

Weaving Through the Centuries: Exploring Nanjing Cloud Brocade Weaving Techniques and Contemporary Preservation Strategies

Xinyu Jiang

*School of Art, Nantong University, Nantong, China
3545944677@qq.com*

Abstract. The weaving techniques of Nanjing Yunjin, which have been designated by UNESCO (the United Nations Educational, Scientific and Cultural Organization) as an Intangible Cultural Heritage, represent more than 1,600 years of silk - based civilization and are considered the summit of Chinese silk artistry; this piece examines the historical development of Yunjin techniques, meticulously dissects its central skills and cultural significance, centers on the present - day practices of inheritance and innovation, uncovers the process through which this "jewel among brocades" has evolved from an imperial treasure into a means of cultural creation, and offers a theoretical framework for the living continuation of intangible cultural heritage.

Keywords: Nanjing Cloud Brocade, Weaving Techniques, History, Artisanal Craftsmanship, Contemporary Revival

1. Introduction

Nanjing Cloud Brocade, designated by UNESCO as an "Intangible Cultural Heritage of Humanity," could trace its origin back to the setting up of the Imperial Brocade Bureau in the 13th year of the Yixi era (417 AD) in the Eastern Jin Dynasty, was renowned for its "inch - for - inch gold" workmanship and magnificent yet elegant texture, so it became a precious imperial item in the Yuan, Ming, and Qing dynasties, and over 1,600 years of weaving history, it had been crystallized into the summit of Chinese silk - weaving craftsmanship [1].

In the era of modern industrial systems and digital technology, the age - old, intricate hand - weaving methods of Yunjin have been experiencing comprehensive changes regarding production rationale, aesthetic structures, and application scenarios, so Yunjin from Nanjing was no longer just a thing of the past restricted to imperial ceremonies or museum exhibitions but rather it was getting redefined in contemporary design, cultural consumption, and the experience - driven economy, however, Yunjin's "modernization" went beyond mere product innovation or creative - cultural development as it entailed a host of deep - seated issues such as how to rejuvenate the traditional craftsmanship logic, how to convert the traditional ornamental language into modern design terms, and how to make the knowledge system of traditional techniques fit new dissemination patterns.

To tackle this matter, this paper took a design - oriented approach by considering brocade as a complex design system made up of craftsmanship, visual language, and cultural meaning instead of simply regarding it as a traditional type of textile and examined the weaving techniques of Nanjing brocade in four aspects, namely historical origin, craft analysis, cultural value, and modern - day inheritance, aimed to build an analytical framework for how brocade evolved from being "traditional court textiles" into "contemporary cultural design resources", delved into the technical essence of skills such as the "picking flowers and knotting threads" and "through warp, cut weft" techniques, and probed into the cultural symbols underlying its patterns and based on innovative case studies from the Nanjing Cloud Brocade Research Institute explored effective ways for the living - inheritance of intangible cultural heritage which offered theoretical guidance for the design - focused translation and living - inheritance of Nanjing Cloud Brocade as an intangible cultural heritage.

2. Historical origins of Nanjing Cloud Brocade techniques

The developmental path of Nanjing Cloud Brocade is in line with the progress of Chinese silk civilization and its origin can be traced back to the Eastern Wu Kingdom in the Three Kingdoms period. In 417 AD, which was the 13th year of the Yixi era in the Eastern Jin Dynasty, the imperial court set up the Brocade Bureau in Nanjing, signifying the official beginning of the Cloud Brocade weaving techniques. In the Sui and Tang dynasties, Yunjin had its initial development as the techniques became more proficient and it turned into luxurious and delicate items under the influence of the aesthetic tastes of that time. By the Song and Yuan periods, the art reached perfection and a unique combination of functionality and decoration was established. From the Yuan to the Ming and Qing dynasties, Yunjin thrived as an imperial treasure and there were more than 700 years when it was used in the court [2]. The setting up of the "Jiangning Weaving Bureau" by the Qing dynasty pushed Yun brocade production to its peak and at that time, Yun brocade had various types, elegant patterns and vivid colors, symbolizing the height of Chinese silk - weaving skills [3].. The fact that Cao Xueqin's forebears worked in the Jiangning Weaving Bureau further emphasizes the important position that Yun brocade weaving held back then.

Ever since the national initiative for safeguarding intangible cultural heritage got underway, the Nanjing Cloud Brocade Wooden Loom Embroidery Hand - Weaving Techniques were incorporated into the first round of national intangible cultural heritages back in 2006 and in 2009, this art form was successfully added to UNESCO's Representative List of the Intangible Cultural Heritage of Humanity, which indicated that its cultural worth had been recognized worldwide.

3. Tracing the origins of Nanjing Cloud Brocade weaving techniques

3.1. Types of Nanjing Cloud Brocade fabrics

3.1.1. Exquisitely crafted Kufan Brocade

Kufan represents one of the time - honoured types in Nanjing brocade as it was given this name because it was sent to the "Kufan Repository" within the Imperial Household Department once woven and made use of the Nanjing brocade jacquard hand - weaving method on the wooden loom which entails numerous procedures like pattern designing, forming an artistic concept, selecting patterns and making pattern books, preparing materials, constructing the loom and doing the actual weaving etc., amounting to more than a hundred steps altogether and when it came to the weaving

process, it needed the coordinated efforts of a jacquard operator and a weaver who had to work with a traditional jacquard wooden loom and could only produce about 5 - 6 centimetres each day.

Kuduan has warp and weft threads closely interwoven which leads to a thick, firm, and crinkled feel and its satin face is sleek and level not easily getting dirty or out of shape; traditional flower patterns mainly show up in the designs with large blossoms, curving lines, and carefully balanced arrangements giving off a sense of respectability and stability and designs were frequently made with naturally - colored flowers, background flowers, or painted patterns having rather restrained and tasteful colors mostly single - color or two - color representing a plain and classic look.

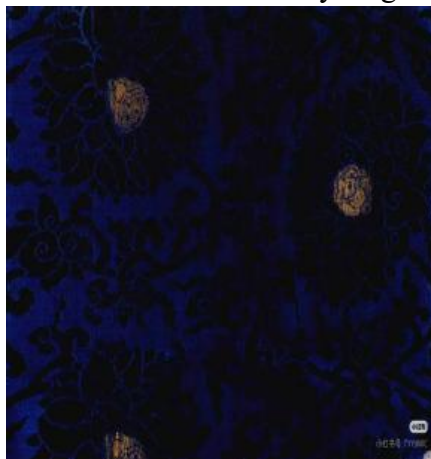


Figure 1. Lotus scroll pattern with gold-dye brocade-Qing dynasty



Figure 2. Two-color ground pattern brocade



Figure 3. Long oval longevity pattern with gold-dye brocade

3.1.2. Kujin Brocade with colorful weft threads

Kujin was an imperial jacquard silk fabric made by means of the key technique known as colored weft through - shuttle weaving and it got its name because it was stored in the imperial treasuries during the Ming and Qing dynasties, being a typical type of Yunjin famous for its standardized making skills and extensive use; its main techniques consisted of three parts, first there was the colored weft through - shuttle approach in which colored weft threads ran across the whole width of the fabric on a single shuttle and shuttles were replaced one after another according to the pattern design intertwining with the ground warp and pattern warp to form jacquard patterns, second the gold thread served as the principal weft either being round or flat and together with colored wefts they created a gold - and - color jacquard look and some plain brocades might also be woven solely with gold threads [4], third large - flower - loom jacquard weaving utilized Yun brocade's characteristic double - weaver method where the pattern - setter designed the pattern while the weaver handled the shuttle and in coordination with thread - based pattern templates they managed to precisely weave complicated patterns.

Kujin patterns show regularity and a symmetrical arrangement, and the combination of gold and colors forms a sumptuous texture; made of high - count silk with closely arranged warp and weft threads and strengthened with gold thread in jacquard parts, it has excellent elasticity and durability; limited by the shuttle - weaving method, patterns mostly have continuous scroll patterns, flower - shaped medallions, and intertwined lotus vine designs which are symmetrical patterns with clear and

striking lines and were appropriate for the borders of imperial clothes and formal ceremonial canopies [5].



Figure 4. A peony - style dress from the Qing dynasty adorned with patterns of Lotus - branch peony, melon, and butterfly

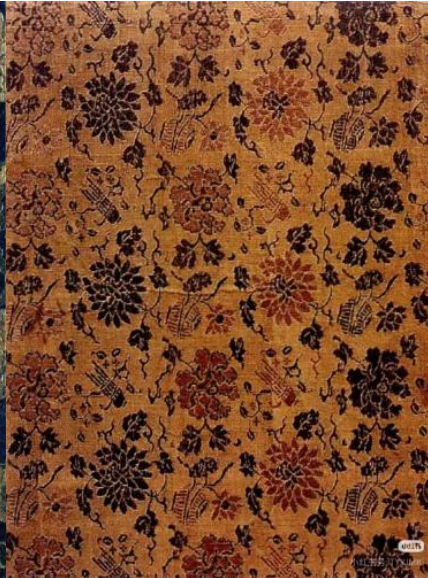


Figure 5. Another peony - style dress from that period featuring designs of branch peony and chrysanthemum



Figure 6. Yet another peony - style dress from the Qing dynasty decorated with patterns symbolizing entwined auspiciousness, prosperity, longevity, and happiness

3.1.3. Jacquard Brocade with interrupted weft

Zhuanghua, a top - end imperial jacquard silk fabric, takes "through warp, broken weft" as its central weaving method and was solely utilized for the top - grade ceremonial attire and vessels in the imperial court, signifying the zenith of Yun brocade artistry, which is well - known as "an inch of brocade, an inch of gold" [6], and its technology entails continuous ground warps spanning the whole fabric width while colored or gold wefts are selectively woven just within pattern contours - discontinuous wefts that don't cover the entire width, enabling exact color - changing and pattern - specific color matching for numerous weft threads within one motif, and the multi - shuttle weaving technique includes color matching at every pattern detail, permitting the simultaneous use of more than a dozen colored wefts plus gold or silver wefts with weavers nimbly switching wefts by means of multiple shuttles, or alternatively, two - person weaving on large wooden looms could be used: pattern lifters accurately lifted patterns according to threaded pattern books while weavers simultaneously carried out shuttle throwing, weft cutting, and weft insertion, or the method of intertwining gold or silver threads with colored wefts could be adopted, which incorporated advanced Yunjin gold - weaving skills, combining round gold thread, flat gold thread, silver thread, and multi - colored wefts to attain layered interweaving of gold, silver, and color.

The color palette of the embroidery design is abundant and has clear - cut layers, as more than a dozen colors intertwine in one piece which enables highly precise color duplication and smooth transitions in the designs, while the themes of the patterns are various and the composition is

flexible without any constraints, and the incorporation of gold and silver threads imparts to the fabric a sumptuous and lavish feel which emphasizes the rank and beauty of the imperial court textiles.



Figure 7. Auspicious character and treasure pattern brocade·Qing dynasty

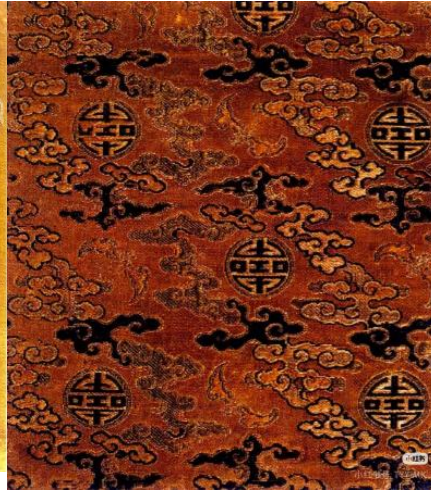


Figure 8. Cloud and longevity pattern brocade·Qing dynasty

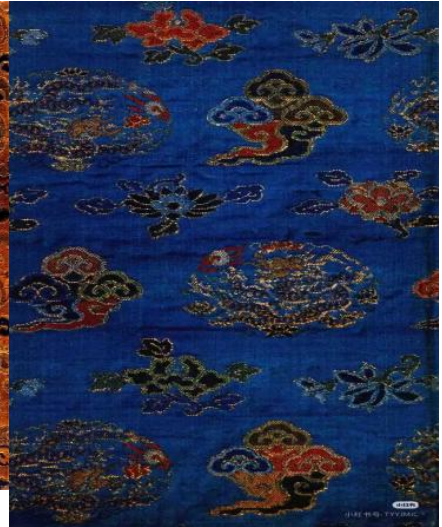


Figure 9. Branching flower and python pattern brocade·Qing dynasty

3.2. Core techniques and weaving tools

At the heart of Yun brocade weaving are two main skills: "pattern translation" which involves transforming designs and "the interweaving of warp and weft", and in the past, artisans utilized silk threads for the warp and cotton threads for the weft to make pattern samples based on design drawings which was like old - fashioned "programming" methods [7], while "the interweaving of warp and weft" is the crucial step during the weaving process where numerous shuttles lead different - colored weft threads and through weaving them back and forth over various warp areas they form colorful patterns and the three - dimensionality created by this method is so remarkable that it cannot be matched by regular silk fabrics.

Underpinning these techniques was the huge wooden Jacquard loom which weighed a thousand jin, was four meters in height, five point six meters in length, one point four meters in width and consisted of 1,924 precise components; weaving demanded flawless cooperation between the pattern controller and the weaver who managed the design from above and dealt with the colors below respectively, and even if they were perfectly in sync, this pair could only produce five to six centimeters of fabric daily during an eight - hour work period; this two - operator manual weaving method has remained unreplaceable by machinery up to now and stands as a "living relic" in China's silk weaving past.

3.3. The achievements of Nanjing Cloud Brocade

The value of Nanjing Cloud Brocade extends far beyond its craftsmanship. Its historical, artistic, and technological dimensions collectively form a vital symbol of Chinese culture.

In the past, Yunjin, which was utilized in the imperial courts of the Yuan, Ming, and Qing dynasties, bore witness to the ceremonial systems and costume cultures of these feudal regimes and

the extant pieces are crucial physical proof for the study of age - old silk - making skills and palace - life; at the Shanghai APEC summit, world leaders donned Tang - style garments made from brocade cloth, drawing global focus on this time - honored art, and its artistic worth is shown in the pattern arrangement and color utilization [8], with the patterns of Yunjin combining propitious elements like dragons, phoenixes, and qilin and natural topics such as landscapes and flowers, having lively forms and deep - seated symbolism - for instance, cloud patterns symbolize freedom and vitality, dragon patterns stand for power and nobility, and phoenix designs denote good luck and beauty, and this design concept reflects the Chinese respect for nature and the universe, creating a distinct Eastern aesthetic framework; the technical value is concealed in the weaving methods, as the complicated jacquard weaving, accurate color - matching procedures, and elaborate loom structures together make up an excellent illustration of ancient textile technology and still provide precious suggestions for contemporary textile research.

4. Contemporary design translation and living heritage mechanisms for Nanjing Cloud Brocade weaving techniques

In the present - day context, the protection of Nanjing Cloud Brocade has extended beyond just technical preservation and has gradually shifted towards a methodical revival approach focused on design translation, and this change was not spurred by a single action but rather stemmed from a multi - level system that encompassed the central techniques, design adjustment, and the reorganization of dissemination structures.

4.1. Establishing dedicated inheritance institutions and systems

The commitment of intangible cultural heritage bearers is crucial for the perpetuation of these techniques and individuals such as Zhou Shuangxi, Guo Jun, and Chen Cheng had not only become proficient in traditional skills - creating magnificent pieces like the Nine Dragons Tapestry and reproducing cultural items such as imperial dragon robes but also witnessed their works being collected by places like the Great Hall of the People and UNESCO and the special - edition Nine Dragons Tapestry, which was based on the Nine Dragons Wall and made use of multi - layer relief methods, sold for 1.356 million yuan at an auction in 2015, showing the present - day worth of traditional craftsmanship.

The Nanjing Brocade Museum and the Nanjing Brocade Research Institute had turned into central vehicles for this inheritance; the museum presented live weaving shows so that visitors could see the cooperative wonder of "pulling flowers and hand - weaving" while the institute, being a national - level demonstration site for the productive protection of intangible cultural heritage, carried out systematic technical study and training.

4.2. Developing educational tourism programs centered on Nanjing Cloud Brocade weaving techniques

At the Nanjing Brocade Museum, visitors follow the development of brocade starting from its origin in the Three Kingdoms period up to the present - day revival via artifacts and looms [9], lecturers elaborate on the distinctions in craftsmanship between Ku Brocade and Zhuanghua Brocade as well as their uses in the imperial court and meanwhile, live presentations by those who inherit intangible cultural heritage exhibit the intricate complexity known as "inch - by - inch gold" involved in the weaving of large - flower - patterned wooden looms.

At the workshop, get involved in practical activities: initially, master the basic embroidery and knot - tying skills by employing silk thread and cardboard to copy straightforward cloud and scroll designs, and subsequently, have a go at mini loom weaving as a group, try out the "color weft through shuttle" method to finish a unique small weaving item, thus grasping the essential principles of how warp and weft threads intersect.

4.3. Technology-empowered practices in Nanjing Cloud Brocade's heritage preservation and innovation

While maintaining tradition, the brocade industry attained creative transformation via cross - industry combination as the Nanjing Brocade Research Institute combined artistic resources by cooperating with domestic and foreign brands, integrating imperial - level skills into daily items such as handbags, ties, and hanging screens which brought sophisticated techniques into ordinary life and meanwhile, IP (Intellectual Property) enhancement and brand innovation became new impetus for growth as the institute utilized digital devices to widen online routes and matched precise IP incorporation with community interaction thus strengthening the bond between traditional culture and modern life.

Technological innovation propels the upgrading of craftsmanship; for example, the limited - edition "Red - Crowned Crane Harmony" adopts an innovative "micro - differential weaving method for embroidered patterns," attaining more sophisticated artistic expression by means of more intricate warp - weft interweaving and showing the contemporary potential of traditional skills. Besides, digital technology has revolutionized the transmission of knowledge in Yunjin craftsmanship; for instance, in AR - integrated courses, trainees donning AR smart glasses learn techniques such as flower - picking and knot - tying, weaving across warp threads while cutting weft threads, and the glasses capture hand movements through image recognition, comparing them in real - time with master artisans' standard operation videos stored in the back end, indicating deviations with red marks. Meanwhile, VR immersive experiences re - create 1:1 replicas of traditional wooden loom workshops, so people wearing VR headsets could "enter" these spaces to experience two - person collaborative weaving - simulating the left hand's pattern - lifting while manipulating the right hand's shuttle - throwing mechanism, and force feedback technology reproduces the tactile feelings of warp tension and weft threading. Moreover, AI Visual Sharing employs high - definition cameras and AI visual capture to record the entire weaving process of intangible cultural heritage masters, accurately extracting over 100 key data points - including flower - pulling frequency and weft - beating force - to form a standardized technique database which was then simultaneously uploaded to the cloud - based "Yunjin Technique Sharing Platform," allowing global learners to watch detailed techniques online [10].

5. Conclusion

Being at the top of Chinese silk - weaving and recognized as a world - class intangible cultural heritage, the techniques for weaving Nanjing Cloud Brocade had been evolving for thousands of years and were supported by crucial methods such as two - person cooperative weaving on wooden looms within the Grand Flower Pavilion, continuous warp - discontinuous weft technique, and gold - thread weaving, which led to the development of three main types: Ku Brocade, Ku Satin, and Embroidered Brocade that functioned as material manifestations of imperial ritual culture and traditional aesthetic intelligence, and due to the scarcity of its techniques and the profundity of its

cultural value, a proper balance between preservation and innovation was required to maintain authenticity while accepting new ideas.

This paper contended that the present - day continuation of Nanjing Yunjin had gradually developed a multi - aspect revival route consisting of the craftsmanship aspect, the design translation aspect, and the dissemination aspect, and productive conservation based on research institutions and the inheriting system kept the structural soundness of the traditional weaving system; digital technology interference changed implicit knowledge which once depended on physical experience into a system of explicit skills that could be recorded and analyzed, and at the same time, cross - disciplinary design and combination with modern product media pushed Yunjin's visual language into new living situations and aesthetic systems, and these changes showed that Yunjin's "living inheritance" was essentially a continuous process of design translation rather than one - way duplication of techniques, so the future development of Nanjing Yunjin needed to keep balancing the essence of traditional craftsmanship with the scope of innovation all the time, perfect the mechanisms for retaining talents, further integrate technology and craftsmanship, and promote sustainable development in the fields of cultural inheritance, industrial growth, and international spread to guarantee that this age - old weaving would continue to exhibit the contemporary significance of China's excellent traditional culture.

References

- [1] Fan Yi. The Marvels of Jiangnan: Nanjing Cloud Brocade's Past and Present [J]. *Realism*, 2025, (03): 93-96.
- [2] Nanjing Municipal People's Government. Commemorative Event Held for the 15th Anniversary of Nanjing Cloud Brocade's Successful Inclusion in the UNESCO Intangible Cultural Heritage List [EB/OL]. 2024-10-08.
- [3] Li Shuyu, Zhao Li. Transformation and Inheritance of Intangible Cultural Heritage Projects in the Modern Humanistic Economy: The Case of Nanjing Cloud Brocade Craftsmanship [J]. *Art Market*, 2025, (08): 121-123.
- [4] Tang Liwei. Nanjing Cloud Brocade: Brilliant as Clouds and Mist [J]. *Marvelous Museum*, 2025, (Z2): 9-12.
- [5] Jin Yanshu. A Study on the Inheritance of Nanjing Yunjin Weaving Craftsmanship [D]. Nanjing University of Information Science and Technology, 2016.
- [6] The Weaving Techniques of Nanjing Cloud Brocade [J]. *Audit Monthly*, 2024, (10): 66.
- [7] Li Jinling. The Digital Transformation Path of Nanjing's Intangible Cultural Heritage [J]. *Cultural Industry*, 2026, (02): 103-105.
- [8] Cui Ziyi, Ji Yibo. Design Strategies for Nanjing Cloud Brocade in Diplomatic Ceremonial Attire [J]. *Dyeing and Finishing Technology*, 2025, 47(04): 29-33+66.
- [9] Nanjing Museum of Ancient Cloud Brocade. Sole Cloud Brocade Representative at China Brand Forum Showcases Transformation Achievements in New Productive Forces of Intangible Cultural Heritage [EB/OL]. 2024-12-01.
- [10] Ding Junjie. A Study on the Form and Meaning Application of Qing Dynasty Nanjing Cloud Brocade Patterns [D]. Jiangxi University of Finance and Economics, 2025.