Research on the Innovative Application of Qiang Embroidery Patterns Based on Fractal Aesthetics

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Abstract

Under different social and cultural background, only using the attitude of innovation and improvement to inherit the traditional Qiang embroidery pattern culture is an effective way to inherit and protect its traditional culture. The application of traditional patterns in modern design should not simply copy the patterns onto the design works, but need the transformation of the substantive content and integration into the development of new art forms, so as to show the inexhaustible vitality of national culture itself and realize the purpose of making the past serve the present. In this paper, the methodology and digital technology of digital computer art are used to explore the innovative methods of traditional Qiang embroidery patterns. Based on the modern aesthetic principles, this paper puts forward the specific methodology of the secondary creation of traditional Qiang embroidery patterns by using the new artistic means of computer fractal art, so that the traditional Qiang culture can be inherited and developed.

Keywords

Qiang embroidery pattern; Fractal art; Innovation.

1. The aesthetic characteristics of traditional Qiang embroidery patterns

1.1 Geometric beauty of traditional Qiang embroidery patterns

Traditional patterns of Qiang nationality are mostly based on the animal and plant images that exist in reality. Only on the premise of maintaining the basic similarity between the image features and natural images, they are processed and created by summarizing, simplifying, exaggerating and slightly deforming. There are several kinds of needlework in Qiang embroidery, such as Tiaohua, Nahua, Xianhua, chain buckle and pingxiu. These special needlework techniques have created the unique geometric characteristics of Qiang embroidery patterns. In the eyes of the Qiang people, all natural things can be transformed into geometric shapes composed of points, lines and surfaces. They are more prominent than realistic images in natural image features. These geometric shapes emphasize the law of changes in natural image forms and their unique and "vivid" forms, which make the abstract art of Euclidean geometric aesthetics vividly displayed.

1.2 Symmetrical beauty of traditional Qiang embroidery patterns

Symmetrical beauty is that the same pattern is equidistant and equivalently arranged on both sides of the symmetry axis, giving people a sense of order and solemnity, showing a quiet beauty. When the Qiang people carry out formal embroidery, they do not make samples in advance, nor draw lines or pictures on the cloth. However, they are very neat and symmetrical in the process of embroidery. The composition of Qiang embroidery is rigorous, which can be generally divided into regular flower, edge flower, corner flower and patchwork flower. Zhenghua is the main pattern of the work, mostly with the theme of festivity and auspiciousness, in the form of pattern composition; side flowers and corner flowers surround Zhenghua, often in the form of two-way continuous, four-way continuous and corner continuous; patchwork flowers are filled in the blank of Zhenghua and corner flowers, and their structure is relatively free and variable. In the finished works of Qiang embroidery, except for the regular flowers in the middle, the other parts, such as the upper and lower parts, left and right symmetrical parts, are all the same pattern.

1.3 Harmony and beauty of traditional Qiang embroidery patterns

Specificity refers to the different parts in the pattern, which is in the whole with a unique appearance. Specificity has a great tension to bring people a strong sense of vision. Harmony refers to a kind of overall harmonious relationship among various elements. Specificity and harmony are both opposite and unified. The whole harmonious combination inevitably has some differences. When these differences are highlighted, the harmonious pattern will be broken. The traditional pattern of Qiang embroidery is first conceived by the producer, starting from the overall layout, to determine the size and form of the regular flowers in the middle of the work, then to determine the border flowers and corner flowers, and finally to embellish with patchwork flowers, so as to coordinate the relationship between each element and show the beauty of overall harmony.

2. An analysis of the innovative methods of Qiang embroidery patterns under Euclid's geometric Aesthetics

Based on the traditional Euclidean geometry, modern design always imagines the research object as a regular body as much as possible, and emphasizes the construction consciousness. The consciousness of composition is to start from the abstract form. In the selection of human themes, it often only retains the most important part. It focuses on the abstraction of modeling into the elements of point, line and surface, visual feeling, rationality and intuition, and the decomposability and generalization of materials. It contains a series of rational analysis, thinking and refining, which ultimately makes the pattern rich in logic, simple and intuitive effect, and rational beauty.

In addition, the new technology in the digital era provides a new form for the inheritance of traditional culture. In the digital age, with the rapid development of computer technology, computer has become an important means of design industry, showing infinite creativity, thus creating a new situation of modern design. No matter in the form of expression or in the effect of expression, the graphic patterns designed by computer are obviously different from those in the period of "hand drawing".

2.1 Decompose

Because of the limitation and influence of the traditional production technology, the arrangement of Qiang embroidery patterns is very standard in the form of composition, and most of them strictly follow the traditional arrangement of bones. Through the method of decomposition, the composition elements of patterns in Qiang embroidery are extracted, and the original patterns are broken up and divided, from which local variable factors are selected. Decomposition is beneficial for designers to understand the internal structure of pattern elements, grasp the influence of the local structure of patterns on the overall shape, and ensure the premise of traditional Qiang embroidery patterns "scattered in shape but not scattered in spirit" in the process of innovation.

2.2 Variation

The patterns of Qiang embroidery have changed since ancient times, but they are not completely separated from the traditional basic forms. Through the method of variation design, according to the previous decomposition conclusion, on the premise of maintaining the basic characteristics of the prototype, the basic shape and form of Qiang embroidery patterns are transformed, or the cultural connotation of the prototype is expanded and transformed. To a certain extent, the innovative Qiang embroidery patterns surpass the ancient sense of the original shape of the traditional Qiang embroidery patterns, and can show a sense of the times and a new visual experience.

2.3 Restructure

The use of traditional Qiang embroidery patterns not only designs new forms, but also reconstructs their arrangement. Reconstruction can sublimate the expression of traditional Qiang embroidery patterns and re-enter people's vision with a new attitude. The specific ways are as follows: first, rearrange some elements of the traditional Qiang embroidery patterns, change the rhythm of the original patterns, so that a variety of patterns can be reborn, such as breaking the absolutely symmetrical composition in Qiang embroidery. This way weakens the abrupt feeling brought by the

change of unit element form of pattern, and can keep the cultural connotation contained in the original figure; second, combine two patterns that are not related originally. This way is only from the perspective of pattern construction modeling characteristics, get rid of the historical and cultural connotation of traditional pattern theme and the shackles of human thought, and purely consider the visual effect.

Compared with the traditional Qiang embroidery patterns, these design innovation methodology, integrated with the modern sense of composition, makes this ancient culture infuse new vitality, which is conducive to the establishment of traditional Qiang embroidery patterns suitable for the new graphic order of modern design. However, it is not hard for us to see that the application of these design studies is still based on the aesthetics of traditional geometric aesthetics, and more attention is paid to the study of two-dimensional forms. The concept of graphic design tends to be highly rational, functional and refined.

The development of the times is always changing rapidly. Modern graphic composition tends to three-dimensional spatial sense, asymmetric, light effect and other forms. These design methodologies still have great limitations for the breakthrough of traditional pattern of Qiang embroidery.

3. The significance of Fractal Aesthetics to the pattern innovation of Qiang embroidery

Compared with Euclidean geometry, fractal geometry provides a new way to describe the order and structure of this irregular and complex phenomenon, and provides a new opportunity for the innovative design of traditional Qiang embroidery patterns.

3.1 Provide new visual points for pattern design innovation

The main body of traditional Qiang embroidery pattern design is usually to observe the natural image for a long time, then refine its essential characteristics, and finally abstract it. Due to the limitation of using tools in the traditional design process, the emphasis of traditional Qiang embroidery pattern is to show the overall shape and local characteristics of natural things. Fractal geometry regards the traditional point, line and surface as a whole. The natural image is continuous everywhere but differentiable everywhere. The beauty of form created by fractal geometry cannot be displayed by Euclidean geometry. The core feature of fractal graphics is its self-similarity, that is to say, their relationship between the local and the whole in morphology is convergent. This kind of convergence performance produces a kind of hierarchical organization beauty - with the increase of the number of fractal layers, the self-similar relationship between adjacent layers will produce a kind of Psychedelic beauty.

Fractal graphics not only contain the beauty of balance form in the traditional aesthetics - up and down, left and right and center symmetry, but also its unique self-similarity structure endows graphics with a new symmetry - local and overall symmetry - which reflects a dynamic balance in the layout of graphics. This kind of balance is a clear and orderly order to show the best balance between monotony and complexity. Compared with the traditional geometric aesthetics, fractal graphics have a greater spatial beauty.

Fractal graphics embody the law of motion from imbalance to balance, and enter our vision in a subtle and harmonious form. This harmony reflects the unity of mathematical beauty and natural beauty. Its appearance breaks the traditional concept of graphic harmony. Specifically, the harmony of fractal art figures is embodied in the uniformity and variety of shape and color. But the "harmony" of fractal graphics has great randomness and arbitrariness. It is very difficult for us to find a completely consistent shape in fractal art graphics. Therefore, compared with the traditional Qiang embroidery pattern, the fractal pattern has a unique overall style and mysterious and dreamy beauty.

3.2 Broaden the design idea of pattern

The traditional Qiang embroidery pattern design mostly relies on the imitation of the original pattern. The innovation of the design mainly depends on the image thinking and painting skills of the designer,

which inevitably has some limitations. Because many natural images in the real world have the characteristics of "self-similarity", the computer fractal art constantly explores the "self-similarity" of natural images in the real world through the algorithm creation of mathematical formulas, so as to obtain many unexpected patterns, which cannot be realized in the traditional design. The graph constructed by fractal geometry principle is separated from the absolute scale of traditional geometry, and can be infinitely fine. It is inexhaustible to form a "nested" structure. With the continuous expansion of the level of fractal graph, new visual beauty can be constantly generated. When using the computer fractal art to design Qiang embroidery patterns, because the computer fractal art can enlarge the images infinitely and overlay different images, the design subject can obtain the overall and local images of things, as well as the more refined shapes of objects.

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References

[1] K. FALCONER ,et al. Fractal Geometry -- Mathematical basis and its application. Northeast University Press, 1991.
[2] Kang kuanying, et al. The establishment, development and significance of scientific methodology of fractal theory. Scientific management research, Vol. 6 (1998), p.53-56.
[3] Liu huajie, et al. Fractal art. Hunan Science and Technology Press, 1998.
[4] Lei guiyuan, et al. Views on pattern art by Lei guiyuan. Zhejiang Academy of fine arts Press, 1992.