

Research on Digital Design of Rural Residential Architecture and Folk Art

Yonggang Liu

Liaoning University of Media and Communication, Shenyang Liaoning, 110136, China

22717406@qq.com

Abstract. The future artistic transformation of new rural residential architecture cannot be separated from the exploration of local culture and folk art. Modern digital technology can be used to extract cultural and artistic elements in a targeted manner, and through two-dimensional and three-dimensional designs, create plastic arts that integrate practicality and artistry, thus providing inspiration for the overall artistic improvement of the rural environment. From experience, this process of digital design and architectural environment transformation must be based on traditional architectural art, reflecting the regional and national characteristics of art. At the same time, with the help of AIGC technology, new forms of rural folk art can be designed quickly and efficiently.

Keywords: Rural Residential Architecture; Elements of Folk Patterns; Digital Extraction; AI Artistic Redesign.

1. Introduction

Research on the development trend of future rural residential architecture has not yet reached a unified opinion. Different regions, art colleges, and design institutions have their own viewpoints. However, the mainstream idea is to adhere to the concept of ecological environmental protection, reflecting regional cultural characteristics and unique artistic styles, and forming cultural resources to drive rural economic development. When transforming new rural residential architecture, we should also consider farmers' understanding and recognition of new architectural art. At the same time, inheriting traditional agricultural civilization is also a consideration in our design, which can ensure the continuity and development of agricultural civilization and maintain farmers' emotions. AI technology has redefined regional culture, enabling the construction of a virtual-real integrated cultural inheritance carrier. Through deep learning, it can analyze traditional architectural patterns and folk symbols to generate a sustainable cultural gene pool.

2. Principles for Extracting Folk Pattern Elements

Rural folk art takes various forms, mainly presented as graphics, paintings, and carvings, with a large number of two-dimensional graphics in its artistic forms. The content of rural folk patterns also contains multiple levels of profound meanings. The mainstream idea is the desire for happiness, good expectations for the future, the continuation of traditional culture, and even strong mythological colors. The formation process has a long history and has become an ideological continuation in the hearts of many farmers. The influence of such folk patterns and culture pervades rural daily life. Spiritually, take Northeast rural residents as an example. Farmers like to paste red paper with black characters on chicken coops, cattle sheds, pigsties, etc. The text content often expresses yearning for a better life, such as "Full of Golden Chickens," "Prosperity of Six Livestock," and "Full of Fat Pigs." Compared with the artistic forms in traditional urban architecture, such as dragon, phoenix, flower, bird, and mythical beast elements, rural folk art patterns are more down-to-earth, closer to the characteristics of agricultural civilization, and contain the emotional accumulation of generations of farmers. In the transformation of new rural residential architecture, the artistic modeling should meet farmers' emotional recognition, and the presented patterns should not exceed farmers' existing artistic cognition. For example, many modern art, abstract art, and some foreign artistic forms are not yet suitable for promotion in rural environmental design. Therefore, when extracting traditional folk

pattern elements, we should seek resources from regional culture. For example, on some fences and iron art shapes, the text content such as "Full of Golden Chickens," "Prosperity of Six Livestock," and "Full of Fat Pigs" is graphical, simplified, and practical. At the same time, when extracting artistic elements, we should also consider regional and national characteristics. From the development trend of architecture and decoration, graphical and simplified forms are common features of current plastic arts. Therefore, in the extraction of folk art, we should also learn to extract core graphics and promote excellent Chinese traditional culture ideologically and mentally.

3. Methods of Digital Redesign

Digital redesign refers to digitally processing the extracted folk art graphic elements, recombining the core graphics to form traditional pattern combinations with a modern style, and considering the simplification of the graphics. In the design process, we should also consider how to combine modern technology and materials to achieve practicality. Some traditional folk cultures appear in the form of text. Therefore, in digital design, we should, through understanding the content, find suitable materials, and convert the text content into graphics. For example, combining information such as "Full of Golden Chickens" (1), "Full of Fat Pigs" (2), and "Prosperity of Six Livestock" (3), recombine similar elements, focusing on understanding of plane composition and presentation of main graphic elements. The resulting artistic effect can convey the core ideas of local culture.

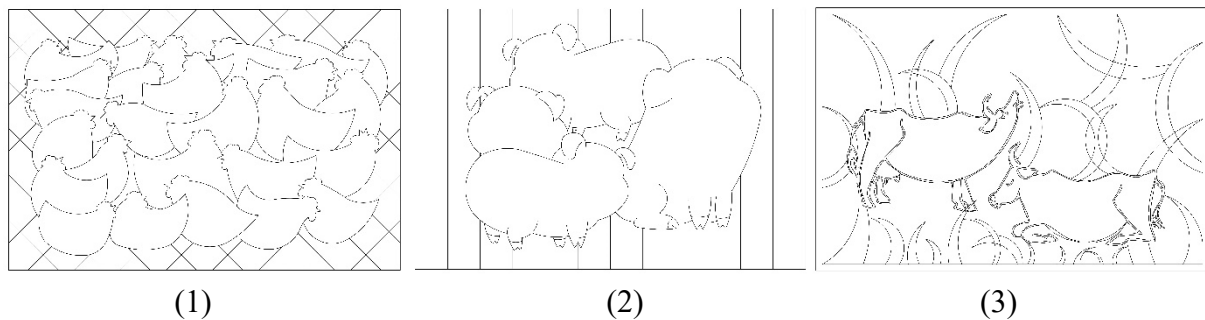


Figure 1. Digital Design of Folk Art Patterns

Digital design is not just about digitizing the original residential architectural art forms but also about considering the practicality and materialization of the digitally redesigned folk patterns and presenting their basic artistic features in the overall architectural model. This provides a reference for later actual construction and is also conducive to analyzing the future development trend of traditional residential architecture. The process of digitally designing graphic elements in folk art is a process of rechanging core graphics. First, computer 2D design software is used to draw the graphics, and then computer 3D software is used to complete digital modeling, which is directly applied to the design of the overall residential architecture, presenting it in an intuitive form. In a sense, it is the three-dimensionalization of traditional two-dimensional graphics, the graphicalization of the thoughts and text content in traditional folk culture. The digital design process is a process of recreating artistic patterns, retaining the cultural connotation of the original graphics, achieving diverse forms of expression, meeting the aesthetic needs of modern farmers, and not deviating from rural reality.

4. Style and Cultural Positioning of Presentation Forms

From the perspective of rural residential architecture types, they basically retain the characteristics of traditional Chinese architecture. The indoor and outdoor decorative arts are also based on traditional Chinese architectural art. However, due to economic and technical limitations, this inheritance of traditional architectural art has the characteristics of simplicity, regionality, and development. The presentation of some artistic patterns also clearly exudes a folk flavor, which is

closely related to the development of agricultural civilization. The artistic forms presented also differ from the "official" forms of traditional Chinese architectural art. At the same time, in different regions, especially under the background of different ethnic compositions, farmers in various ethnic areas have formed artistic forms based on traditional architectural art and derived regional characteristics according to their own production and living needs and different understandings of art.

5. Application of AIGC Technology in Rural Residential Architecture Design

Before designing rural residential architecture, we must conduct sufficient field research. Culturally and artistically, we should also consider regional cultural characteristics, folk art forms, and ethnic characteristics. Through AIGC technology, we can use big data model analysis to quickly complete the design of the expected effect under keyword prompts, greatly improving design efficiency. From the perspective of digital design of rural folk art, AIGC technology can generate several graphic styles, making its forms of expression more diverse and providing more choices for the digital development of rural folk art. AIGC technology collaborates with human designers to efficiently complete design tasks in an auxiliary design manner.

6. Conclusion

In summary, in exploring the artistic transformation of new rural residential architecture, we should follow the principles of conforming to farmers' economic capabilities and aesthetic standards while respecting their emotional recognition. In the process of artistic creation, we should try to find inspiration from the long-inherited rural folk art, as these long-standing folk arts are precisely the cultural and artistic essence condensed by farmers in thousands of years of agricultural production. The core of digital extraction is culture, and the design process is a modern recreation of artistic forms. On the basis of retaining the auspicious meanings of traditional folk customs, it presents more contemporary artistic forms.

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