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Retraction

Retracted: Analysis of Artistic Creation and Design Methods in Universities Based on Augmented Reality and 5G Communication Technology

Security and Communication Networks

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This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret 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 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] Y. Li, "Analysis of Artistic Creation and Design Methods in Universities Based on Augmented Reality and 5G Communication Technology," *Security and Communication Networks*, vol. 2022, Article ID 4005210, 10 pages, 2022.

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Research Article

Analysis of Artistic Creation and Design Methods in Universities Based on Augmented Reality and 5G Communication Technology

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In order to enhance the research of art design in colleges and universities, based on the theory of augmented reality, 5G communication technology is used to conduct targeted analysis of art design and creation in colleges and universities. Through the research of feature parameter extraction, parameter consistency test, and optimization algorithm analysis on the relevant data of the art design in colleges and universities, the deficiencies of art design and creation in colleges and universities are pointed out, and relevant solutions are adopted. The results show that with the increase of distribution distance, the curve of the z value shows a linear change trend. The curve corresponding to a value has an obvious polynomial change rule. Through the analysis, it can be seen that the influence of two parameters on augmented reality needs to be considered comprehensively. As the number of iterative steps increases, the consistency curve of augmented reality shows an obvious linear downward trend. However, the increase of parameter m can improve the data changes of augmented reality consistency, and the research shows that parameter m can further promote the consistency changes of augmented reality. The gradual increase of index P_n leads to a gradual decline in data P_c, while the parameter P_x has an opposite effect on data P_c. Therefore, in order to obtain targeted data and results of 5G communication technology, it is necessary to comprehensively consider the influence of the two factors. Finally, the optimization model based on augmented reality and 5G communication technology is used to analyze and predict the relevant characteristic data of university art design, so as to verify the accuracy of the model. The research results can provide support for the application of augmented reality and 5G communication technology in other art fields.

1. Introduction

Augmented reality and 5G communication technology have been widely applied in various fields: urban visualization research [1], tourism promotion [2], teaching methods [3], computer storage [4], tracking display [5], and so on. In view of the problems existing in the process of image output, Shishova et al. [6] proposed an optimization model based on augmented reality theory. In this model, feature parameters were extracted from the image to obtain the corresponding optimization data, and the optimal solution of the corresponding graph was obtained through calculation. 5G communication technology can be used for the adjustment and optimization of high-power voltage dividers [7]. A series of measures were adopted to analyze the parameters and data of the model, and experiments were used to verify it. 5G communication technology also has broad application prospects in signal processing [8], and relevant data can be used to verify and analyze the model. First, the augmented reality algorithm was used to further extract and analyze the data of the model, so as to obtain the extracted data. Then, the collected data were imported into the optimization model, so as to carry out optimization parameter calculation. Finally, relevant graphs were analyzed and verified by using the above methods.

The above studies mainly focus on the application of augmented reality and 5G communication technology from urbanization, information technology, and other aspects. Aiming at the problems existing in artistic creation in colleges and universities, this paper first extracts and analyzes the data on artistic creation in colleges and universities based on the relevant theories of augmented reality. A series

of consistency tests were carried out to simulate and verify the accuracy of the test data, and then 5G communication technology was used for further analysis of the above data. The method of data collection is used to obtain the relevant information of college art creation and design methods, and the solutions are put forward to solve the existing problems. Therefore, based on the theory of augmented reality and 5G communication technology, it can provide relevant data support for artistic creation in colleges and universities, so as to provide a guarantee for the application of augmented reality and 5G communication technology in other fields.

2. Related Theory Based on Augmented Reality

2.1. Feature Extraction in Augmented Reality. Augmented reality technology is a clever fusion of virtual information and the real world, widely using multimedia, three-dimensional modeling, real-time tracking and registration, intelligent interaction, sensing, and other technical means [9, 10]. The audience can overlap the real world and the virtual scene generated by the computer into one body only by using corresponding external devices. Augmented reality technology synchronizes the changes of images, sound, and touch in the virtual scene to the real world with real-time interaction, which greatly enhances the fun and product characteristics. Add positioning virtual objects in three-dimensional space, advanced technology, and wide application prospects, so it has super practicability.

In order to further analyze and study the related content of the augmented reality system, the working process of the augmented reality system is drawn, as shown in Figure 1. From the figure, we can see the specific workflow of the augmented reality system as follows: first, the real scene and virtual scene are imported into target recognition and scene rendering, respectively, for parameter extraction and analysis, and then the extracted parameters are imported into tracking registration and 3D registration. In this way, the tracking parameters can be further registered, extracted, verified, and analyzed, and the corresponding characteristics of the parameters can be obtained. Then, the targeted features are introduced into the module combining real scenes and virtual scenes so that we can get the corresponding data of real scenes and virtual scenes based on the augmented reality system. Finally, the data is imported into the display device module. In the display device module, the relevant data of the augmented reality system can be further analyzed and extracted through the comprehensive effect of the display system, users, and human-computer interaction interface, and finally, the relevant data can be exported.

In order to further study the image processing process of augmented reality technology, the graphic analysis and extraction process based on augmented reality theory is obtained by extracting and analyzing different kinds of graphic features, as shown in Figure 2. We can see from the figure that image extraction and processing can be divided into two modules: local feature extraction and quantization module and global feature extraction and quantization module. The specific calculation and processing process is as follows: first, the image is imported into the local feature extraction and quantization module, and the local feature extraction module is used to further extract the relevant features of the image. It mainly extracts pixel, size, and color of graph and then imports extracted parameters into local feature extraction and quantization module and global feature extraction quantization module. In the quantization module of local feature extraction, feature points are first screened after data is imported, and targeted feature points are selected for further analysis. The purpose of this is to realize the application of augmented reality technology in local features but also to be able to remove the influence of redundant interference factors. Then it is imported into the local feature generation module, so as to obtain the local feature data of the image and then edit and verify the corresponding position points so that the obtained image can better reflect the targeted features of the image. In the global processing module, the feature points are screened and extracted first, and then the feature points of the image are reduced in dimension. This is mainly in order to be able to grasp and analyze the global data and images. Finally, through extraction and further analysis, scalable quantitative images can be obtained, and the corresponding results will be output at last [11, 12].

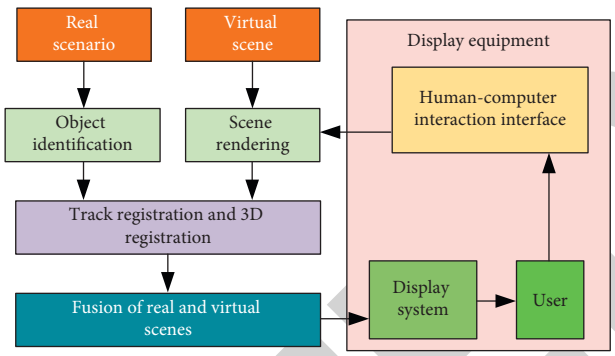

Figure 1: Workflow flowchart of augmented reality system.

For any evaluation attribute y, the probability of an important point appearing in a region S of the y distribution is

$$p(c = 1 | y \in B) = \frac{p(y \in B \cap c = 1)}{p(y \in B)}, \tag{1}$$

where p is the probability of appearance of feature points, B is the corresponding set of feature points, and c is the characteristic parameter value.

In order to verify and explain whether there are matching points for each feature point in the training sample, a binary decision function k is defined by assigning corresponding values to binary label c_n as follows:

$$\begin{aligned} \widehat{p}(y \in B | c = 1) &= \frac{\sum_{n=1}^{N} k(y_n \in B) c_n}{N} \\ &= \widehat{p}(y \in B) = \frac{\sum_{n=1}^{N} k(y_n \in B)}{N}, \end{aligned} \tag{2}$$

where $\widehat{p}(y \in B | c = 1)$ is the probability of optimizing feature points, N is the number of samples, and c_n is a binary label.

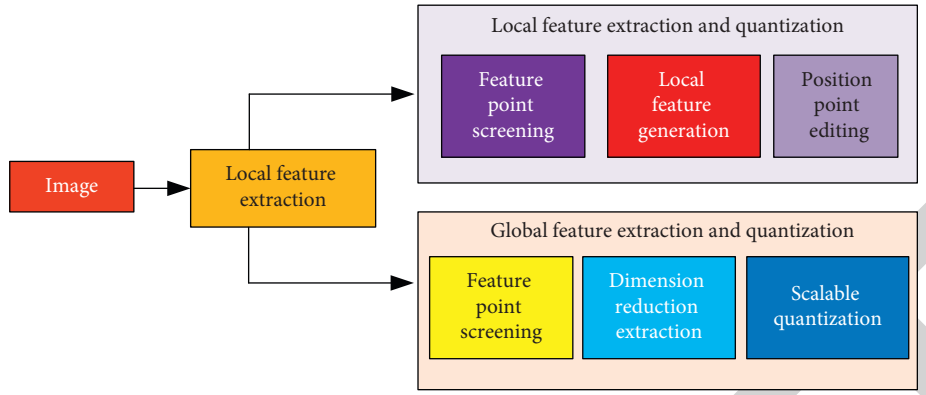

Figure 2: Graphic feature extraction and quantization flow chart based on augmented reality.

Thus, the probability of matching points in the region where each attribute is located can be obtained, and the importance score of feature points can be obtained by multiplying the probability of each attribute as follows:

$$r = \hat{p}(c = 1|\sigma \in S) \ldots \hat{p}(c = 1|d \in D), \tag{3}$$

where D is the corresponding set of d and d is the parameter of importance score.

Based on the above analysis, we can see that the extraction probability is different under different r values. Therefore, in order to further analyze the influence of different r values on the extraction probability, we draw the curve of r value changing with the extraction probability under different iteration steps, as shown in Figure 3. It can be seen from the figure that the extraction probability is different under different R values, which can be divided into two stages according to the changing trend. When the number of iteration steps ranges from 0 to 2,000, the corresponding curve shows a trend of gradual decline as the number of iterations increases, and the slope of the decline curve gradually approaches zero. When the number of iteration steps exceeds 2,000, the curve enters the second stage. In the second stage, the curve shows a relatively gentle trend of change, and with the increase of iteration steps, the corresponding value shows an approximate constant trend of change. This shows that when the number of contemporary steps reaches a certain level, the corresponding extraction probability tends to be stable, and such curve changes can better meet the requirements of image extraction based on augmented reality technology. From different r values, it can be seen that with the gradual increase of the r value, the corresponding extraction probability data shows a trend of gradual decline. This shows that there is an obvious inverse proportional decreasing relationship between the r value and corresponding probability change. It is worth noting that the spacing between the corresponding trends is basically the same, which indicates that the change of the r value has obvious linear characteristics.

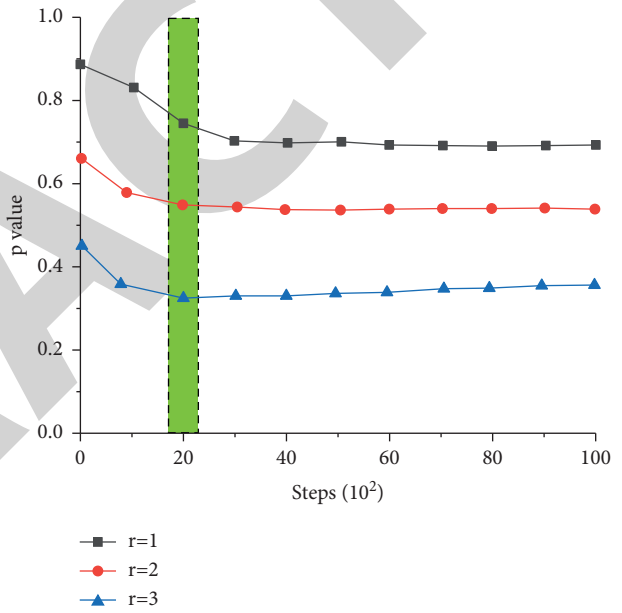

Figure 3: The probability change diagram is extracted under different r values.

2.2. Consistency Checking for Augmented Reality. Based on the above analysis, we can see that augmented reality technology can be widely used in different fields. In order to further illustrate the content of the consistency test of augmented reality technology [13, 14]. First, the quantized local features are used for feature matching to obtain the matching relationship between the optimized image sample and the query image. Then, the correlation algorithm relative to augmented reality is used for geometric verification [15, 16]. Compared with the consistency verification of traditional augmented reality algorithms, the geometric verification method based on the matching pair ratio theory of augmented reality carries out the consistency verification of statistical distributed data, which has a great speed advantage.

$$Z_{ij} = \ln \frac{\|x_i - x_j\|}{\|y_i - y_j\|}, \tag{4}$$

where x_i is the coordinate of point i of the first image, x_j is the coordinate of point j in the first image, y_i is the coordinate of

point i in the second image, and y_j is the coordinate of point j in the second image.

The geometric verification method based on augmented reality is to judge the geometric similarity of two kinds of data by using the concentration degree of matching distance distribution. The basic idea of the geometric verification method based on augmented reality is that if two images have the same object, the graph model composed of points of interest on the same object has similarities. The matching interest point pair of two images is the position point after decoding. The function of position point coding is to reduce the length of the descriptor and save storage space. Then, using the method of hypothesis testing, the matching distance can be counted into a distribution broken line graph according to the size of the value. Then, the chi-square test is used to test the probability distribution model, and the corresponding expression of the probability distribution model is as follows:

$$f_z(z;a) = 2\left(\frac{ae^z}{e^{2z}+a^2}\right)^2, \tag{5}$$

where $f_z(z;a)$ is the probability distribution function and a and z are parameters of the corresponding distribution model. $a^2 = \sigma_x^2/\sigma_y^2$; σ_x^2 and σ_y^2 are the variances of the distribution of interest points of images X and Y, respectively.

Through the above formula and analysis, we can see that a and z have a great influence on the exponential result of a probability distribution. In order to further study the influence degree of z and a parameters on probability distribution indexes, the influence curves of probability distribution under two different indexes were drawn, as shown in Figure 4. It can be seen from the figure that the influence and change trend of probability distribution under different indexes are different, which indicates that different distribution distances of probability parameters have a certain influence on the probability distribution index. The details are as follows: from the changing trend of the z value, we can see that the curve shows a typical four-stage changing trend: (1) when the distribution distance is between 0 and 28, the corresponding curve tends to be gentle. In this stage, the fluctuation of probability distribution index data is relatively small, and the overall performance is a gentle change trend. (2) When the distribution distance is between 28 and 45, the probability distribution curve shows a trend of rapid increase, and the corresponding slope is approximately constant, which indicates that this stage has typical linear characteristics. (3) When the corresponding distribution distance is between 45 and 78, the curve still shows a linear change characteristic, but the linear change curve decreases compared with the previous stage. With the gradual increase of the distribution distance, the corresponding probability distribution index gradually improves. (4) When the distribution distance exceeds 78, the curve shows a rapid linear increase trend again, and the increase slope is basically consistent with the second stage. Through the above analysis, we can see that the influence process of the z value on the probability distribution shows obvious linear characteristic change characteristics, but on the whole, it belongs to

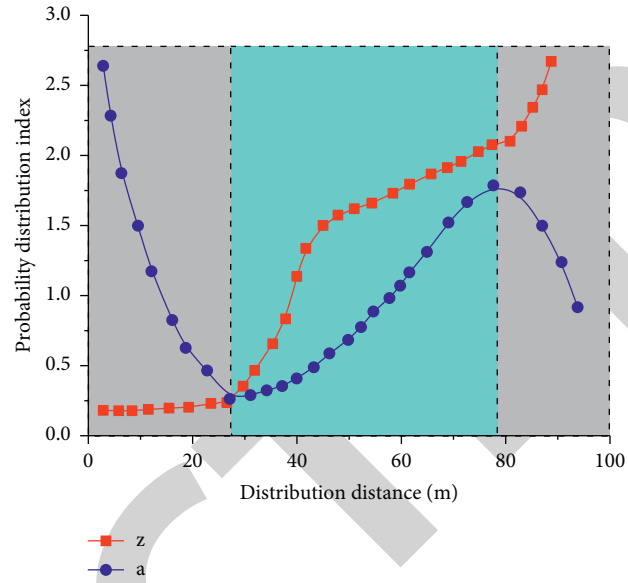

Figure 4: Influence diagram of z and a on probability distribution index.

multilinear characteristic distribution. From the influence of parameter proximity to a on the curve of a probability distribution, it can be seen that this area presents a typical polynomial distribution. According to the change rule of the curve, it can be divided into three stages: in the first stage, the curve declines gradually with the increase of the distribution distance, and the corresponding slope of the curve shows a trend of gradual decline. When the distribution distance exceeds 28, the corresponding curve shows a trend of gradual increase, and the slope of the corresponding curve changes approximately linearly. Finally, when the distribution distance exceeds 78, the corresponding curve gradually decreases, indicating that the probability distribution curve under the action of a value shows a fluctuation change on the whole.

By constructing the distance matrix between matching points and calculating the feature points and feature vectors of the matrix, the following formula is used to eliminate the number of matching errors.

$$m = 1 + \frac{\mu}{\sum \max\, d(x)} 2\left(\frac{ae^z}{e^{2z}+a^2}\right)^2, \tag{6}$$

where μ is the dominant eigenvalue, $d(k)$ is the distance between the k-th matching pair, and m is the number of eigenmatrixes.

For each correct matching pair, the following formula is used to calculate the data score based on augmented reality:

$$\varpi(r) = \cos\left(\frac{\pi r}{2}\right), \tag{7}$$

where r is the ratio parameter and $\varpi(r)$ is the score function.

The final retrieval result can be obtained by summing up all the correct matching pairs $\varpi(r)$ and reordering the relevant data with the score function.

Through the above analysis, it can be seen that the change of parameter m value will affect the consistency test results of augmented reality theory to a certain extent, thus having a great impact on relevant data. In order to further analyze the influence of parameter m on augmented reality, the variation relationship between parameter m and the score is drawn, as shown in Figure 5. As can be seen from the figure, with the increase of iteration steps, the corresponding value of augmented reality shows a trend of gradual decline. And it can be seen from the first-order polynomial fitting that the change relation of the curve approximately presents a linear decline, indicating that the increase in the number of iterations can further reduce the corresponding parameters of augmented reality consistency. As can be seen from parameter m, with the gradual increase of parameter m, the corresponding augmented reality consistency data also shows an increasing trend. This shows that parameter m plays a positive role in promoting augmented reality. The slope of different parameter m is different; from large to small, it is $10 > 20 > 30 > 40$.

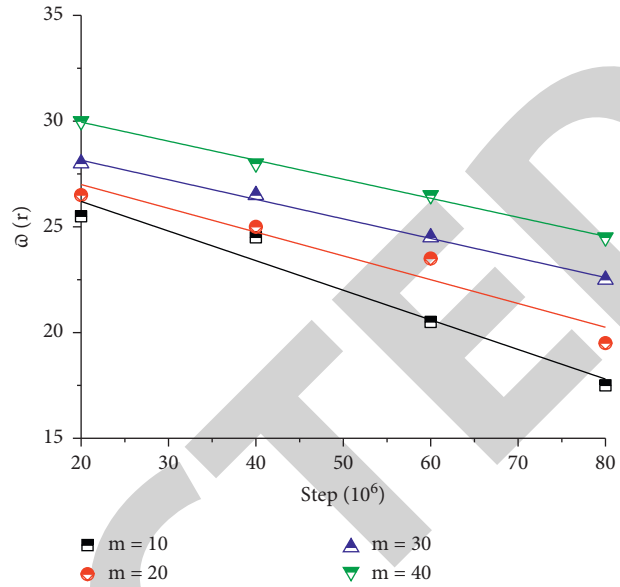

Figure 5: Parameter m to augmented reality consistency check diagram.

2.3. Algorithm Description of Augmented Reality. The description algorithm based on augmented reality is very complex and has a large amount of computation and memory consumption, so it is not suitable for running on intelligent terminals with limited performance [17, 18]. The algorithm based on augmented reality theory is a feature point detection and description algorithm based on visual information. In the feature point detection part, directional feature points are used to detect the algorithm of augmented reality theory, and in the feature extraction part, rotational invariant feature points are used to describe the iterative content of the algorithm. This prompts us to further optimize and evaluate the relevant algorithms in the actual use process. The optimized algorithm has the characteristics of fast computing speed and small memory and can work well on a mobile platform, so as to meet the real-time requirements of augmented reality [19]. The augmented reality algorithm mainly adds the corresponding feature points to the corresponding direction algorithm, and the corresponding steps are as follows:

(1) Calculate the $(p+q)$ order moment of the neighborhood of augmented reality feature points as follows:

$$m_{p,q} = \sum_{x,y} x^p y^p g(x, y), \tag{8}$$

where $m_{p,q}$ is the corresponding matrix and x^p and y^p are the corresponding matrix parameters.

(2) Calculate the centroid of the neighborhood of feature points as follows:

$$C = (C_x, C_y) = \left(\frac{m_{10}}{m_{00}}, \frac{m_{01}}{m_{00}}\right), \tag{9}$$

where C is the calculated data of the center of mass. The distribution of C_x and C_y is the data of the corresponding center of mass along the x and y axes. m_i $(i = 0,1)$ is the corresponding parameter.

(3) Calculate the direction of the center of mass θ as follows:

$$\theta = \text{atc tan}\left(\frac{m_{10}}{m_{01}}\right). \tag{10}$$

If the centroid is defined as the main direction of feature points in augmented reality, the corresponding feature points can be extracted according to this direction.

In order to further analyze the influence of different parameters on centroid feature points, corresponding change curves of centroid feature points under three different parameters are drawn, as shown in Figure 6. It can be seen from the figure that the parameter θ gradually increases with the increase of centroid distance, and the corresponding trend shows typical nonlinear variation characteristics. And the increasing rate of the corresponding centroid feature point data shows a trend of gradual improvement. As can be seen from the parameter C_y, the feature point of the centroid shows a fluctuating trend with the increase of the centroid distance, that is, it increases slowly at first and then gradually decreases. It can also be seen from the influence of parameter C_x on the feature points of the center of mass. When the distance of the center of mass is between 0 and 150, the data of the corresponding feature points of the center of mass is zero. When the centroid distance is over 450, the corresponding centroid feature point data shows a trend of slow increase at first, while when the centroid distance is over 450, the corresponding data shows a trend of rapid increase.

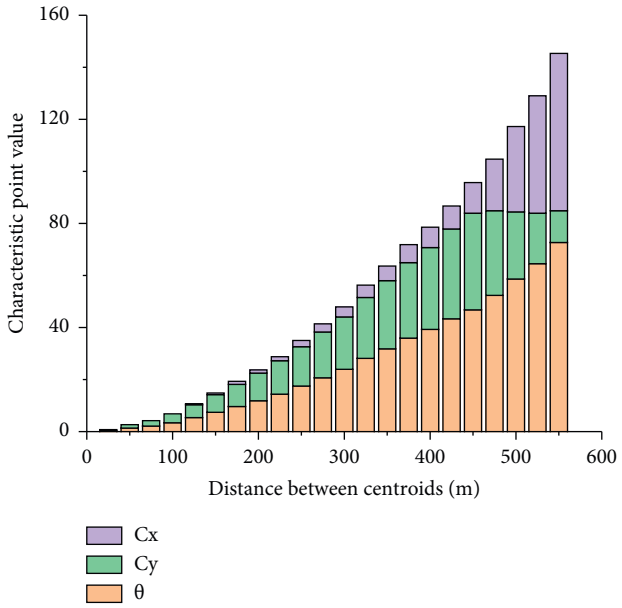

Figure 6: Augmented reality histogram of centroid versus feature points.

3. Related Theories of 5G Communication Technology

As a new mobile communication network, 5G communication technology will not only solve interpersonal communication but also provide users with augmented reality, virtual reality, ultra-high-definition video, and other content [20]. The communication between people and things and between things should also be solved to meet the needs of IOT [21]. In this 5G network system model, it is assumed that the network slice is a collection of virtual nodes and virtual links created by the network infrastructure provider. It is operated by the service provider to provide customized services so that the problem of cache resource allocation optimization is transformed into the problem of revenue maximization for the network infrastructure provider.

In order to further analyze the process related to 5G communication technology in the augmented reality system, the relevant workflow of 5G communication technology is obtained through analysis and sorting, as shown in Figure 7. Based on the above analysis, we can see that the workflow of the system is as follows: first, the data processed by the 5G communication network is imported into the 5G management module. The optimized 5G communication technology corresponding data is obtained through further analysis of business design, instance programming, and operation management modules in the 5G manager and then imported into the 5G function selection module. The 5 G communication function selection module consists of three submodules, and each submodule is composed of two parts: access 5G and core 5G. Through further iteration and analysis of these six parts, data can be further identified. It is then imported into the virtualization build manager, which further arranges and analyzes the data through the virtualization manager choreographer. On this basis, the data calculated by 5G communication technology will be imported into the basic design of the 5G network. Through further analysis of different resources such as computing resources, network resources, and storage resources, the obtained data can meet the requirements of 5G communication technology. In view of a series of problems existing in different modules of 5G communication technology, different methods are needed to analyze and evaluate 5G communication modules.

The traditional model only considers one network infrastructure provider and multiple service providers, and each service provider provides only one network data [22]. In order to better allocate virtual resources among multiple network data, based on the above research, optimization and evaluation of 5G communication technology based on augmented reality theory can be adopted, as shown below.

The data that network data k should input to node i within unit time T can be represented by M. Therefore, the corresponding data that network data k should input to all nodes within unit time T can be expressed as follows:

$$P_k = \sum_{i=1}^{N} MT, \tag{11}$$

where P_k is the total amount of data, T is time, and M is the input data.

The data provided by all network database stations to the network infrastructure can be expressed as follows:

$$P = \sum_{k=1}^{M} P_k = \sum_{k=1}^{M} \sum_{i=1}^{N} MT, \tag{12}$$

where P is the total amount of data of different 5G base stations. The two different evaluation indicators are as follows:

(1) Cache energy consumption index: Cache energy consumption index is mainly due to the energy consumption caused by content cache and content update. Therefore, the cache energy consumption index can be expressed as follows:

$$P_n = \rho_n E_n = \rho_n \sum_{k=1}^{M} \sum_{i=1}^{N} aMvT, \tag{13}$$

where a represents the energy consumption of content cache or content update per unit cache capacity, v represents the number of content updates per unit time T, and ρ_n represents the energy consumption of content cache or content update per unit capacity. In order to avoid overload of the cache energy consumption index in the cache nodes, the 5G network optimization model sets a content update limit V, which represents the maximum update times per unit time, that is, $v \le V$.

(2) Response energy consumption index: The response energy consumption cost is mainly caused by the response and service users' content requests. The

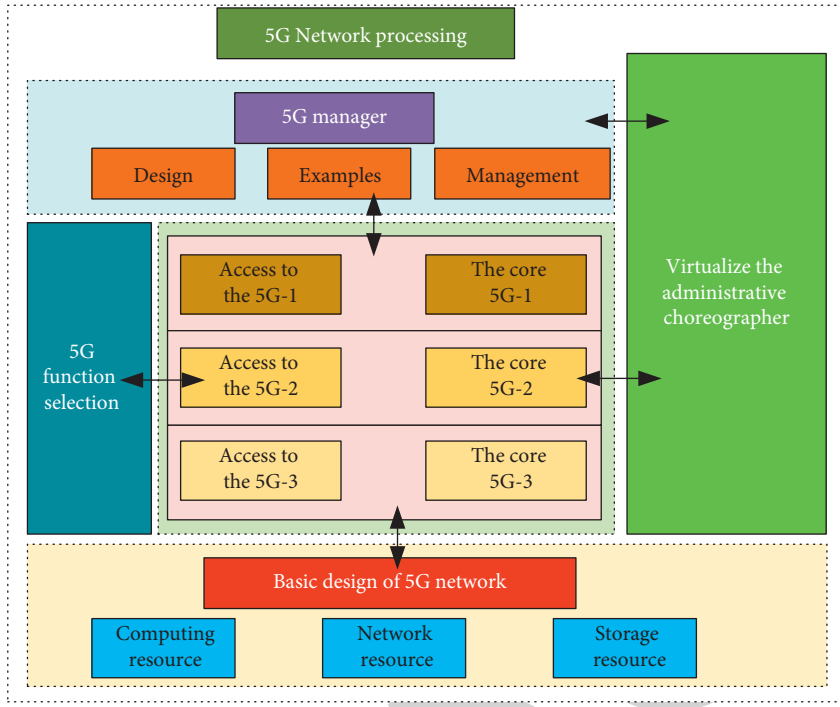

Figure 7: A calculation flowchart of 5G communication technology.

energy consumption index can be expressed as follows:

$$P_x = \rho_x E_x = \rho_x \sum_{k=1}^{M} \sum_{i=1}^{N} bM\gamma T, \tag{14}$$

where b is the energy consumption, γ is the content response, and ρ_x is the energy consumption index. In order to avoid the overload of cache nodes in the calculation process, the model also sets the limit of content response times R, which represents the maximum number of content responses. When $\gamma \le R$, the corresponding model works within the allowed range of settings.

$$\begin{aligned} P_c &= P_n + P_x = \rho_n E_n + \rho_x E_x \\ &= \rho_x \sum_{k=1}^{M} \sum_{i=1}^{N} bM\gamma T + \rho_n \sum_{k=1}^{M} \sum_{i=1}^{N} aMvT. \end{aligned} \tag{15}$$

In order to further analyze the change rules of 5G communication technology under different factors, the 5G communication change curves under different factors are drawn, as shown in Figure 8. It can be seen from the figure that with the gradual increase of indicator P_n, the corresponding P_c data shows a trend of gradual decline, indicating that the increase of P_n will have a negative impact on the data P_c of 5G communication technology. It can be seen from the parameter P_x that with the gradual increase of parameter P_n, the corresponding P_c data shows a trend of rapid increase. This indicates that with the increase of parameter P_x, the corresponding 5G communication technology data P_c has an obvious upward trend. Therefore, it can be seen from the figure that the influences and functions expressed by P_x and

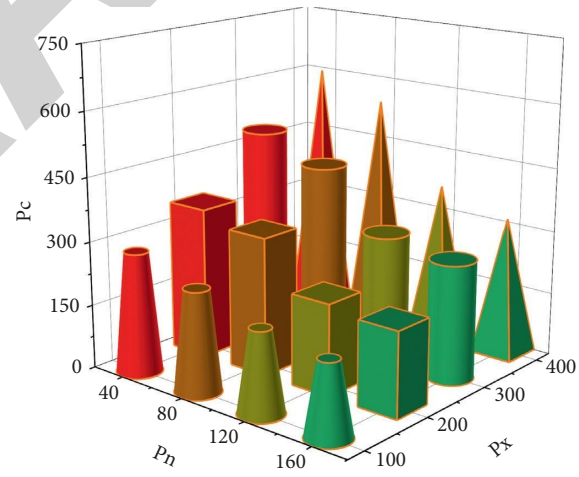

Figure 8: Graph of 5G communication technology changes under different factors.

P_n are opposite. For data P_c with 5G communication technology, we need to comprehensively consider the influence of two factors on data P_c, so as to obtain targeted data and results.

4. Application of Augmented Reality and 5G Communication Technology in University Art

4.1. The Basic Content of Artistic Creation and Design Methods in Colleges and Universities. As an important form of humanistic training in colleges and universities, art creation and design methods in colleges and universities are very

important for college education. Art in colleges and universities can be divided into the cultivation of artistic creation ideas and the training of artistic design methods. However, at present, there are a series of problems in artistic creation and design in colleges and universities, which to some extent restrict the further development of art in colleges and universities. These problems must be solved for college education, as shown below:

(1) Curriculum innovation needs to be improved: at present, the curricula related to artistic creation and training in colleges and universities are relatively new and have not been updated for a long time. This will restrict the artistic creation and development of colleges and universities, making the cultivation of artistic talents in colleges and universities lag behind the times for a long time, indicating that college education is not at the forefront of the times. Therefore, we need to improve the lack of innovation in the process of artistic creation in colleges and universities so that the artistic creation of colleges and universities can walk at the forefront of the times.

(2) Lack of teaching resources: Colleges and universities pay attention to the cultivation of science and technology for a long time, resulting in a lack of attention and investment in the faculty of art in colleges and universities, resulting in a serious shortage of teachers in the field of art in colleges and universities. Moreover, it is worth explaining that there are obvious differences in the faculty of art in colleges and universities in different regions. The faculty of art in colleges and universities in developed areas is much higher than that in remote areas. This is a serious problem that needs to be solved.

(3) Relatively little art teaching: Art teaching covers a wide range of fields, requiring targeted research on different details and modules. At present, colleges and universities mainly focus on the popular art field to carry out relevant teaching and scientific research, which leads to a gradual lack of research in the relatively unpopular art research direction. As a result, the field of art creation and research in colleges and universities is becoming smaller and smaller. This is not conducive to the development of the art field in universities.

(4) Relatively low practical application: Universities are mainly engaged in theoretical research in the field of art, mainly focusing on the conceptual teaching of artistic creation and design methods, while the analysis and teaching of the practical application of artistic creation are relatively small. As a result, college students cannot organically combine the theory and practical application in the field of art. As a result, the study enthusiasm of the art field in colleges and universities gradually decreases.

Aiming at a series of problems in artistic creation, in order to further analyze the specific content of artistic creation and design, the research in the field of artistic creation and design can be divided into five parts: curriculum innovation, teaching resources, teaching content, faculty, and art application. In order to more accurately analyze the five parts of college art creation, the pie chart of college art creation and design is obtained by summarizing relevant data in the field of college art creation and design, as shown in Figure 9. From the figure, we can see that art application accounts for the highest proportion, about 40%, while the corresponding proportion of teachers is 20%. Teaching content accounted for more than 16%, teaching resources accounted for about 13%, and curriculum innovation accounted for the lowest proportion, only 10%.

4.2. Application of Augmented Reality and 5G Communication Technology in College Art Creation and Design. Through the above analysis, we can see that there are some problems in college art creation and design methods. In order to better analyze and solve the problems in college art creation, Based on the theory of augmented reality, 5G communication technology is used to carry out targeted research and analysis on the art design and creation of colleges and universities, so as to get the corresponding solutions. In order to further improve the application of augmented reality and 5G communication technology to college art creation and design, first, we extracted the relevant data of artistic creation in colleges and universities. Then the extracted data is tested for consistency under augmented reality, and then the corresponding augmented reality algorithm and model are obtained. Finally, 5G communication technology is used to analyze and evaluate the data and algorithms obtained above, so as to find out the problems existing in the artistic creation of colleges and universities and provide targeted solutions.

Through the analysis of art creation based on augmented reality and 5G communication technology, the corresponding analysis curve of art creation and design is obtained, as shown in Figure 10. From the figure, we can see that four different factors have different influences on artistic creation in colleges and universities. First, it can be seen from parameter C_x that with the gradual increase of parameter samples, the corresponding curve shows a trend of gradual increase, and the trend is linear. When it reaches the maximum value of 500, the corresponding curve shows a relatively slow change trend with the further increase of the number of iterations and gradually declines to the lowest point of 50. As can be seen from the parameter C_y, with the gradual increase of samples, the corresponding art index of colleges and universities shows a trend of slow decline, which also conforms to the linear change. Overall, there was a drop of nearly 80% from highest to lowest. As can be seen from the parameter P_n, the corresponding art index data as a whole remains within the range of about 300. This shows that parameter P_n has good stability for artistic creation in colleges and universities. Finally, through parameter P_x, it can be seen that with the increase of samples, the corresponding art data of colleges and universities show a trend of gradual improvement. The corresponding data increase is about 90%.

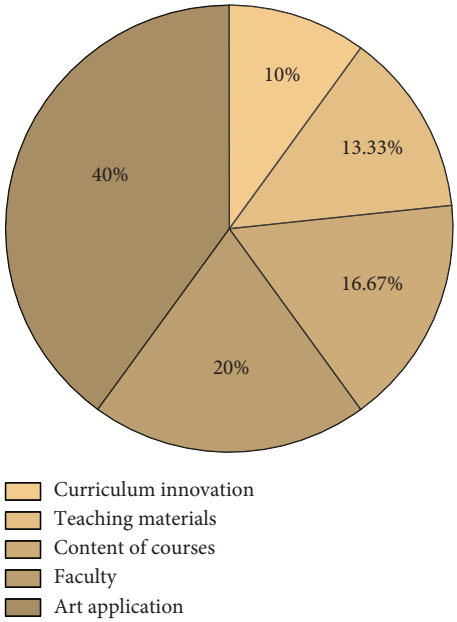

Figure 9: Pie chart of college art creation and design.

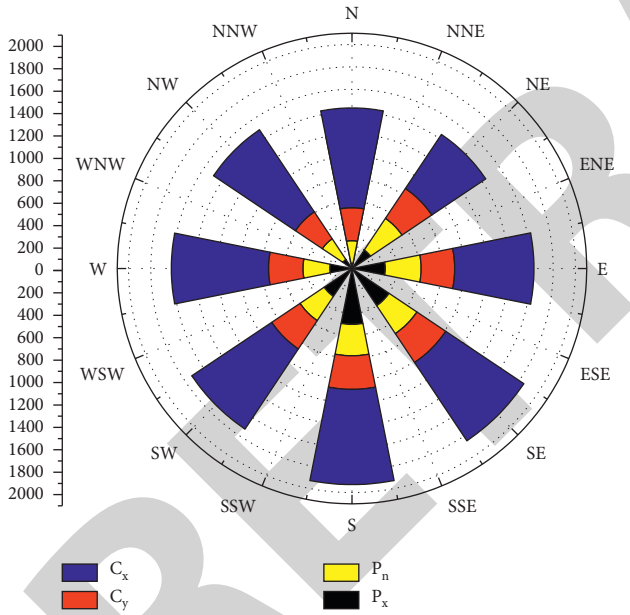

Figure 10: Analysis diagram of art creation and design in colleges and universities under the combined effect of augmented reality and 5G communication technology.

5. Discussion

The above research shows that art in colleges and universities based on augmented reality and 5G communication technology has different forms of expression in creation and design methods. In order to study the influence of augmented reality and 5G communication technology on artistic creation in colleges and universities, the corresponding prediction curve of artistic creation research in colleges and universities is drawn, as shown in Figure 11. As can be seen from the figure, with the increase in iteration times, the

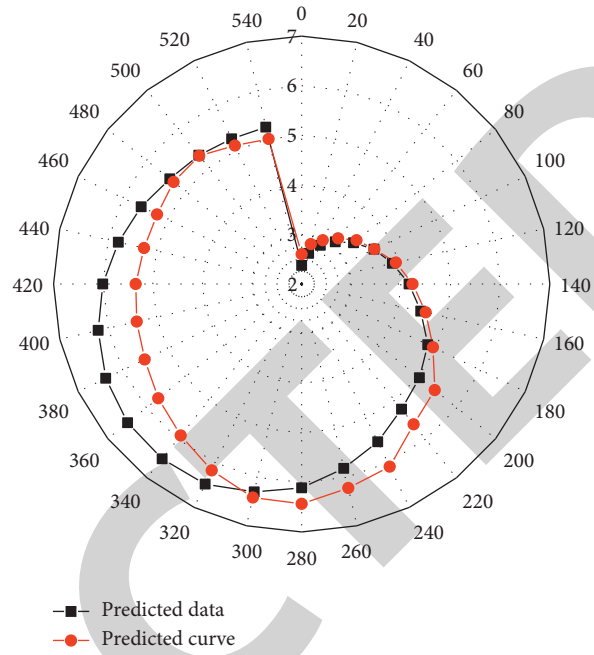

Figure 11: A forecast of augmented reality and 5G communication technology in the field of art creation in colleges and universities.

corresponding data of artistic creation in colleges and universities shows a trend of increasing first and then decreasing. The prediction curve of the corresponding optimization model shows the same change trend, indicating that the model can well describe and analyze the art field in colleges and universities. At the same time, it also shows that 5G communication technology based on augmented reality can be used to describe the artistic creation and design of colleges and universities.

6. Conclusion

(1) The variation trend of extraction probability under different r values mainly includes the slow decline stage and the stable stage. And the extracted probability curve shows a trend of gradual decline with the increase of the r value. Relevant studies show that there is an obvious inverse proportional decreasing relationship between the r value and corresponding probability change.

(2) With the increase of centroid distance, the parameter θ increases nonlinearly. The parameter C_y showed a trend of slow increase and then a gradual decline. Parameter C_x shows a trend of slow increase at first and then rapid increase. Therefore, the influence degree of different parameters on the centroid characteristic data is $\theta > C_x > C_y$.

(3) The influence of different factors on college art creation is shown as follows: the curve corresponding to parameter C_x shows a linear increase at first and then a linear decline. The parameter C_y showed a linear change with a slow decline. Parameter P_n has very good stability to art index data.

The corresponding data of parameter P_x shows a trend of improvement. Finally, the above results are verified by model prediction.

Data Availability

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

Conflicts of Interest

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

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