or in front of the USB camera, the action can detect the image. A single or multiple faces can be detected, but if only half of the character’s face is displayed in the video, the face cannot be recognized. The entire video capture and detection process has better real-time performance, so it can meet the needs of real-time performance at home. From the data distribution in the figure, the overall data distribution is relatively uniform. When the VR image analysis effect is 4, the degree of demand for providing scenes is 47.3%, which is the lowest among the data values in this group. When the VR image analysis effect is 5, the demand level for providing scenes is 68.1%. When the VR image analysis effect is 6, the degree of demand for providing scenes is 49.1%. In the fourth set of data, when the effect of VR image analysis is 3, the degree of demand for scenes is 99.9%. When the VR image analysis effect is 4, the degree of demand for providing scenes is 68.1%. When the VR image analysis effect is 6, the degree of demand for providing scenes is 49.1%. In the fourth set of data, when the effect of VR image analysis is 3, the degree of demand for scenes is 99.9%. The degree of demand for VR technology to provide scenes almost completely meets the degree of demand of experimenters. The design scheme in this case is the most reasonable. In the fourth set of data, when the VR image analysis effect is 6, the demand for providing scenes is 50.0%, and the data value is relatively low.
TABLE 2. Demand for providing scenes under different VR image analysis effects.

| Number of groups | Satisfaction (%) | Grade | 1   | 2   | 3   | 4   | 5   | 6   |
|------------------|------------------|-------|-----|-----|-----|-----|-----|-----|
| Group1           | 12.1             | 12.5  | 12.1| 12.8| 14.8| 11.1|     |     |
| Group2           | 21.3             | 23.0  | 35.0| 37.1| 39.1| 35.2|     |     |
| Group3           | 50.2             | 78.8  | 45.9| 77.8| 71.7| 73.1|     |     |
| Group4           | 59.5             | 51.8  | 99.9| 98.9| 71.3| 50.0|     |     |
| Group5           | 77.0             | 76.7  | 59.6| 47.3| 68.1| 49.1|     |     |
| Group6           | 82.5             | 97.9  | 41.4| 53.7| 90.9| 82.5|     |     |

TABLE 3. The quality of the scenes provided under different VR image analysis effects.

| Number of groups | Satisfaction (%) | Grade | 1   | 2   | 3   | 4   | 5   | 6   |
|------------------|------------------|-------|-----|-----|-----|-----|-----|-----|
| Group1           | 10.4             | 10.2  | 9.0 | 9.9 | 7.1 | 10.0|     |     |
| Group2           | 34.3             | 19.6  | 24.2| 27.4| 32.9| 26.8|     |     |
| Group3           | 63.7             | 62.1  | 60.1| 70.8| 66.1| 58.2|     |     |
| Group4           | 84.6             | 60.5  | 64.6| 86.1| 87.9| 89.4|     |     |
| Group5           | 45.8             | 32.9  | 88.2| 60.7| 39.2| 36.5|     |     |
| Group6           | 33.4             | 62.5  | 78.3| 67.5| 50.1| 68.0|     |     |

The quality of the scenes provided under different VR image analysis effects is shown in Figure 5. Under normal circumstances, even if the system test is successful, it can also receive control signals that need to be sent and received. In the absence of walls, in the 1 m, 2 m, 3 m, 4 m equidistant tests, there is no problem with transceiver control communication. In the case of close distances such as walls, doors, and 40 meters, there is no problem with transceiver control communication. In an ordinary residential area of 100 square meters. Like the square room, the communication distance will be about 10 meters high, or 10 meters or 20 meters. VR technology can fully meet the requirements of signal reception and transmission control. It can be seen from the figure that when the usage level of VR is 3, the overall data level is high. When the usage level of VR is 5, the overall image presentation quality tends to be average. When the usage level of VR is 1, the overall data level is low, indicating that the VR image rendering function can affect the overall quality of the image to a certain extent. When the VR image analysis effect is 1, the quality of the rendered image is 10.4% in the first group, which is the highest in the first group. When the VR image analysis effect is 2, the quality of the rendered image is 10.2% in the first group.

The image quality distribution of VR technology in different groups is shown in Figure 6. The integrated VR technology has the advantages of fast operation, small number of detection feature points, and clear images used in conjunction with FLANN. Finally, in order to realize the image technology in the surveillance system, it is decided to adopt the VR technology and FLANN matching and combining method. When the VR image analysis effect is 3, the quality of the rendered image is 64.6% in the fourth group. When the VR image analysis effect is 4, the quality of the presented image is 86.1% in the fourth group, and the data value tends to average data level. When the VR image analysis effect is 5, the quality of the presented image is 87.9% in the fourth group. When the VR image analysis effect is 6, the highest data value in the fourth group is 89.4%, indicating that the...
VR image recognition technology presents the best image quality when the VR image analysis effect is 6.

V. CONCLUSION

The VR big data analysis module is to enrich the presentation of the simulated scene by observing the recognition process of the view in real time and collecting data. It can conduct database training of the system, record training progress and training effect. At the same time, the virtual simulation training system is used for the use of virtual architecture, analyzes these data, develops quantitative training indicators and reasonable training programs, and provides better recommendations for suitable old homes. In addition, the big data module always finds the defects of the training system platform and other functional modules by analyzing and integrating various data, and optimizes these modules and platforms to update and upgrade the entire system.

The combination of image analysis system and VR technology better achieves the goal and value of the use and maintenance management of construction equipment, ensures the safe and stable operation, efficient operation and energy-saving operation of construction equipment, and ensures the construction of the entire construction life cycle. The application value of information model and VR technology.

This research conducted a systematic experiment on VR technology by exploring the relevant needs of VR technology and the image quality that VR technology can present, that is, the satisfaction of the image presented. This will further the development of image recognition technology and the VR technology in various industries. Further introduction is beneficial.

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