Hindawi
Journal of Electrical and Computer Engineering
Volume 2024, Article ID 9765875, 1 page
https://doi.org/10.1155/2024/9765875

Retraction

Retracted: Multimedia Vision Improvement and Simulation in Consideration of Virtual Reality Reconstruction Algorithms

Journal of Electrical and Computer Engineering

Received 23 January 2024; Accepted 23 January 2024; Published 24 January 2024

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] J. He, "Multimedia Vision Improvement and Simulation in Consideration of Virtual Reality Reconstruction Algorithms," *Journal of Electrical and Computer Engineering*, vol. 2022, Article ID 4968588, 10 pages, 2022.

Hindawi
Journal of Electrical and Computer Engineering
Volume 2022, Article ID 4968588, 10 pages
https://doi.org/10.1155/2022/4968588

Research Article

Multimedia Vision Improvement and Simulation in Consideration of Virtual Reality Reconstruction Algorithms

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Received 4 January 2022; Accepted 6 April 2022; Published 12 May 2022

Academic Editor: Muhammad Rashad

Due to the large noise and many discrete points of the image in the traditional image reconstruction process, the reconstruction quality of the image deviates greatly from the actual target. In this study, the virtual reality reconstruction algorithm is applied to multimedia vision, the virtual reality image is corrected by using the binocular offset positioning method, the denoising process is performed in the image reconstruction process, and the high-pass filter matrix is used to improve the image reproduction. At the same time, the three-dimensional reconstruction algorithm is used to perform correlation retrieval, the ensemble point set and the discrete point set are obtained, the maximum and minimum reconstruction degree areas are clarified, and the deviation reconstruction and peak relocation can be performed. Finally, the experimental test results show that the algorithm in this study can enhance the authenticity of image reconstruction, improve the accuracy of image corner detection, and effectively reduce the noise interference in the process of reconstructing the image.

1. Introduction

Multimedia virtual reality technology, as the most concerned image processing method, at present, can visually simulate images and use sensor equipment to complete the reconstruction of images of the target object, etc., to ensure that it can obtain visual data information in a specific environment, giving the experiencer this kind of personal experience, and while interacting with the virtual reality environment, it gives people more room for imagination [1, 2]. The so-called virtual reality is a virtual environment created by using digital technology. It creates a virtual environment and an imaginary world that cannot be felt in real life to resemble the real world and can also bring multiple perceptions such as vision, hearing, touch, and smell to the audience. What is created is a new three-dimensional perception experience, and the audience needs to use a display or data glove tool to experience the virtual world. The virtual reality reconstruction computing method has brought a new visual world to the audience. The current application of this method to many fields is a new development trend. The traditional multimedia visual form is that the audience follows the lens to experience, and the leading position of the work is the director [3]. The multimedia visual image is completely different from the traditional multimedia visual form. From the passive reception of information in the past to the current active reception, turning around is the dominant position of the work. The audience does not need to follow the lens to experience it but follow their own favorites. The visual perception and VR experience of people are different [4]. It can be seen that multimedia visual images are the future development trend of the film and television industry, and its technical characteristics and multimedia visual modes have brought new modes to the audience, allowing the images and the audience to interact.

The virtual reality reconstruction algorithm can effectively improve the accuracy of multimedia vision and the speed of image processing. Borrowing this algorithm can reduce the execution time of the algorithm. The average method can remove the interference of noise in the image reconstruction process to improve the accuracy of image reconstruction. On the basis of fully ensuring the quality of the reconstructed image, the robustness and feasibility of the enhanced algorithm will be widely used in all walks of life.

2. Basic Principles of Virtual Reality Reconstruction

The motion trajectory of the multimedia visual image is predicted in the reconstruction process, the motion trajectory is predicted and analyzed according to the image matching rule, similarity matching is performed on the feature points in the multimedia visual image, and the motion trajectory of the obtained search results is updated, in order to complete the purpose of multimedia visual image reconstruction.

T_i represents the i-th motion trajectory in the motion of multimedia visual images [5]. T_iDuring the movement of the multimedia visual image, T_i represents the coordinates corresponding to the target point in the current frame T_i (x, y). Age represents the total points of the audio track in the target action. Therefore, the following formula can be used to predict the motion trajectory of the multimedia visual image target:

(1) When age ≤2 is satisfied, then

$$\begin{cases} \Pr edX = x + (\text{Age} - 1)dx1, \\ \Pr edY = y + (\text{Age} - 1)dy1. \end{cases} \tag{1}$$

(2) When age >2 is satisfied, then

$$\begin{cases} \Pr edX = x + dx1 + (dx\ 1 - dx2), \\ \Pr edY = y + dy1 + (dy\ 1 - dy2). \end{cases} \tag{2}$$

In the formula, dx1 = x−LastX, dy1 = y−LastY; dx2 and dy2 respectively represent the coordinate position error values of the first two frames of the target track.

For the prediction points (PredX, PredY) of T_i corresponding to the motion trajectory of the kth frame of the moving target of the multimedia visual image, the target trajectory matching can be completed according to k+1 feature points in the search window corresponding to the region to obtain multimedia. The matching standard (X_p, Y_p) of the target motion trajectory of the visual image can represent the matching feature points of the target motion of the multimedia visual image as shown below.

Assuming that the target motion trajectory feature of the multimedia visual image actually exists, then it can be set as follows:

$$\begin{aligned} D_x^p &= X_p - \Pr edX\ , \\ D_y^p &= Y_p - \Pr edY\ . \end{aligned} \tag{3}$$

Then, the matching point of the motion trajectory corresponding to the multimedia visual image needs to meet

$$\left|D_x^p\right| \leq \omega_x/2. \tag{4}$$

$$\left|D_y^p\right| \leq \omega_y/2. \tag{5}$$

The ω_x and ω_y in the formula respectively indicate that the motion trajectory of the multimedia visual image can be searched in a short time. The prediction result suitable for the feature point of the motion track of the multimedia image is necessary for the corresponding coordinate value in the k+1 frame of the multimedia visual image. When there is a corresponding feature matching point, the target point of the multimedia visual image can be predicted by adding 1 to the matching value of T_i, and the motion track record is updated in time to complete the reconstruction of the multimedia visual image. The T_i operation expression is as follows:

$$\begin{aligned} &\left(D_x^p\right)^2 + \left(D_y^p\right)^2 = \min\left\{\left(D_x^m\right)^2 + \left(D_y^n\right)^2\right\}, \\ &m \in \left[0, \ldots, \pm\,\omega_x/2\right], n \in \left[0, \ldots, \pm\,\omega_y/2\right]. \end{aligned} \tag{6}$$

Assuming that the feature matching points corresponding to the above image reconstruction principles cannot be met, then (Pr edX, Pr edY) should be used as the corresponding coordinate value in the $k+1$ frame in the multimedia visual image.

According to the above analysis, we can deeply understand the basic principle of multimedia visual image motion trajectory reconstruction, according to this principle, the reconstruction of multimedia visual image can be quickly realized [6].

2.1. Characteristics of Multimedia Visual Images

Let the Audience Get a Real Sensory Experience in the Virtual World. If language is the main method of communication and the visual state of multimedia cannot control the sense of hearing and touch. The so-called multimedia vision is a state of reality and illusion that combines real feelings with concrete objects. It is not a code name to understand the expression of images. In other words, the illusory state is not an expression expounded by words. Users use the reorganization of illusory reality to understand the illusory world and feel the sensations brought by hearing, vision and touch. In multimedia visual works, users first experience sight and hearing, because multimedia visual works can mobilize human senses. At the same time, we should pay attention to the specific stories brought by the work itself. If the content of the work cannot touch the emotions of users, the experience of virtual reality will not be ideal. The content of a work cannot touch users, and even if the best media is used to express it, it cannot be confirmed by users. The images of multimedia visual works are different from previous images. In the past, the image is the sensory experience conveyed to the user. Multimedia visual images pay more attention to the sublimation of user experience and emotion. Meredith Bricken is a reorganization method using illusory reality. If users can be substituted into the work, then this work is a success. This is the main feature of multimedia visual images, which express the connection between people and images, and a way of learning. For example, if the user chooses fish and birds in the illusory world, they can learn and acquire knowledge at the level of animals and experience the joyous world of animals.

Adjust the Photography Technology According to the Audience Experience. In multimedia visual works, users can freely adjust the angle according to personal preferences. From the user's point of view, in the early stage of shooting multimedia works, the most advanced technology is used to orderly shoot the works. Multimedia works not only express the viewing state of users but also a way of communicating with each other. Multimedia can be adjusted and updated at any time according to the user's hobbies, presenting the user's required works. However, this behavior of communicating with each other also takes away the user's ability to concentrate. For example, VR works will distract the audience's attention, and the result is that the audience does not want to face the director's camera. In other words, it is a story that can only be immersed in the illusory world but cannot touch the situation. When shooting multimedia visual works to avoid this shortcoming, the shooting team used a long lens to stagger the center of the stage, used stereo as the background, enhanced lighting and special effects to capture the user's eyes, and used vision and emotion to shoot the works. In the past filmmaking, it was the director's idea to use the camera's angle to carry out the filming from different angles, because the changes of multiple angles would make it impossible for users to teach and substitute into the plot of the story. Therefore, the director now uses special shooting methods and angles to replace the shots. The difference between multimedia visual images and traditional images is the audience's visual experience. VR uses characters that are immediately integrated into the work. According to the above analysis, the shooting methods of the two are also different. The multimedia visual images using the most advanced technology to shoot works can bring out the emotions of the works and can be adjusted according to the user's feelings at any time.

2.2. Traditional Visual Virtual Reality Reconstruction Algorithm

2.2.1. Phase-Correlated Three-Dimensional Stereo Matching. The multimedia visual phase correlation method can suppress the noise in the process of reconstructing the image, and the performance of the method is relatively moderate, which can optimize the virtual reality reconstruction method for the real simulation of the image [7]. The detailed operation steps of the algorithm are as follows:

If there are two sequences of multimedia visual images of the same type as f(n) and g(n), and the sizes are both represented by N, then the two corresponding discrete Fourier functions are expressed as follows:

$$F(k) = \sum_{n=-M}^{M} f(n)W_N^{kn} = A_F(k)e^{j\theta F(k)},$$
$$G(k) = \sum_{n=-M}^{M} g(n)W_N^{kn} = A_G(k)e^{j\theta G(k)}. \tag{7}$$

In the expression, $n = -M, \ldots, M$, $N = 2M + 1$, $W_N = e^{-J2n/N}$, the width of the multimedia image corresponding to $A_F(k)$ and $A_G(k)$, and the phase difference of the converted image between $e^{j\theta F(k)}$ and $e^{j\theta G(k)}$ can be expressed in a normalized manner.

$$\widehat{R}(k) = \frac{F(k)\overline{G(k)}}{|F(k)G(k)|} = e^{j\theta(k)}. \tag{8}$$

In the expression, $\overline{G(k)}$ is the expression of G(k) conjugate complex number, which satisfies $\theta(k) = \theta_F(k) - \theta_G(k)$, then the discrete Fourier inverse transformation function corresponding to $\widehat{R}$ is expressed as follows:

$$\widehat{r}(n) = \frac{1}{N}\sum_{n=-M}^{M} \widehat{R}(k)W_N^{-kn}. \tag{9}$$

If the sequence f(n) and g(n) of the multimedia visual image have a certain similarity, then the corresponding peak α can be obtained corresponding to the above expression, and the corresponding coordinate orientation is represented by δ, which means f(n) The relative offset corresponding to g(n) can quickly remove the visual deviation value between the two according to the peak feature, which can quickly and accurately realize the three-dimensional matching operation of the virtual reality image reconstruction.

2.2.2. Phase Correlation Visual Virtual Reality Reconstruction under the Mean Method. The use of the binocular offset positioning method is mainly to realize the correction of the reconstruction process of the multimedia visual image and at the same time can effectively maintain the corresponding baseline balance, as shown in Figure 1. Figure 1shows a schematic diagram of the visual virtual reality three-dimensional matching. So, the offset corresponding to the multimedia visual image can only appear on the epipolar line, and the calculation is performed in detail using the binocular offset positioning phase function to obtain the result of visual reconstruction. However, if the image illumination quality is poor, the accuracy of the matching method needs to be combined with the binocular offset positioning to improve the accuracy. At this time, the average method is used to ensure the authenticity of the image matching. The detailed operation process is shown in Figure 1.

It can be seen from Figure 1 that in a visual system for three-dimensional matching of multimedia visual images, L units of movement on the vertical axis corresponding to the sequence f(n) of the visual image can be performed to obtain $f_L(n)$ and the corresponding sequence. For $g_L(n)$, the corresponding phase correlation calculation can be performed for $f_L(n)$ and $g_L(n)$ to obtain $\widehat{r}_L(n)$, then its mean value can be expressed as follows:

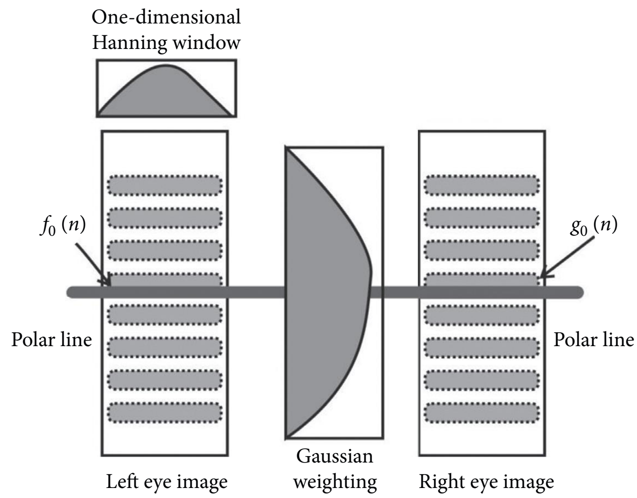

Figure 1: Visual virtual reality three-dimensional matching based on phase correlation.

$$\hat{r}_{ave}(n) = \frac{1}{2\,D + 1} \sum_{L=-D}^{L=D} \hat{r}_L(n). \qquad (10)$$

In the formula, $L = -D, \ldots, D$ and D are the reason for the relatively large change in the mean sequence. Then, 2D+1 is used as the total set corresponding to the mean sequence to obtain the coordinates of the peak α for effective stereo matching of visual deviation [8].

2.2.3. Three-Dimensional Matching Structure of Multimedia Visual Images. The process of multimedia visual image reconstruction is a kind of matching from coarse to fine, which can effectively improve the robustness of virtual reality algorithms, improve the resolution of the binocular structure corresponding to the multimedia visual image collection, and quickly find the corresponding matching points until the initial image resolution is improved, and the process is mainly as follows:

Multimedia visual simulation acquisition equipment uses images on both sides of the binocular and needs to be divided into resolutions according to multiple levels. At the same time, $l\max$ is used to complete the level-by-level matching. Among them, the image obtained in the first level of the multimedia visual image is represented by f_l, then the following expression can complete the expression of the upper level f_{l-1}:

$$f_{t-1}(x, y) = \frac{1}{4} \sum_{i=0}^{1} \sum_{j=0}^{1} f_{t-1}(2x + i, 2y + j). \qquad (11)$$

In the above formula, when the correction is implemented, the multimedia visual image must maintain the parallel state of the epipolar lines, so the up and down shifts are considered. For example, in a device system based on landscape orientation, the starting point is $l = l\max$ with the highest resolution.

The reference point in the left multimedia image can be expressed as $m = (m_1, m_2)$, then the corresponding azimuth coordinates in this area can be expressed by $(\lfloor 2^{-l\max} m_1 \rfloor, \lfloor 2^{-l\max} m_2 \rfloor)$, then for the image matching point corresponding to the right image of the multimedia vision, the azimuth coordinates in this area need to be fused, namely, $q_{l\max} = (\lfloor 2^{-l\max} m_1 \rfloor, \lfloor 2^{-l\max} m_2 \rfloor)$. Similarly at the $l = l\max - 1$ level, the point m calculates the set centered on the first level and the set centered on the corresponding point of the right image of the first level according to the coordinates of the first level direction, and if the lateral phase deviation is obtained, the corresponding azimuth coordinate point of the right image on the first level is $l = l\max - 1 m_l = (\lfloor 2^{-l} m_1 \rfloor, \lfloor 2^{-l} m_2 \rfloor)\ (\lfloor 2^{-l} m_1 \rfloor, \lfloor 2^{-l} m_2 \rfloor) 2 q_{l+1} \delta_l q_l = (\lfloor 2^{-l} m_1 \rfloor, \lfloor 2^{-(l+1)} m_2 \rfloor + \delta_l)$. The above steps are repeatedly exercised to obtain accurate correction results. When I = 0, q=(m) can be obtained to achieve three-dimensional matching. Through the use of this algorithm, a sense of stereo matching can be achieved, and the positioning and analysis of special effects on the left side of the multimedia vision image will be applied to effectively improve the relative image matching pixels between the two [9].

Combined with the above-detailed analysis, it can be seen that the use of virtual reality algorithms can effectively improve multimedia vision in the image processing process. Due to the complex calculations, the current three-dimensional matching algorithms do not consider the impact of the surrounding environment. Then, the average value method is used to complete the calculation of sequence weights, and the resolution of multimedia visual images has been improved.

3. Improved Algorithm for Multimedia Visual Virtual Reality Reconstruction

3.1. Feature Extraction of Multimedia Visual Images. The feature extraction process of multimedia visual images is mainly based on the extraction of feature information of three-dimensional multimedia visual images, and at the same time, visual analysis is performed based on the changes in the characteristics of multimedia visual images. The value of the visual target is used to search for the three-dimensional coordinate value of the multimedia visual image. It is assumed that the projection of the multimedia geometry truly reflects the perspective transformation model, and the optimized conversion of the virtual reality algorithm is used to extract the characteristics of the multimedia visual dynamic image.

3.1.1. Feature Extraction of Visual Two-Dimensional Multimedia Target Image. After extracting the three-dimensional contour of the visual target, the target feature is obtained, which can segment the image and recognize the three-dimensional visual traveling image. The one-dimensional signal interval is extracted from the collected images along the contour of the visual walking image, and the maximum and minimum values of the obtained signal interval are used as the position points of the visual walking legs. The distance between these two points can be used as the dynamics of the test object to reconstruct the feature vector. The two-dimensional coordinates obtained are as follows: $(c_1 z_1)$ represents the coordinates of the footing point, $(c_2 z_2)$ represents the coordinates of the knee joint, and $(c_3 z_3)$ represents the coordinates of the crotch, leaving the original visual two-dimensional multimedia target feature image described above.

3.1.2. Multimedia Visual Image Change Feature Generation. It is assumed that the equation of the multimedia geometric projection model formed by the keys in the visual dynamic image is as follows:

$$c_s = S(c). \tag{12}$$

In the formula, S(c) represents the key point $c = (c, z, v)$ in the multimedia environment to the two-dimensional image coordinate point in the two-dimensional target image. $c_s = (c_s z_s)$ represents the camera exchange, and the projection conversion model of the small hole camera can show the perspective conversion in the real environment model. There are object points, image points, and the origin of the coordinate system in the same two-dimensional multimedia plane, which are unified. The conversion model of the visual target can also be described by the three-dimensional target situation including c_s, c_o, and c. Different visual targets can produce a certain degree of collinearity, and the conversion formula is as follows:

$$p\left(c_s - c_o\right) = \left(c_o - c\right). \tag{13}$$

The formula converted from formula (5) is as follows:

$$p\left(\begin{pmatrix} c_s \\ z_s \\ 0 \end{pmatrix} - \begin{pmatrix} 0 \\ 0 \\ s \end{pmatrix}\right) = \begin{pmatrix} 0 \\ 0 \\ s \end{pmatrix} - \begin{pmatrix} c \\ z \\ s \end{pmatrix}. \tag{14}$$

According to formula (6), the expanded formula is as follows:

$$\begin{cases} p = \dfrac{v - s}{s} = \dfrac{s}{s} - 1, \\ c_s = -\dfrac{c}{s} = s\dfrac{c}{s - z}, \\ z_s = -\dfrac{z}{s} = s\dfrac{z}{s - z}. \end{cases} \tag{15}$$

In practical applications, $e_u(c_u, z_u, v_u)$ represents a point in the actual three-dimensional vision target image coordinate system after parallel movement and rotation and $e_g(c_g, z_g, v_g)$ represents a point corresponding to the camera coordinates in the multimedia camera. R represents the multimedia image coordinate point rotation conversion matrix, and E represents the multimedia image coordinate point parallel conversion matrix. Q indicates that the rotation matrix of the multimedia camera projects the camera coordinate points on the plane and obtains the point e(b, r) in the projection. The conversion formula is as follows:

$$\begin{bmatrix} U \\ Y \end{bmatrix} = Q\begin{bmatrix} C_u \\ Z_u \\ V_u \end{bmatrix} = Q\left[R\begin{bmatrix} C_u \\ Z_u \\ V_u \end{bmatrix} - E\right]. \tag{16}$$

Based on the key point data in the 3D visual target image, three conversion matrices of R, E, and Q can be obtained according to equation (18), where l represents the number of frames in the 2D multimedia visual image; $R_{l\times 3}$ (“I×3” is on the lower right side of “B”) represents the matrix formed by rotation of the image per frame, and each element area in the matrix is broken down by the angle of the matrix rotation around c, z, and v axis; $E_{l\times 3}$ (“I×3” is on the lower right side of “E”)represents the matrix formed by translation of the image per frame; the first row of $Q_{l3\times 2}$ (“3×2” is on the lower right side of “Q”) represents the rotation of multimedia camera. The 3 element areas in the matrix are respectively rotated around each angle of c, z, v, axis; $P_{3\times 4}$ indicates that the 4 multimedia coordinate points are the original values of the shape points. Then, the calculation formula of the multimedia visual image feature after the optimization conversion of the nonlinear algorithm is as follows:

$$X_{sl} = \begin{pmatrix} R_{l\times 3} & E_{l\times 3} \\ P_{3\times 4} & Q_{3\times 2} \end{pmatrix}. \tag{17}$$

Multimedia Visual Image Motion Trajectory Feature Preprocessing. The acquired multimedia visual image is binarized, the image in the moving target is automatically updated, the adaptive threshold filtering method is used to realize the image processing, the multimedia visual image target motion trajectory to record is removed, and the three-dimensional visual image is extracted.

The moving targets in the acquired multimedia visual surveillance images are binarized [10]:

$$A_{k+1}(x, y) = \begin{cases} 1, \left[I_k(x, y) - G_k(x, y) > T_f\right], \\ 0, \text{else}. \end{cases} \tag{18}$$

Among them, $I_k(x, y)$ and $G_k(x, y)$ respectively represent the current image and background of the acquired multimedia visual moving target; T_f represents the binarization threshold.

By introducing an adaptive background update algorithm to adapt the background of the moving object image, it can effectively suppress the influence of the illumination and background changes of the multimedia visual image [11]. The calculation is shown as follows:

$$\alpha, \beta \in [0, 1]. \tag{19}$$

Based on the above reasoning, when the pixel location of the multimedia visual action image is the target, there is no need to replace the background by an autonomous update again. If the current pixel is not the target, then the relative pixel data of the multimedia visual action image need to be adjusted. Because the target action picture and natural environment noise in the multimedia visual monitoring picture come from the characteristics of the target itself, the background needs to be updated by the autonomous threshold filtering operation:

$$T_S = S_{fst} \times \mu + S_{\text{end}} \times \sigma. \tag{20}$$

Among them, S_{fst} represents the maximum perimeter of the moving target in the multimedia visual image, S_{snd} represents the perimeter of the moving target second only to S_{fst}, and μ and s represent the weighting coefficients related to S_{fst} and S_{snd}, respectively.

$T_{\min}$ is set to indicate the minimum noise threshold in multimedia visual images:

$$S_{fst} > T_{\min}. \tag{21}$$

Then, formula (21)is executed, if

$$S_{fst} \le T_{\min}. \tag{22}$$

All multimedia visual images are not extracted as targets.

If the circumference of the i-th moving target of the multimedia visual image is greater than the threshold T_S, that is,

$$S_i > T_S. \tag{23}$$

The simulator prototype is extracted. Instead, it is thrown away.

3.2. Detail Texture Enhancement of Visual Images. In the case of using the phase correlation function for calculation, the target individual feature vector in the visual virtual reality reconstructed image has a great influence on the reconstructed data. If the target individual texture feature is assumed to be less, it is easy to produce errors, thereby increasing the reconstruction. The difficulty requires fine texture on the reconstructed image. Therefore, the superposition of high-frequency data in the selected image in the initial image can improve the texture characteristics of the original image and can improve the accuracy of the result.

In noise removal, for the image gray-scale sequence N in the reconstruction of visual virtual reality with x = P, the feature distribution in the edge region of the target individual is obtained, with the gray-scale conversion equation as follows:

$$\begin{aligned} S_c &= \left[S_0, S_1, \ldots, S_{Q-1}\right]_{\text{binary}} = \left[\sum_i^{Q-1} S_i \times 2^i\right]_{Dce}, \\ S_i &= \sum_j^{W\times W} I_x^j. \end{aligned} \tag{24}$$

Among them, Q is the number of gray scales in the vicinity of the target area, W is the conversion step size, and the denoising function is as follows:

$$\begin{aligned} x(k+1) &= Q_i(k)_x + w_i(k), \quad i = 1, 2, \ldots, m, \\ z(k) &= H_i(k)_x(k) + v_i(k), \quad i = 1, 2, \ldots, m. \end{aligned} \tag{25}$$

In the formula, $w_i(k)$ and $v_i(k)$ are the pixel noise in the edge area of the target individual. $Q_i(k)$ and $H_i(k)$ belong to a balanced distribution with a mean value of 0 and a variance of $S_i(k)$, and a fuzzy set $u = \{u_{ik}\}$ is constructed. Then, the feature decomposition of the texture is done to obtain the denoising output as follows:

$$\begin{aligned} I_{GSM} = I\left(C^N; D^N|s^N\right) &= \sum_{i=1}^N I\left(C_i; D_i|s_i\right) \\ &= \sum_{i=1}^N \left(h\left(D_i|s_i\right) - h\left(D_i|C_i s_i\right)\right) \\ &= \sum_{i=1}^N \left(h\left(g_i C_i + V_i|s_i\right) - h\left(V_i\right)\right). \end{aligned} \tag{26}$$

Taking into account the difference between the reconstructed image regions, $u^{(n)}(x, y, d)$ is used to describe the spatial texture feature information, the pixel gray interval is constructed in the gradient direction, and the iterative formula of the image denoising function is obtained:

$$\begin{aligned} u^{(n+1)}(x, y) &= u^{(n)}(x, y) + \delta u_1^{(n)}(x, y), \\ u_1^{(n)}(x, y) &= M\Delta_x u^{(n)}(x, y) + N\Delta_t u^{(n)}(x, y, d). \end{aligned} \tag{27}$$

The number of repeated steps is described as follows: Through the texture feature noise removal method, the impact on the image is reduced, and the improvement of the visual virtual reality reconstruction algorithm is realized $n = 1, 2, \ldots, T$.

Then, the image texture is enhanced, and (28) is used to perform high-pass filtering on the initial image, that is,

$$c(x, y) = \sum_{i=-n}^{n} \sum_{j=-m}^{m} f(i, j) g(x - i, y - j). \tag{28}$$

Here, f is the reconstructed initial image, c is the high-frequency region of feature selection, and g is a 3×3 hyperspherical matrix [12] as follows:

$$g = \begin{bmatrix} -1 & -1 & -1 \\ -1 & 8 & -1 \\ -1 & -1 & -1 \end{bmatrix}. \tag{29}$$

Then, the texture enhancement image f1 is obtained as follows:

$$f_1(x, y) = f(x, y) + c(x, y). \tag{30}$$

Among them, f1 is the texture image after detailed enhancement, f is the initial image, and c is the azimuth coordinates of the selected high-frequency region (x, y) image.

3.3. Improvement of Multimedia Visual Virtual Reality Reconstruction Algorithm. From the characteristics of the collected multimedia visual pictures, we study a reconstruction method of the illusory reality of the multimedia visual image based on the illusion reality reconstruction calculation, and at the same time, a model of the illusion reality reconstruction method is constructed. Using the minimum value of the gradient projection target value, the gradient direction can be optimized to obtain the reconstructed visual image effect.

Assuming that the training 3D vision images form a sample set, the types of training 3D vision image sample sets are sufficient. In the j-th training 3D vision image sample set matrix, $J \in I^{\alpha-\beta}$ means the training 3D vision image sample dictionary and $\|g\|_1$ means in the j-th image The norm class of $J \in I^{\alpha}$; the norm of the j-th training three-dimensional visual image; m represents the visual image dictionary matrix; q, u represents the coefficient greater than zero, and the model formula based on the virtual reality reconstruction algorithm is as follows:

$$\min \|g\|_1 q.u.m = Jg + X_{sl}. \tag{31}$$

According to formula (9), it is necessary to determine the minimum value of $\|g\|_1$. The Newton's interior point blocking method is used to constrain the objective function with inequality, and the formula is as follows:

$$\begin{aligned} &\min \frac{1}{3}\|Jg - m\|_3^3 + \delta \sum\nolimits_{k=1}^{n} o_k \\ &q.u. \longrightarrow -o_k \le g_k \le o_k, k = 1, \ldots, n. \end{aligned} \tag{32}$$

In the (g, o) region, according to the constraints of $-o_k \le g_k \le o_k$, the minimum value $(\dot{g}(\varepsilon), o(\varepsilon)), t\,\varepsilon n \in q[0, \infty)$ can be obtained, and the calculation formula of using the minimum interior point method to optimize the gradient direction is as follows:

$$\nabla^2 J_K(g, o) \cdot \begin{bmatrix} \Delta g \\ \Delta o \end{bmatrix} = -\nabla J_K(g, o) \in I^{2\alpha}. \tag{33}$$

Based on equation (11) to find the gradient direction, the gradient projection method is used to obtain the sparsely represented reconstructed visual image more quickly. The virtual reality reconstruction of 3D visual images is realized.

When the azimuth coordinates are known to search for the peak value, if a deviation occurs in the global search method, the relevance and restriction standards in the reconstruction level should be used to reduce the scope of the search and minimize the reconstruction deviation. It can be seen from the horizontal two-way restriction criterion that if the vertical error of the verification is close to 0, the vertical search interval needs to be reduced; when the multimedia visual image is processed for 3D reconstruction, the correlation of any reconstruction level can be used to shorten the horizontal search range [13, 14].

A low-pass filtering step is added to $\hat{r}(n_1, n_2)$ and then its peak value is calculated:

$$h(k_1, k_2) = \begin{cases} 1, |k_1| \le U_1, |k_2| \le U_2, \\ 0, \text{otherwise}. \end{cases} \tag{34}$$

Assuming that the horizontal and vertical quality inspection offset errors of multimedia visual images are relatively small, then the virtual reality reconstruction algorithm is used to ensure the accuracy of the offset calculation, especially when the data obtained have large deviations. The reconstruction structure of the image also cannot correct its normal function, but the limited area is relatively small, but it has not been reconstructed. Therefore, the values of U1 and U2 used can be used as the most ideal search values.

In the traditional reconstruction algorithm, the reconstruction process requires an evaluation and correction of the failure rate. However, there is an intermediate reconstruction process in the actual use situation, and the resulting incorrect reconstruction will cause the next resolution of the scene. At the same time, the selected method is mainly because the fixed threshold α_{th} is clearly compared with the peak α. However, the overall peak of each resolution has a large change, so more precise dynamic methods are used for determining the threshold α_{th}.

The peak α in any reconstruction level is statistically sorted and arranged into a set. Assuming that the edge of the restricted area of level 1 is the threshold α_{th}, then $q_l(m_l)$ can be calculated. If the phase correlation peak α is greater than or equal to the threshold α_{th}, it can be proved that the point is a gregarious point, that is,

$$\begin{aligned} q_{lc}(m_l) &= q_l(m_l), \\ d_{lc}(m_l) &= m_l - q_l(m_l). \end{aligned} \tag{35}$$

Suppose $\alpha < \alpha_{th}$, then it is proved that the point is a point away from the group, and the adjacent area 5× that does not contain the point is selected. For all points in the 5 intervals, a sequence is constructed by size, the middle value is taken, and it is defined as the d value of the point, which is as follows:

$$\begin{aligned} d_l'(m_l) &= \left(d_1^{med}, d_2^{med}\right), \\ q_l'(m_l) &= m_l - d_l'(m_l). \end{aligned} \tag{36}$$

Then, the phase correlation calculation is used to derive the new peak value. If $\alpha > \alpha_{th}$, then

$$\begin{aligned} q_{lc}(m_l) &= q_l'(m_l), \\ d_{lc}(m_l) &= m_l - d_l'(m_l). \end{aligned} \tag{37}$$

Otherwise, let $d_{lc}(m_l) = d_l'(m_l)$.

In the data obtained in the reconstruction of multimedia visual virtual reality, there are a small amount of allocation errors, which need to be conditionally restricted so that the subsequent three-dimensional model will not be affected, resulting in distortion of the visual virtual reality reconstruction image and reducing the real effect [9]. Some of its errors are limited through error reconstruction and peak relocation, but there are still a small number of errors that have not been filtered. Therefore, it is necessary to calculate the maximum and minimum depth values of the stereo model and determine its depth interval and threshold α_{th}, assuming that the corresponding reconstruction point is that the depth value is not within the determined interval, then it will not be output, and the reconstruction point $\alpha < \alpha_{th}$ will not be output at the same time.

The azimuth coordinate of the sample is set to be (x_l, y_l), the corresponding reconstruction point is (x_r, y_r), the peak value is calculated to be α, and the bilateral disparity is $d = x_l - x_r$.

If $\alpha \geq \alpha_{th}$ and $d_{\min} < d < d_{\max}$ the relevant value is input into the 3D model, where $d_{\max}$ and $d_{\min}$ represent the maximum and minimum parallax values, respectively.

4. Simulation Data Analysis

4.1. Experimental Guidelines and Objects

4.1.1. Experimental Guidelines. In the background of the illusory reality reconstruction, the effect of the multimedia vision illusion reality reconstruction method is highlighted. The target trajectory of the multimedia vision picture can be used as a case, and the method in the literature is used to compare with the multimedia vision image reconstruction method in the illusion reality reconstruction method. The quasi-lateral conversion method of the virtual reality reconstruction rate RR obtained by comparing the above two calculation methods as follows:

$$M(\iota) = \frac{K_\iota}{K}. \tag{38}$$

In the formula. where K represents the total number of visual image samples in the test; M represents the number of visual image samples that are accurately reconstructed in the candidate samples.

4.1.2. Subject. The samples tested in the experiment are mainly ORL human motion visual images, a multimedia visual image database is constructed, and 500 visual images of ORL human motions are analyzed by comparing various algorithms. There are 50 people in total, and each person has 10 different actions and actions under different lights. The morphological visual image has a resolution of 112×92 and a gray scale of 256 levels. The test analysis was carried out using the RR evaluation form.

4.2. Experimental Results. In order to verify the comprehensive practicability of the proposed multimedia visual virtual reality reconstruction algorithm, a simulation is needed. The simulation environment is MATLA-BR2010a. The sample image used uses the C multimedia visual image *M* and the parameter of the simulated bilateral lateral balance system to correct the matching error to obtain more accurate system parameter information, as shown in Figure 2. Simultaneously, the simulation parameter values are as follows: the matching level $l_{\max}$ is 5, the window is 33 × 33, and the interval for setting the threshold α_{th} is 10%.

In order to compare the improved effect of the algorithm in this research, the image reconstruction algorithm of traditional literature [3] and the improved algorithm proposed in this research were used to reconstruct the sample image. The corner detection calculation results are shown in Figures 3 and 4:

The test results show that the virtual reality reconstruction method used in this study can detect the corner points of the sample image more effectively, and at the same time can more realistically describe the local maximum value of the multimedia visual image. Through comparative analysis, it can be seen that the use of image reconstruction methods in literature [3] has a small number of corner detections, which seriously affects the accuracy of multimedia visual image reconstruction.

Figure 2: Experimental sample.

Figure 3: Document [3] algorithm.

The following further verifies the image reconstruction noise filtering effect of the research algorithm. The instrument used in the experiment is an oscilloscope. The greater the fluctuation of the waveform of the instrument interface, the greater the noise of the image and the lower its clarity, which reflects the reconstruction effects of different methods (Figures 5–8).

According to the analysis of the simulation results, it can be seen that the image reconstruction noise obtained by the traditional algorithm is too large, and the part of the image is fuzzy and unclear. The visual experience is poor, but

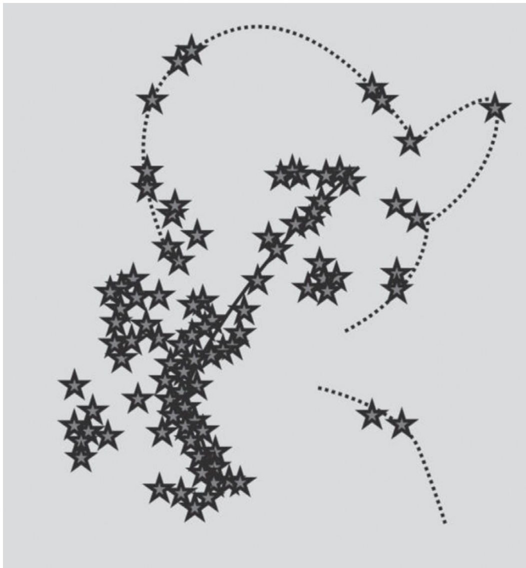

Figure 4: Research algorithm.

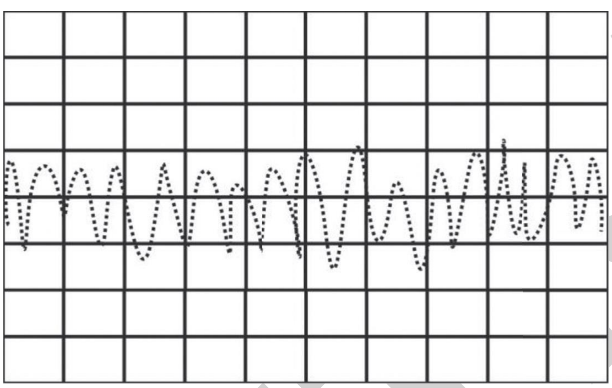

Figure 5: Original image noise.

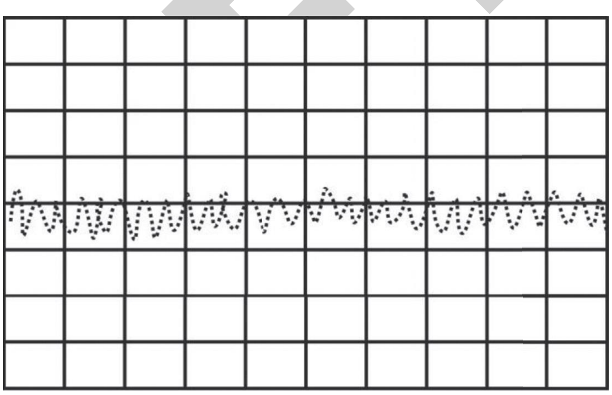

Figure 6: The noise effect after image reconstruction under the algorithm of literature [3].

applying the virtual reality reconstruction method to the process of multimedia visual reconstruction can effectively suppress noise interference, effectively improve the quality of multimedia visual image reconstruction, enhance the

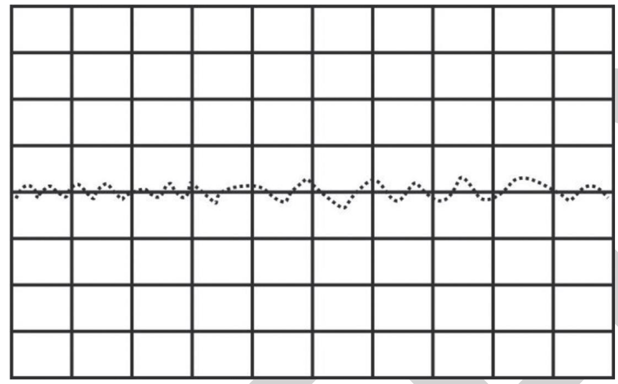

Figure 7: The noise effect after image reconstruction under the algorithm of literature [4].

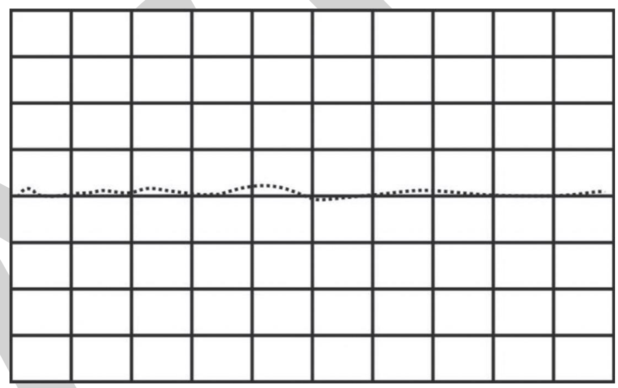

Figure 8: Research algorithm image reconstruction noise.

authenticity of the image, and promote the real visual experience of the user in virtual reality.

5. Conclusion

Based on the analysis of traditional algorithms, it is proposed to apply the virtual reality reconstruction algorithm to the simulation test of multimedia vision. Under the condition of ensuring the authenticity of the original image, the structure of the image can be optimized, and the peak value of the image can be efficiently performed according to the matching level. The threshold model of reconstructed image is retrieved and constructed, the accuracy of image evaluation and correction is improved, and this algorithm is used to reconstruct the image more realistically. In virtual reality, viewers can adjust their viewing angles and query information about the surrounding environment. This is a feeling that traditional images cannot give. The wrong data are evaluated and corrected, and then the maximum, minimum, and depth data are calculated. The improved transition noise is lower, the calculation speed is faster, and the visual experience is better, while maintaining its original robustness and feasibility.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

This research study was sponsored by Chongqing Higher Vocational Education Teaching Reform Research Project. The name of the project is Innovation and Research on 5g + XR immersive teaching mode and the project number is Z211011. The authors thank the members of the project for supporting this article.

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