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Research Article

The Application of Intelligent Generation Technology in the Visual Communication Design of Exhibition Brand

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Since the beginning of the new century, information technology has advanced by leaps and bounds, and intelligent technology has made breakthroughs, speech recognition, and image recognition. In the development of medium and long-term exhibition brands, intelligence and modernization are taken as one of the development tasks. The visual communication design of brand logo is the graphical post symbol language of brand trademark, which is the silent transmission of brand. As long as you see a certain brand logo, its product characteristics and values can emerge in your mind. It is very easy to identify. Graphics, colors, and fonts are its main visual elements. Exhibition is a very promising industry in the modern business economy, and it is one of the best platforms for enterprises to promote their brands. Paying attention to the brand visual communication design of exhibitions is of great significance and value to enhance the overall impression of enterprises in the minds of consumers. This article explores the value and principles of corporate brand in the exhibition industry. Research shows that corporate brand visual communication design in exhibitions should be based on the brand architecture system, reflect the connotation of brand culture, and highlight brand design innovation. Taking corporate brand visual communication design in the exhibition industry as the research object, to explore its design value, the value of corporate brand visual communication design in commercial exhibitions is very great, and enterprises must attach great importance to commercial exhibitions. From the perspective of visual communication design, it can be parsed into three levels: color, space shaping, and graphic and text conformity. To reconstruct brand design, companies must make layout, innovation, and reconstruction of these three levels and strengthen commercial exhibitions. The impact and appeal of the visual communication design of the Chinese enterprise brand can truly enhance the influence and popularity of the enterprise brand and ultimately promote the sustainable development of the enterprise brand.

1. Introduction

Since the beginning of the new century, information technology has advanced by leaps and bounds, and intelligent technology has made breakthroughs in natural language processing, speech recognition, and image recognition [1]. In the development of medium and long-term exhibition brands, intelligence and modernization are taken as one of the development tasks [2].

The visual communication design of Chinese enterprise brand is an important way and beneficial exploration for enterprises to enhance employee cohesion, public awareness, and customer trust [3]. Especially in the fast-paced information age, high-quality corporate brand visual communication design can effectively convey corporate information and product elements to consumers [4]. As an important corporate publicity path in modern business models, exhibitions must attach great importance to the brand in the exhibition process [5].

Commercial exhibitions are an important platform for enterprises to build their brand image. Strengthening the visual communication design of corporate brands in commercial exhibitions is a necessary measure and a beneficial attempt to expand the influence of corporate brands [6]. This paper focuses on the analysis and reconstruction of the corporate brand visual communication design system in commercial exhibitions and reconstructs the corporate brand visual communication design system by analyzing the color symbols, space symbols, graphic symbols, and text conformity of corporate brand visual communication design

[7]. The specific contents include the following: pay attention to color coordination, strengthen the three-dimensional layout of the space, and integrate the display of graphic and text symbols to ultimately deepen the consumer's impression of the brand and expand the brand's influence [8].

With the strengthening of brand awareness and the development of commercialization of exhibitions, commercial exhibitions have become one of the main platforms for various companies to promote new products and shape corporate brand images [9]. Especially in recent years, with the help of new media, exhibitions can not only achieve offline face-to-face; at the same time, it can also realize cloud exhibition with the help of information technology. Due to the great exposure and brand effect of commercial exhibitions, various enterprises attach great importance to shaping their own brand image in commercial exhibitions and convey their own value orientation and corporate culture to the market [10]. The brand image of an enterprise in a commercial exhibition often depends on its brand visual communication design during the exhibition process [11]. Therefore, a good corporate brand visual communication design can effectively enhance the influence of the enterprise in the commercial exhibition and expand the corporate brand in the market. In this context, the author focuses on the analysis and reconstruction of corporate brand visual communication design system in commercial exhibitions, hoping to help corporate brand promotion and visual communication design planning and promote the continuous improvement of corporate brand influence in my country [12].

Color is the most popular but effective information transmission information in the visual sense. From a physiological point of view, color is the first content of human visual organs, followed by modeling [13]. Therefore, in commercial exhibitions, attention is paid to the application of color in corporate visual communication design, which is very critical. The color of corporate brand visual communication design is not a simple design color selection but should be based on the color layout of the exhibition hall of the commercial exhibition, combined with the VI standard color of the enterprise, the color of the main commodities, the color of the commodity packaging, and the emotional color of the commodities [14]. Form the color layout of the corporate booth, highlight the connotation and extension of the corporate brand, and ultimately enhance the impression of consumers [15]. In addition, attention should also be paid to the clever use of corporate cultural colors [16, 17]. For example, the corporate cultural color of Guotai Junan Securities is blue, so the color layout of Guotai Junan Securities at the booth can be considered as the background color to highlight its own cultural confidence and in line with self-confidence, it boosts consumer confidence and trust in corporate brands [18].

Visual communication design is an active behavior in visual form to spread specific things. Most or part of them rely on vision and are represented by two-dimensional images such as logo, typesetting, painting, graphic design, illustration, color, and electronic equipment. A phenomenon has been found in the process of visual communication design: the image of communication, education, and persuasion will have a greater impact with words. Visual communication design is a method of conveying what needs to be conveyed through images and graphics. When designing visual communication effects, it mainly includes four basic elements, namely, graphic style, text format, graphic color, and graphic layout [19]. Among these 4 basic elements, graphic style is the most important component. A vivid graphic can directly transmit the information to be transmitted and has the characteristics of easy identification and memory [20–22]. In addition, visual communication design can be completely freed from the shackles of language and words, and it can be used all over the world. With the support of the Internet and computers, the graphic works designed through visual communication show more and more rich characteristics, especially now many graphic design software can directly help the author to design complex and changeable patterns. However, when computers and the Internet are applied to visual communication design, a series of plagiarism problems inevitably arise, and the homogeneity of design is becoming more and more serious. In order to ensure the diversity of graphic art design and protect the designer's patent, use computer graphics and image processing technology to explore the identification method of "crash" phenomenon in visual communication design, apply image classification technology to retrieve cases similar to sample images, and find similar cases area.

The publicity form of commercial exhibitions is a three-dimensional space display. Therefore, the visual communication design of corporate brands in commercial exhibitions must also carry out reasonable visual design and atmosphere for the space. It must be based on lights, new media, and interactive measures, so that consumers can pass the three-dimensional layout of the space and feel the value orientation and cultural connotation of the corporate brand. From the perspective of visual communication design, it is recommended that the structure of the space should be based on the visual design elements of curves, because the rich and changeable curves will bring consumers a very lively, lively, and lively rhythm experience, and the shape design will also be more changeable, thus highlighting the sense of hierarchy. In particular, it should be pointed out that in commercial exhibitions, the area of corporate booths is often limited, so it is not recommended to formally separate the booths on the ground, because physical separation in small places will further make the booths appear more crowded and closed. On the contrary, visual forms such as lighting brightness, air suspension, and ground diversion lines can be used to implement the booth partition design to highlight the open image of the corporate brand.

2. State of the Art

2.1. The Value and Principle of Visual Communication Design of Exhibition Brand

2.1.1. The Value of Exhibition Brand Visual Communication Design. Exhibition is an important carrier for enterprises to promote their brands, and brand visual communication

design has the functions of enhancing brand recognition, increasing brand influence, and boosting brand market confidence. Therefore, it is necessary to actively improve the visual communication design of enterprises in various exhibitions. From the perspective of the company's own development, the value of corporate brand visual communication design in the exhibition industry is mainly reflected in two aspects. Visual communication is more inclined to interactive design, that is, communication design, which focuses on interactive experience and interactive feeling and focuses on functionality. But it also has the collocation between graphic design graphics and colors and has visual aesthetics.

On the one hand, corporate brand visual communication design can expand the overall influence of the company and help companies stand out in the fierce brand competition. Generally speaking, exhibitions belong to the area where the brand image is concentrated. Once the level of corporate brand visual communication design is poor, it will make the company stand out. The brand is bleak among the numerous exhibitors, thus missing business opportunities. In particular, the exhibition is not only an important business communication platform for B2B but also an important propaganda carrier for B2C, which will help enterprises to expand their partners and consumer groups.

On the other hand, the current exhibition mode is gradually transforming from the offline mode to the "O2O" mode. In cloud exhibitions, online exhibitions, and other exhibitions, the organizer has also strengthened the packaging of the exhibition, not only during the exhibition period but also during the exhibition and after the exhibition. Vigorously publicize and build momentum, and also produce some high-quality promotional videos, interview videos, and other resources through the integration of media to form the sustainable publicity and marketing capabilities of the exhibition. Therefore, highlighting the shaping of its own brand visual communication design can win the favor of the organizers, thereby realizing the expansion and continuous marketing of brand promotion. The brand relies on the system visual symbol information generated by design to achieve its endorsement in a more comprehensive and irreplaceable way.

2.1.2. Principles of Corporate Brand Visual Communication Design in the Exhibition Industry. Combined with the current practice of corporate brand exhibition industry, the author believes that corporate brand the exhibition industry should be based on the brand architecture system, reflect the connotation of brand culture, and highlight brand design innovation. Throughout the track of the development of brand-related visual communication design, the design language and techniques have become diverse and complex, from shell image to abstract image and from cumbersome pictures to simple geometric graphics; get rid of complex forms; and on this basis, develop more cutting-edge visual expression and more diversified artistic expression methods.

(1) The corporate brand visual communication design in the exhibition should be based on the brand architecture system. The exhibition windows for enterprises to display brand information and corporate information. Therefore, the brand visual communication design in the exhibition should be based on the brand architecture system, design element reintegration, reinnovation, and recreation, rather than recreating the brand structure system in a wild way. Generally speaking, under the brand structure system, the market positioning of the brand, the scale of the target customer group, the brand core concept, and the brand design elements are relatively certain. Therefore, its design should focus on the integration of resources and brand elements and implantation and then exert a greater brand influence. In addition, the visual communication design of enterprises in the exhibition should also actively integrate product packaging, company logo, corporate online and offline store image, company business card, etc., through the formulation of brand design promotional materials or the layout and decoration of the booth

(2) The visual communication design of the corporate brand in the exhibition should reflect the connotation of the brand culture. Highlighting the connotation of the corporate culture is the soul of the visual communication design of the corporate brand in the exhibition and cognition. For example, many technology companies will pay great attention to the application of "black technology" in the visual communication design at the exhibition, highlighting their "technology" and "innovative" attributes, such as VR (virtual reality), visual recognition, intelligent AI, knowledge maps, and other technologies. Therefore, Ding has been strengthened. The spiritual symbolism, symbolism, and value concept of the brand have become more specific and closely related to the corresponding audience and are constantly changing in the interaction. As a kind of evaluation and cognition of the cultural value of products and after-sales service, brand has become more dynamic. The integration can not only better highlight the brand cultural connotation of enterprises pursuing technological innovation but also greatly attract the attention of exhibitors and consumers to the enterprise brand. At the same time, many successful exhibition brand visual communication designs will also integrate the development trend of the industry and the technical iteration route of products, so as to better transmit the strength of the enterprise itself to consumers

(3) The corporate brand visual communication design in the exhibition should highlight the brand design innovation. It is true that the exhibition brand promotion is a part of the brand promotion system, and the exhibition brand visual communication design should obey the overall arrangement of the brand design. However, in order to truly enhance

corporate brand influence, credibility, and popularity, corporate brand visual communication design in exhibitions should highlight brand design innovation. Because the building of corporate brand image is also a dynamic and systematic project, it must constantly enrich the corporate elements, product elements, and even the elements of the times. From the World Expo, China International Import Expo, World Internet of Things Expo, Canton Fair, and other large-scale expositions, it is found that the integration of national cultural elements in corporate brand visual communication design can often enhance the attention of enterprises and is also conducive to grasping the media's publicity preferences and then expand corporate influence

2.2. The Combination of Artificial Intelligence and Visual Communication Design. With the maturity of technology today, anything is possible. Using artificial intelligence programming, a computer can complete the design of a high-quality poster in minutes. There are already case experiments. With the help of artificial intelligence data analysis and language processing technologies, various types of design schemes can be automatically generated within 10 seconds. Experiments like this are already showing disruptive shifts in the future of entire industries. Changes in the industry model will inevitably affect the way of training talents in colleges and universities. AI generation technology makes AI appear the confusion of inventors and invention tools. Its invention cannot determine the patentee according to the two types of service invention and nonservice invention in the existing patent ownership regulations, so it is difficult to clarify its patent ownership according to the existing regulations, and the complex relationship between human and AI will lead to difficulties in judging the patent ownership.

Changing the teaching method of professional courses, stimulating students' innovative thinking ability, and establishing an education system of "intelligence+visual design" are particularly important for the cultivation of current visual communication design talents. Some top foreign colleges and universities pay more attention to students' ideological expression ability and insight into things in the training of visual culture talents.

In addition, in terms of teaching staff, artificial intelligence also shows strong applicability. At present, in linguistics, electronic engineering, and other disciplines, the intelligent teaching system has been widely used, mainly reflected in the learning assistance inside and outside the classroom, which greatly reduces the workload of teachers. Artificial intelligence can replace the mechanical work of teachers in many aspects, such as after-school question answering and homework guidance, and can replace teachers, which is conducive for teachers to devote more energy to inspiring teaching activities, such as the development of creative thinking. The guidance of personalized learning is more suitable for contemporary teaching and personnel training. For different types of AI generation technology, the protection mode and patent ownership of the technology are determined according to its characteristics. The classification and analysis of AI generation technology can better link the patent protection of AI with the existing laws.

The talent training for visual culture communication has begun to change at the current stage, and colleges and universities are constantly changing the mode of talent training in the process of artificial intelligence development and exploring innovative talent training. The repetitive and mechanical labor of traditional visual communication personnel has been replaced by artificial intelligence technology. If talent training methods, teaching methods and means cannot meet the development needs of the visual communication design industry, there will be very serious consequences. Therefore, the concept of "intelligence+design" should be integrated into the education and teaching of colleges and universities to meet the needs of visual communication talents in the intelligent era.

3. Methodology

3.1. Visual Communication Design Method Based on Computer Graphics and Image Processing Technology

3.1.1. Establish a Visual Communication Partition Model. Under normal circumstances, the image in the human eye is stored as a continuous image, and a vector representation of a two-dimensional image can be established at this time, namely,

$$g(x_i, y_i) = \left\{ g_r(x_i, y_i), g_g(x_i, y_i), g_b(x_i, y_i) \right\}. \quad (1)$$

In the formula, $g_r(x_i, y_i)$, $g_g(x_i, y_i)$, and $g_b(x_i, y_i)$ represent the vector functions of the three primary colors of red, green, and blue in the image signal, respectively, and $g_b(x_i, y_i)$ represents the original image signal expression form; x_i and y_i, respectively, represent the function of light intensity and spatial coordinates in the image. Each of the different primary colors can be represented as a color channel. When the color saturation in the image is 0, it is proved that $g_r(x_i, y_i) = g_g(x_i, y_i) = g_b(x_i, y_i)$, and the image at this time is a grayscale image, that is, a black and white image. When the vector functions of the three primary colors are not equal, the image is a color image. Through such color expression, a partition model of the image itself can be established. When extracting feature descriptions, the descriptors can be recorded as

$$G_k = [g_1, g_2, \cdots, g_n]. \quad (2)$$

This set needs to guarantee $G_K \in Hb \times P$, where b represents the dimension of image features and P represents the number of image features. In the process of extracting these descriptors, it is necessary to the features of the integrated neural network to select a large amount of feature data in the training set, divide the clustering types through the feature space, and obtain a visual partition criterion based on this. In the process of clustering visual communication

partitions, the set of visual communication partitions can be expressed as

$$F_k = [f_1, f_2, \cdots, f_n]. \tag{3}$$

Through this collection of visually conveyed partitions, each element can be stored as a feature inside the cluster center. According to the trained visual data, the distance between the visual communication partition and the cluster center of each image is calculated, and the statistical results are presented in the form of a histogram and saved in the classifier. Encode all cluster centers separately, and summarize each continuous feature space as a set, which can reduce the quantization error. The calculation formula of error clustering is

$$D_{s-u} = \frac{\exp\left(\|d_x - d_c\|^2/\delta_k\right)}{\sum_{i=1}^{n}\exp\left(\|d_x - d_c\|^2/\delta_k\right)}. \tag{4}$$

In the formula, D_{s-u} represents the distance from any feature space s to the cluster center u; d_x and d_c represent any two features with similar distances, respectively, and δ_k represents the clustering weight parameter. When the distance is close, the description ability of all feature codes will be strengthened accordingly. This coding method will lead to the transformation of the original discretization method into the form of weighted processing, so as to reserve a part of the ability to distinguish discrete information during encoding, thereby improving the recognition performance.

3.1.2. Extracting Local Feature Information of Computer Graphics. Based on the visual communication partition model, the internal classification of images can be done in the form of coefficient expressions. Build the encoded coefficient features:

$$\begin{aligned} &\arg\min \left\|p_x - H^T\right\|^2 + k_p \sum_{i=1}^{n}|h(i)| \\ &\text{s.t.} \sum_{i=1}^{n} h(j) = 1 \end{aligned} \tag{5}$$

In the formula, $\|p_x - H^T\|^2$ represents the constraint error in the process of reconstructing the local features of the image; under the premise of ensuring that its value is as small as possible, it is necessary to make; k_p represents the weight parameter that balances the constraint encoding and the dictionary coefficients. Within the reconstruction constraints of the feature encoding, the nonconvex features of the problem can be solved for building a set of locally constrained linear encodings. In the aggregation matching strategy of its local features, each region can be evenly divided according to different scales and encoded independently. Build a two-layer pyramid structure, organize all independently existing feature histograms on the first layer, and divide the second layer into a 3×3 grid, including a vector that can be used as the final representation of the image. At this time, the efficiency of the cost function needs to be reduced by the support vector machine. Delineate a hyperplane on the feature plane:

$$f(a):\ a_k = H^T k + k_0 = 0. \tag{6}$$

In the formula, $f(a)$ represents the data discriminant model of the hyperplane, a_k represents the parameter feature of the hyperplane, H^T represents the class label of the distance matrix, and k_0 represents the degree of separation of the samples. When $f(a) > 0$, it can be determined that the data type is on the hyperplane; when $f(a) \le 0$, the data is not on the hyperplane. When the data is completely separable, a hyperplane can be found that satisfies all data points. At this time, a visual communication feature function is established by using high-level information, and its probability distribution is calculated, and then, the local feature information of the graphics can be extracted by computer algorithms. The weight calculation formula of Gaussian coding is

$$w_{ij}(f) = \left(\frac{\sqrt{M_n}}{\sum_{i=1}^{n} N_i}\right)^{a-1}. \tag{7}$$

In the formula, $w_{ij}(f)$ represents the encoding format of Gaussian distribution under the condition of constrained weight, M_n represents the encoding vector of the cluster center, and N_i represents the zero-order information smoothing coefficient. The local feature information of computer graphics is extracted by this formula, so as to obtain the core parameters of visual communication.

3.1.3. Designing Image Processing Algorithms Based on Edge Features. The digital image in the computer is divided into several grids by sampling and quantization, and the brightness value of the analog image in each grid is calculated. Quantize the black and white tones in a grayscale image and segment them into different levels. Among them, 0 degrees is the darkest image, and the color of the image is completely black at this time; 255 degrees is the brightest color, and the image is completely white at this time. By definition, the frequency of a grayscale pixel in an image can be obtained:

$$D(t_k) = \frac{N_i}{K_n}. \tag{8}$$

In the formula, $D(t_k)$ represents the frequency of a certain gray level pixel in the image, t_k represents the gray-level quantization value, N_i represents the total number of pixels with the ith brightness value, and K_n represents the total number of pixels in the image. In the grayscale histogram, an image with more concentrated grayscale levels can be obtained by describing the distribution characteristics of the grayscale of the image. By adjusting the gray level in the image, an image with a more prominent contrast effect can be obtained, and the visual communication effect of such an image will be better. In addition, it is also necessary

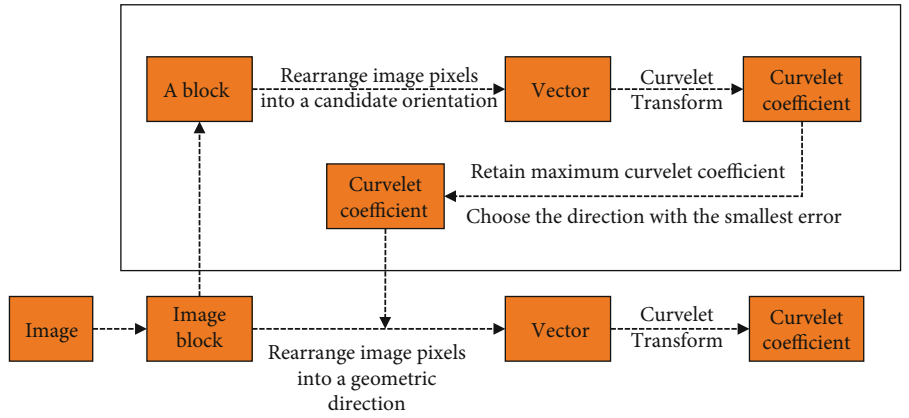

Figure 1: Algorithm framework.

to obtain the transformation relationship in the image by means of grayscale transformation, namely,

$$f_i = G(t)D(t_k). \tag{9}$$

In the formula, f_i represents the grayscale transformation function in the image, and $G(t)$ represents the normalization index of the image transformation in the region. Using this transformation function, the number of grayscale values with a grayscale distribution in the image ranging from 50 to 100 can be concentrated in an interval. Compared with other pixels, the pixel of gray value is the least obvious in terms of visual expression effect, so it can be converted into a pixel with better gray effect through grayscale conversion. Through the above methods, a visual communication design with better recognition effect can be obtained.

3.2. Image Compressed Sensing Based on Visual Communication Effect

3.2.1. Compressed Sensing. The study found that the two-dimensional wavelet transform lacks the ability to sparsely represent smooth edges and contours. The sparse reconstruction of MRI images is essentially the problem of solving the optimization of the norm

$$\begin{aligned} &\min \|a\|_l \\ &\text{s.t.} \quad y = \phi F_{Ua} \end{aligned} \tag{10}$$

In the formula (10), the l1 norm $\|\alpha\|_1$ represents the sum of the absolute values of all elements in the vector α.

$$\min \frac{1}{2}\|y - F_{Ux}\|_2^2 + \lambda\left\|\varphi^H x\right\|_1 \tag{11}$$

In the formula (11), ψ^H represents the sparse transformation, which mainly realizes the sparseness of the image x; the Fourier undersampling operator F_{Ux} represents the reconstructed MRI image; $y \in CM$ represents the obtained k-space data.

3.2.2. Image Block Directional Curvelet Transform. Let T denote the two-dimensional forward curvelet transform of the image x, and R_j denote the operator $b_j = R_j$; T_x $(j = 1, 2, \cdots, J)$ that divides the image x coefficients Tx into blocks and realize the image. The block operation of the candidate direction set is $\theta = \{\theta_1, \theta_2, \cdots, \theta_d, \cdots, \theta_D\}$, for the geometric direction of the jth block; then, the geometric direction w_j of the subband coefficient block in the curvelet transform domain can be passed through S.

$$w_{j,q} = \arg\min \left\|\bar{c}_{j,d}\left(\theta_{j,d}, S\right) - \varphi^T P\left(\theta_{j,d}\right) R_j \varphi^T x\right\|_2^2, \tag{12}$$

where ψ^T represents the forward transform of the one-dimensional orthogonal Radon curvelet transform; c_j, $d(\theta_j, d, S)$ represent coefficients; and $P(\theta_j, d)$ represents the pixels rearranged parallel to the direction. Coefficient z is in the patch directional curvelet transform domain of image x. Figure 1 shows the algorithm framework.

$$z = \begin{bmatrix} a_1 \\ \cdots \\ a_j \\ \cdots \\ a_J \end{bmatrix} = \begin{bmatrix} \varphi^T P(w_1) R_1 \\ \cdots \\ \varphi^T P\left(w_j\right) R_j \\ \cdots \\ \varphi^T P\left(w_J\right) R_J \end{bmatrix} \varphi^T x = B_w x, \tag{13}$$

where

$$B_w = \begin{bmatrix} \varphi^T P(w_1) R_1 \\ \cdots \\ \varphi^T P\left(w_j\right) R_j \\ \cdots \\ \varphi^T P\left(w_J\right) R_J \end{bmatrix} \varphi^T. \tag{14}$$

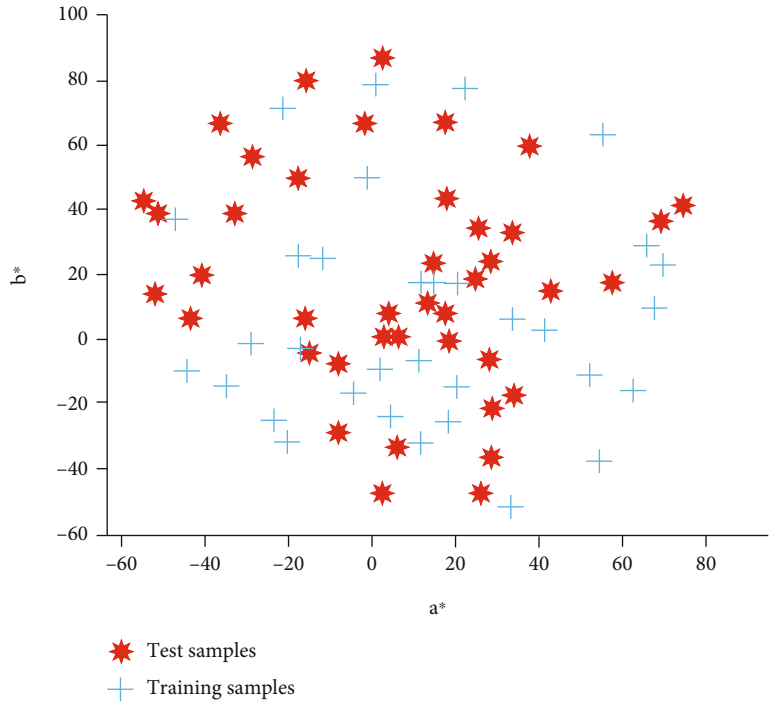

Figure 2: Data distribution of training samples and test samples under CIELAB (a*b*).

Its inverse transformation is

$$x = \frac{1}{c} B_w^T z. \tag{15}$$

In the formula, c represents the overlap coefficient of each pixel.

4. Result Analysis and Discussion

4.1. Experimental Data and Environment. First, it is necessary to establish a dataset of graphic images and set the parameters on the experimental dataset. Four types of images were selected, and 36 images of similar categories were selected, respectively, which were set as A-type images, B-type images, C-type images, and D-type images, respectively. Among them, type A images mainly collect images of interior architectural decorations of families, type B images mainly collect images of pets, type C images mainly collect images of household daily necessities, and type D images mainly collect images of natural scenery. Put these 4 types of images (40 in total) into 9960 random images, and get a total of 10000 image samples as a dataset. 2000 images from the dataset as samples and 8000 images are used as test samples. Descriptors can be used to extract image scales when describing the original features of an image. Divide these scales into image patches with a radius of $22tR$, where R usually takes a value of 16, and set the number of pixels per feature interval to 2, at which point the area of the image scale is $2222ttRR\times$. Assuming that the feature distribution can satisfy the Gaussian distribution of the diagonal sum of covariances, a fixed scale is used in the dataset as a strategy for spatial pyramids, and a mashup-type number of neighbors is used as a program tool for cross-validation, which is configured on a PC. Train on training samples.

The distribution of training samples and test samples in the CIE1976L*a*b* color space is shown in Figure 2.

4.2. Experimental Results and Analysis. When evaluating the parameter attributes, it is necessary to test the influence of the key parameters of the method in the paper on the performance of computer graphics and image processing, such as the distribution law of the feature space and the capacity of the dictionary space. At this time, the influence of parameter changes on other indicators as shown in Figure 3 can be obtained. According to Figure 3, when the dictionary space capacity gradually increases, the accuracy rate (MAP) of the algorithm is also increasing; until the dictionary space capacity is 1024 MB, the growth rate slows down. When the number of feature space distributions increases, the MAP also increases in a "Z" shape, until the number of distributions reaches 256, and the accuracy peaks. With the change of the dictionary space capacity and the number of feature space distributions, the recognition accuracy changes synchronously. When the parameter is 0, the recognition accuracy is the lowest, 67% and 73%, respectively. In order to ensure that the feature space can maintain the best performance in the process of local aggregation, it is necessary to retain as much information as possible to increase the saturation of the feature space. At this time, the dictionary space capacity should be 1024 MB, and the number of feature space distribution should be 256. When the recognition accuracy reaches the maximum, in order to take into account the balance between the recognition accuracy and the recognition efficiency, it is necessary to simultaneously

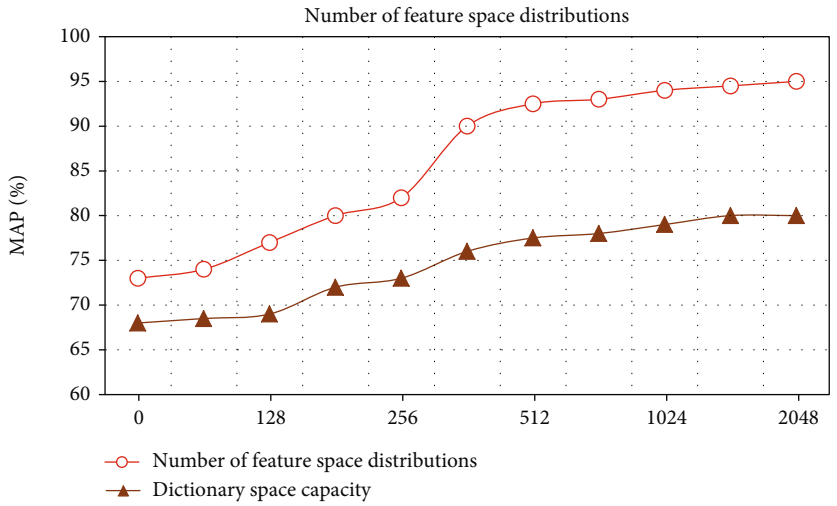

Figure 3: The impact of parameter changes on other indicators.

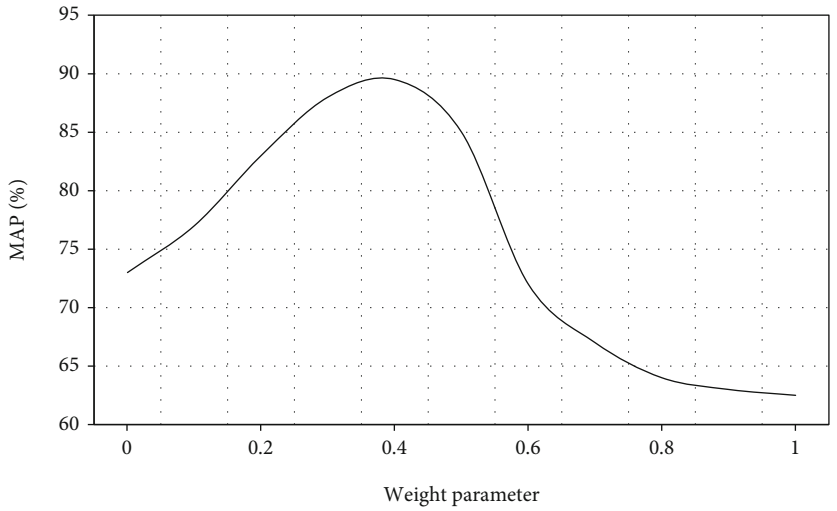

Figure 4: Weight parameter selection.

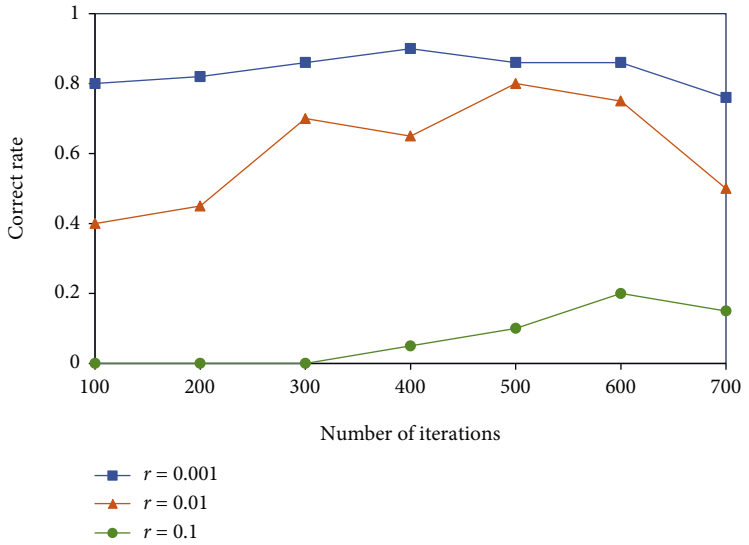

Figure 5: Comparison of command generation accuracy under different learning rates and iterations.

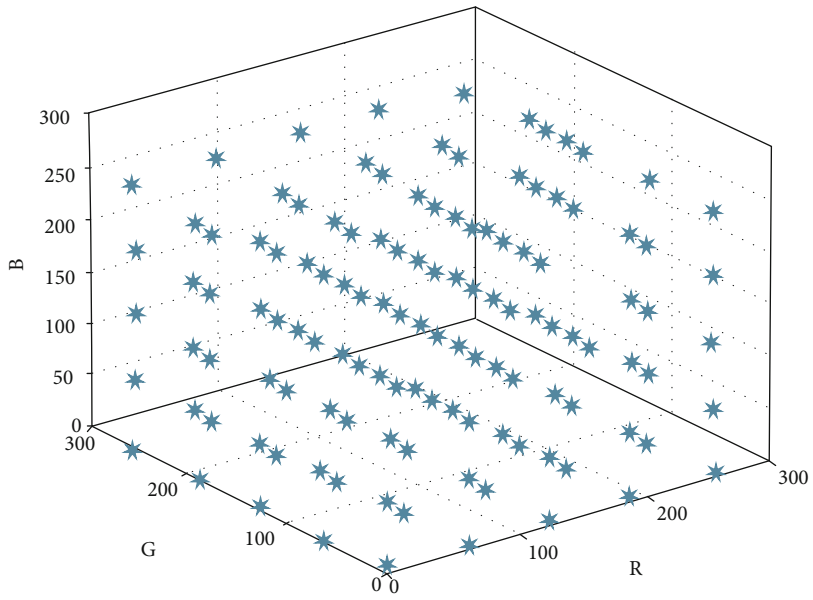

Figure 6: Spatial distribution of training set.

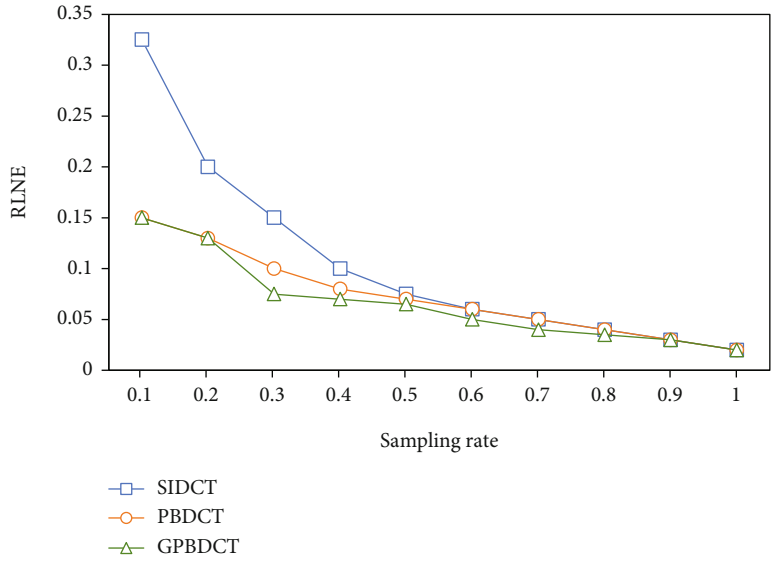

Figure 7: RLNE error as a function of sampling frequency.

determine the optimal value of the weight parameter. Figure 4 can be obtained by spatial clustering.

According to the influence of the weight parameter change on the recognition accuracy in Figure 4, when the dictionary space capacity is 1024 MB and the number of feature space distributions is 256, with the increase of the weight parameter, the MAP changes in a "ji" shape. When the weight parameter is 0.34, the recognition accuracy reaches the maximum value of 89.5%.

Under the same training set, the learning rate r is set to 0.100, 0.010, and 0.001, and the number of iterations is 100~700. Figure 5 shows the results of training the model under the above parameters and experimenting on the validation set. When the learning rate is 0.001 and the number of iterations is 400, the experimental effect is the best. As shown in Figure 6, since the establishment of the data samples is based on the CIE1931RGB color space and the R, G, and B channels are divided at equal intervals, the data training samples are evenly distributed in the color space.

Figure 7 shows the influence of different sampling frequencies on the quality of image. The abscissa in Figure 5 represents the sampling frequency, which is 0.15, 0.25, 0.35, 0.45, 0.55, 0.65, 0.75, 0.85, and 0.95, respectively. The ordinate is the relative l2 error. When the sampling frequency is 0.15, the local relative l2 error is as high as 0.101. With the increase of sampling frequency, the relative l2 error also decreases, and the relative 12 error of the GPB-DCT

method is generally lower than the relative 12 error of SIDCT and PBDCT.

It can be seen from Figure 7 that the image reconstruction results of the GPBDCT method are better than those frequencies.

5. Conclusion

In the information age, all kinds of brand information are flooded, and corporate branding is becoming more and more difficult. Exhibitions have become an important occasion to display corporate brand name cards, and the brand visual communication design that attaches importance to exhibitions can enhance the overall impression of enterprises in the minds of consumers. Since the beginning of the new century, information technology has advanced by leaps and bounds, and intelligent technology has made breakthroughs in natural language processing, speech recognition, and image recognition. In the development of medium and long-term exhibition brands, intelligence and modernization are taken as one of the development tasks. The process of cultivating, establishing, and creating a brand is a process of self-transcendence. Only with the innovative power of metabolism can it stand in the current increasingly heated brand competition and then further consolidate the original brand assets and participate in the broader competition at multiple levels, in multiple fields and from multiple angles. A good brand can even play the role of cultural elements, not just a concrete embodiment. The charm of vision is infinite, which is almost self-evident. From the practical point of view of brand visual communication design, corporate brand visual communication design in exhibitions should be based on the brand architecture system, reflect the connotation of brand culture, and highlight the innovation of brand design, so as to truly enhance the innovation, sustainability, and vitality of the corporate brand system. In the context of the new era, companies must attach importance to brand building and development if they want to improve their competitiveness. In this process, we should give full play to the role and function of visual communication design in brand identification, shaping, and promotion. According to different needs and characteristics, we should flexibly use graphic design, environmental design, and multimedia technology to create a good brand image. Inject a steady stream of vitality into the enterprise, promote the consumption behavior of the audience, and seek more economic benefits for the enterprise.

Data Availability

The figures used to support the findings of this study are included in the article.

Conflicts of Interest

The author declares that they have no conflicts of interest.

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