Application of Graphic Design Based on Image Design Software

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Abstract. Image design software plays a crucial role in advertising design today. Currently, the advertising design industry has become a special industry form in the market economy. It has satisfied the needs of people for various types of advertising graphic design. In the link of commercial advertisement design, the operation design of the image is the most important, which directly affects whether the advertisement can attract people's attention. Given the situation, this paper focuses on analyzing the application of Photoshop software to improve the level of advertising design continuously.

Keywords: Photoshop, Commercial Advertising, Design, Application

1. Introduction
Currently, with the continuous economic and social progress and improvement of Gabriel technology, all kinds of software in the computer are gradually integrated into people's daily life[1-2]. Nowadays, in the graphic design field, computer image software is widely used. Supported by this software[3], it provides a basis for the choice of theme, style, color, content and other aspects of graphic design, widens the design platform of designers, improves the quality and presentation of graphic design, and makes it more popular with the public[4-5]. The concept of modern design has been introduced to China since the May 4th movement[6]. In the 1920s and 1930s, many Western designs came into China. For a long time, the design was named in the narrow scope of “craft show”. Since the reform and opening-up to the outside world, this situation has begun to change. The role of design has been recognized by all walks of life, and it has become a great industry that cannot be ignored. As a branch of design, graphic design rose in the mainland of China in the 1980s. In the 1990s, design companies and design studios sprang up, and the graphic design industry developed rapidly and became very active. Nowadays, the design has penetrated all aspects of our life, and constantly changed people's understanding of themselves. Graphic design is also expanding its field and constantly updating its...
concept because of its advantages of visual communication. The social, cultural, political, economic, and other factors are all the elements that affect the development of “graphic design”, so the development history of graphic design can also be regarded as a miniature of the history of social development. “Graphic design” in different periods is a typical expression of a specific spirit of the times, cultural characteristics and cultural taste. Graphic design applicationin the new era has led to the same modernism movement in graphic design as other design fields. However, its revolutionary center is not on the technical level, but on the object of graphic design as follows: What is design publicity? What is design?

In recent years, the rapid development of the advertising design industry has made a significant contribution to the publicity of enterprises in all walks of life. For graphic advertising design, graphic design is a crucial step, which directly affects the sales of enterprises. Therefore, it is necessary to have a comprehensive understanding of Photoshop software, which can bring convenience to the use of advertising designers.

2. About the important contents of photoshop

Photoshop is powerful graphic design software. It is developed by Adobe company in the United States and widely used in the fields of graphic image synthesis, graphic design, graphic advertising, web design, photo design, packaging design, printing, and so on. Currently, PS has become the de facto industrial standard of graphic image design. To better use PS for graphic advertising design, we need to master its related concept terms. During the development of graphic design, with the help of computer graphics software, we can

In the original graphic design, most of the design is made with personnel support, which will consume massive time and manpower, but the design effect is small and high, and it cannot correctly reflect the color and theme in the graphic design, and it is difficult to correct. Using the software of computer graphics can improve these problems better. With the help of this software, more abundant materials can be used, and the selection of content is also more diverse. After the design is completed, software can be used to change the design drawings from time to time, which has solved the problem that is difficult to correct in human design, so as to show more comprehensive performance to customers, and to adjust again according to the needs of customers for improved convenience.

(1) Vector diagram. Also known as the vector graph, it mainly describes graphs with lines and curves. The elements of these graph lines are some points, lines, rectangles, circles, arcs, etc. They are all obtained by the mathematical operation. Vector graphics are often formed by filling some contour lines, independent of resolution, so the volume of the file is generally small. The most significant advantage of the vector image is that it will not distort the image whether it is enlarged, reduced, or rotated. But the image quality is low, and the color is not abundant.

(2) Bitmap. Also known as the dot matrix, also known as raster, is generally used for image design of photo quality. Bitmap images are composed of small squares known as “pixels”. Each pixel has a specified location and color, which can show the shadow change of color and rich in color. The quality of an image determines its resolution. Simply put, the bitmap is an image composed of many color blocks. When the image is magnified infinitely, people will see the pixel color blocks one by one, which will make the image edge produce sawtooth or mosaic, and make the image distorted.

(3) The relation between bitmap and vector map Photoshop designs bitmap, the map made by
bitmap is based on the pixel, and the map made by vector map is based on the path. There are two different kinds of graphs, one is the pixel, and the other is the path. In general, the bitmap image and vector image is referred to as graph.

(4) Pixel, The English name pixel is a combination of picture and element. Pixel is the smallest unit of the bitmap image. In other words, when a picture is magnified, it has the effect of mosaic. Each small square is the so-called pixel. The more the small squares, the clearer the image; the larger the small squares, the blurrier they are.

(5) Resolution. The resolution of an image is the number of pixels per unit of print length. Usually expressed as “pixel/inch” or “pixel/cm”, abbreviated as PPI.

(6) Access. For Photoshop, channels mainly include color channel, spot color channel, and alpha channel. Among them, the color channel is used to store the color, the alpha channel is used to store the selected area, and the spot color channel has a unique color design.

3. Basic principles of advertising creativity
In the process of making plane advertisement with image design software, we also need to understand the basic principles of advertisement creativity, which will help us design works that can attract more audiences.

(1) Objective Principle. That is, advertising creativity must be consistent with the advertising goal and the marketing goal of the enterprise. The ultimate purpose of advertising activities is to sell products, promote services, establish the corporate image and product brand image, realize marketing strategies, and guide modern consumption concepts. The implementation of any advertising idea must serve and obey this purpose.

(2) Principle observation. The factors of creative advertising success are very complex. \( x(i,j) \) Pixel points designed for the current, \( x'(i,j) \) The sum of the errors passed by the designed pixels for the neighborhood, \( b(i,j) \) Represents a pixel \( i,j \) The binary quantization result of, \( u(i,j) \) represents the gray pixel value after adding the diffusion error

\[
u(i,j) = x(i,j) + x'(i,j), e(i,j) = u(i,j) - b(i,j)
\]

\[
x'(i,j) = \sum_{m=0}^{1} \sum_{n=1}^{1} e(i+m,j+n) \times k(i,n)
\]

\[
b(i,j) = \begin{cases} 
0, & \text{if } u(i,j) < t \\
1, & \text{if } u(i,j) \geq t
\end{cases}
\]

The threshold value in equation (3) is often set to \( = 0.5 \)

Figure 1 shows that when the image forensics area is rotated, a small part of pixels will exceed the block area due to rotation, which will affect the point density feature calculation. However, the area of this part of pixels is far smaller than the area of overlapping pixels, and the impact on feature calculation can be ignored basically. From the experimental results shown in Figure 1, where the small-angle rotation attack within 10° forensics area can affect the point density feature calculation, it
has no effect on the evidence collection result. When rotated at a large angle of 60°, it will have a slight effect on the area of evidence collection. However, it will not affect the determination of evidence collection result. Especially in the case of 180° at a large angle, the effect of evidence collection is the same as that of the area of evidence collection without rotation, and the experimental results are consistent with the theory. Therefore, the image based on the characteristics of wavelet high-order statistics is proposed in this paper. The source forensics method is robust against rotation attack.

\[ \text{Figure 1. Effect of rotation attack on feature extraction} \]

Different error diffusion filters can generate different quality wavelet high-order statistical images. As shown in Figure 2, Figure 2 (b) is the wavelet high-order statistical image after Lena continuous tone image (as shown in Figure 2 (a)) is designed by wavelet high-order statistical quantization.

\[ \text{Figure 2. Wavelet high order statistical Lena image} \]

After the design of the grid image designer, the wavelet high-order statistical binary image has the following characteristics: (1) The vital content features of the original image are retained, such as edge information, and texture features; (2) the wavelet high-order statistical image after the binary quantization dramatically reduces the level information of the image, which is convenient for data design; (3) it is easy to extract the image from the generated wavelet high-order statistical image Point density feature, which falls in statistical functionality and has certain robustness against the post design operation of forensics area; (4) The image binary quantization design can reduces the complexity of image subsequent calculation design.

4. Conclusions
Photoshop software used in the graphic design of commercial advertising can give full play to the optimal design effect to achieve the desired publicity effect and win more economic benefits for businesses at the same time. Hence, we should make full use of Photoshop software in future design to
maximize its design function.

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