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TRADITIONAL CHINESE TEXTILE PATTERNS AS THE CORE OF MODERN DESIGN: REASON AND CONTENT OF THE REDESIGN

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This paper studies reasons and content of the digital reconstruction of traditional Chinese textile patterns, and explores new ways of redesigning them into digital media. The use of modern digital technology to reinterpret historical patterns allows not only preserve the cultural genes underlying the patterns, but also to reconstruct the dimensions of the expression of traditional aesthetics in the process of parametric modelling. The content of the transformation of these patterns is analysed, which shows how to develop the spiritual core of patterns in the context of modern design using technical means to provide a new methodological perspective for viable cultural heritage.

Key words: Traditional Chinese Textile Pattern; Digital Redesign; Cultural Gene; Aesthetic Innovation; Pattern Activation; Cultural Heritage Preservation.

INTRODUCTION

Traditional Chinese textile patterns are rich in cultural symbols and historical connotations, with cultural significance and important historical connections, and have always been an important source of inspiration for modern designers. For example, in 2018, Chanel launched for the first time a high-end jewelry series "Camellia" inspired by the poetic world of Oriental ebony lacquered screen (Coromandel), which draws on the graphic design style of the ancient Chinese screen. However, in a contemporary world characterized by the rapid development and widespread use of digital technologies, designers are faced with the problem of how to retain the semantic load and complexity of traditional motifs when translating them into the language of the modern visual environment. Although the primary focus of digital work is often archival preservation [1], it rarely touches on the central proposition of contemporary translation of cultural symbols, which translates these motifs into practical designs that are both commercially viable and culturally significant. Han and Cong [2] provide useful findings on the transformation of traditional patterns in the context of Miao textile products, but there is currently less framework for combining the latest digital technologies with aesthetic innovations,



and the mere technical reproduction often leads to the “museumization” of cultural symbols. This study allows us to rethink the traditional traditional conservation paradigm, in particular, to analyze the aesthetic characteristics of traditional patterns with trans-era vitality, the reconstruction mechanism of narrative logic of patterns by digital media, and to substantiate a dynamic balance system between commercial needs and local cultural expression.

PURPOSE

The purpose of this research is to understand the aesthetic reasons and motivations behind the reconstruction of traditional Chinese textile patterns and to explain the modern variety of methods and principles of transformation. The materials of the digital activation project of Suzhou Silk Museum, the digital display of traditional fabric patterns with online themes in China Silk Museum, and the digital traditional pattern library of the “Wenzang” platform were used for the analysis.

RESULTS AND DISCUSSION

At present, with the continuous improvement of people's quality of life, the demand for deep cultural connotation is rising. Nowadays traditional Chinese textile patterns are experiencing a Renaissance, and the challenge lies in how to balance these rich traditional cultural meanings, symbolic connotations and modern design needs [3]. These textile patterns gain visual impact and cultural resonance not only by connecting the past to the present, but also by connecting historical significance to current needs and tastes of current users. The balancing technique is clearly reflected in the cloud pattern (Table 1:a), which is used to symbolize the traditional aesthetic characteristics of “lively spirit and charm (气韵生动)”. Once-luxurious cloud patterns have been reduced to minimalist geometric abstractions through high-resolution vectorization. However, despite the simplification of the lines, the pattern retains its overall symbolic meaning and reconstructs the contemporary interpretation of the “heaven-human induction (天人感应)”.

The lotus motif, which has long symbolized purity (Table 1:b), has been reconstructed by 3D modeling and digital weaving methods in the “Song Yun” themed Hangzhou Pattern Digital Art Exhibition. It not only presents an elegant, fluid silhouette under the concept of “rising unsullied from mud (出淤泥不染)”, but also showcases an updated aesthetic that are popular in contemporary graphic and fashion design.



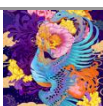


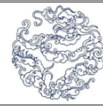

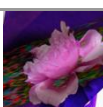
Phoenix pattern also shows great potential in CAD parametric design (Table 1:c). The traditional image of the phoenix represents the virtues of rebirth and nobility, and the style has been improved to present the beauty of the virtual and real changes and elegant dynamics like the “flying white (飞白)” calligraphy. This digital “Bone method with pen (骨法用笔)” refinement blends traditional patterns with modern compositions, making it ideal for brands, textile printing or digital media that use bold, fluid ICONS. Meanwhile, the dragon pattern (Table 1:d) stands out for its abstract and bold brushstrokes after it was redesigned during training to



generate adversarial networks (Gans). This transformation of the image allows transferring mythological traditions into the modern visual world.

Other transformations show how digital reconstruction can balance complex historical information with minimalist aesthetic choices. The Tang Dynasty Baoxiang Flower emblem of Shaanxi History Museum is a good example (Table 1:e).

Table1
Samples of Traditional Chinese Textile Patterns in Modern Adaptation

Samples	Original Pattern Motif	Digital Technique Applied	Aesthetic Outcome	Cultural Significance Preserved/Enhanced
	Cloud motif (a)	High-resolution vectorization	Minimalist geometric abstraction	Retains celestial harmony while modernizing form
	Lotus motif (b)	3D modeling combined with digital weaving	Simplified, elegant contours	Maintains purity symbolism with a refined look
	Phoenix motif (c)	Parametric design via CAD	Streamlined, dynamic form	Reinforces themes of renewal and vitality
	Dragon motif (d)	AI-driven generative redesign	Abstracted, bold strokes	Evokes traditional power with a contemporary flair
	Floral medallion (e)	Digital pattern decomposition	Geometric reinterpretation	Balances intricate historical detail with modern minimalism
	Curly cloud (f)	Vector-based digital tracing	Simplified, fluid lines	Conveys ancient symbolism in a contemporary language
	Auspicious symbol (g)	AI pattern recognition and reassembly	Modern, clean iconography	Emphasizes luck and prosperity in a subtle manner
	Traditional peony (h)	3D rendering with layered texturing	Stylized and vibrant	Retains the richness of traditional ornamentation

Through digital pattern decomposition, the round flower is disassembled into 6 geometric modules. When the proportion of modules reconstituted to keep the Fibonacci sequence, the new pattern not only conforms to the modern minimalist



aesthetic, but also conforms to the creation philosophy of “mathematical beauty” of the Tang Dynasty. This resulted in a geometric reinterpretation of the pattern while also maintaining the balance and basic symbolic content of the coat of arms. As a result, the design removes superfluous embellishments and achieves a clear, modern expression without sacrificing the rich decorative pattern character of Tang textile. The same method is also used for cirrus patterns in Han Dynasty “Mawangdui (马王堆)” paintings on silk (Table 1:f), where vector-based digital tracing simplifies the pattern's winding lines. The end result is a harmonious and tidy, more rhythmic design that still evokes the ancient cosmic harmony meaning of the original pattern.

Symbolism is also fully manifested in the example of auspicious symbols (Table 1:g), where AI is used to identify and combine different patterns and produce new, simple and concise illustrations. Historically, it is closely associated with luck and prosperity. Such patterns are made to fit today's brand image or decorative style. In this way, designers can ensure that complex styles are simplified to clear lines and vibrant shapes, while simultaneously embedding cultural connotations into various forms of contemporary design – from packaging to interior design – while preserving origin meaning.

Finally, a traditional Chinese flower pattern, peony, the most iconic flower in China, was rendered with parameterized layered textures by Substance 3D Designer to show the realism of the petals and their colors (Table 1:h). By preserving the luxurious layers of peony, the redesign maintains the strong cultural association of this pattern with wealth and honor, while providing a more immersive and modern experience. The traditional cultural symbols break through the category of decoration and evolve into digital media to convey emotions.

Thus, these transformations are an example of how digital tools improve and bring back historical patterns in a way that will be relevant to the present-day audience. Each of the redesigned Chinese textile patterns maintains a balance between aesthetic innovation and cultural continuity in all the cases. In addition, vectorization, artificial intelligence, and 3D modeling are functional when they come extend the adaptability of each pattern: the patterns can be resized, recolored, or reused across media without blowing up or otherwise losing resolution or cultural context [4]. This synergy between heritage and innovation makes traditional Chinese textile patterns not only a part of the past, but also the elements that can actively create the present design world.

CONCLUSIONS

Digital redesign of traditional Chinese textile patterns is a great way to preserve and develop the cultural heritage as well as to meet the requirements of the modern design. It has been proven that designers using sophisticated digital tools, including AI-based pattern creation develop complex traditional patterns for modern environments. On the one hand, cultural gene fragments are extracted through the deconstruction of patterns, on the other hand, aesthetic restructuring experiments are conducted using digital technology. Using a combination of the latest digital redesign techniques and innovative approaches: from high-resolution



vectorization and AI-driven generation to parametric design and 3D modeling, designers have successfully integrated the core symbolic elements of these patterns while optimizing their modern aesthetics and functionality to make them suitable for today's design applications.

These results show that by combining historical art and innovative design methods with an interdisciplinary approach, digital redesign avoids the elimination of cultural symbols, breaks through the rigidity of procedures, and provides a replicable practice paradigm for sustainable innovation of cultural heritage.

REFERENCES

1. Wang L. Application of traditional Chinese elements in museum graphic design in the digital age. *BCP Social Sciences & Humanities*, 2023. 22, 209–212. URL: <https://doi.org/10.54691/bcpssh.v22i.5364>
2. Han D., Cong L. Miao traditional patterns: the origins and design transformation. *Visual Studies*, 2021. 38, 1–8. URL: <https://doi.org/10.1080/1472586X.2021.1940261>
3. Zhang X., Dong Y. Research on the graphic reconstruction of traditional auspicious patterns in contemporary art design. *Highlights in Art and Design*, 2023. 2(2), 73–79. URL: <https://doi.org/10.54097/hiaad.v2i2.6797>
4. Huo D., Skliarenko N. (2024). Digital redesign of traditional Chinese textile patterns: A synthesis of national traditions and innovations. *Art and Design*, 2024. 3, 39–56. URL: <https://doi.org/10.30857/2617-0272.2024.3.3>

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ТРАДИЦІЙНІ КИТАЙСЬКІ ТЕКСТИЛЬНІ ВІЗЕРУНКИ ЯК ОСНОВА СУЧАСНОГО ДИЗАЙНУ: ПРИЧИНИ ТА ЗМІСТ РЕДИЗАЙНУ

У роботі обґрунтовано причини та зміст цифрової реконструкції традиційних китайських текстильних візерунків, а також досліджено нові способи їх редизайну у цифрові медіа. Використання сучасних цифрових технологій для реінтерпретації історичних моделей дозволяє не тільки зберегти культурні гени, що є в основі моделей, але й реконструювати виміри вираження традиційної естетики в процесі параметричного моделювання. Проаналізовано зміст трансформації цих шаблонів, який показує, як розвинути духовне ядро шаблонів у контексті сучасного дизайну за допомогою технічних засобів, щоб забезпечити нову методологічну перспективу для життєздатної культурної спадщини.

Ключові слова: традиційний китайський текстильний візерунок; цифровий редизайн; культура Китаю; естетичні інновації; активація шаблону; збереження культурної спадщини.