



Technical And Cultural Evolution Of Nanjing Yunjin

Ms.Deekshitha Erabathini¹, Ms.Nikhila Rane²

¹MSc Student of Textile Science and Apparel Design, SNDT Women's University, Mumbai, India.

²Assistant Professor of PG Department of Textile Science and Apparel Design, SNDT Women's University, Mumbai, India.

Abstract

UNESCO has recognized Nanjing Yunjin, or "Cloud Brocade," a 1,500 year old Chinese silk art form for its technical and historical significance. This essay examines its development from the Eastern Jin Dynasty to the Qing Dynasty, when it reached its zenith as an imperial tribute. It describes the intricate workings of the Dahualou (Large Drawloom), which needs coordinated cooperation between a "weaver" and a "florist" in order to make just 5 to 6 cm of fabric every day.

The review highlights the specialized "Zhuanghua" technique and the use of luxury materials like peacock feathers and gold foil hammered to 0.12 micrometers.

Keywords: Nanjing Yunjin, Cloud Brocade, Dahualou Loom, Zhuanghua Technique, Cultural Heritage, Textile Technology.

1. Introduction

"Nanjing Yunjin", it is a textile traditional art of china and the meaning of the Nanjing is the place where the producing the fabric and the Yunjin is the meaning "Cloud Brocade". It means the brocade silk. And the Nanjing Yunjin represent the traditional chinese technology of silk weaving and the royalty (Liang. Xu. et. al., 2024). The Nanjing Yunjin is the identify by the stunning luster, intricate design, and its rich color palette shades. And the Yunjin is the highly valued because of it carries the gold and silver with the intricate design pattern and it signifying by the "inch brocade" and "inch and gold" it means, in the fabric the single inch was have the ounce (1/16 pounds or approximately 28.35 grams) of gold, so its add the richness to the traditional chinese cloud brocade fabric (Meng. J. 2026) (Lu. L., et., al., 2023).

This Yunjin was the very royal and prestigious textile which have the 1500 years of heritage and it was started in the Eastern Jin Dynasty and it was famous and got more demand in the period of Ming and Qing eras (TextileAsArt. Com) (Chinese Craft Project). And the Yunjin have the high value for material

which are the gold and silver threads, silk threads, peacock feather filaments which gives the intricate designs and techniques (Meng. J. 2026). The Yunjin was recognized in 2009 by the UNESCO (United Nation Education, Scientific and Cultural Organization) and it considered as the “Living Fossil” of chinese craftsmanship (Shen. Y., et., al., 2026) (Liang. Xu. et., al., 2026) (Focus Vision. 2024). This review paper discuss about the history, techniques, production stages, materials, motifs, and its modernization.

1.2. History of Nanjing Yunjin

The Yunjin was have the urban and political history, that is the capital of six dynasty. And yunjin was origin from the Emperor of Yixi in the Eastern Jin Dynasty in the year of 417 AD (Guo. S., et., al., 2025) (Guo. J. et., al., 2025). The techniques are combined by the craftsman from Han and Western Jin Dynasty with the colorful style of ethnic minority groups and it becomes the advanced jacquard weaving.

In the Yuan Dynasty (1271-1368), the yunjin industry changes are happened for the both technical and social status, and the style was become model of modern “Zhijin” category of yunjin fabric (TextileAsArt.Com). The government was set up the “Weaving and Dyeing Bureau,” an official office to control the production and sale of the fabric, during the same time. And in the period of Ming Dynasty (1368-1644), the designs are developed in a unique way that can be strong durability and bright, clear pattern and silk jacquard brocade had become more valuable (Guo. S., et., al., 2025).

The golden age of yunjin industry, during the dynasty of Qing in the period of 1644- 1911. and it was peak at the time of Kangxi and Qianling emperor, yunjin becomes the nations hand made silk hub to help the 30,000 looms and 3,00,000 people who are producing the yunjin (Yang. L., Haiyan. X. 2023) (Sun. Y., et., al., 2022). the Qing government set up the Jiangning Weaving Office (also called Jiangning Weaving House) to manage the production of silk fabrics specifically made as tributes for the imperial court (Guo. S. et., al., 2025).

This period is culturally important because of the Cao family. Their deep knowledge of fabric is also seen in the work of Cao X ueqin, whose famous novel Dream of the Red Chamber includes detailed and careful descriptions of the delicate yunjin fabric (UNESCO. 2009).

Table : 1.

History	Institutional/Technical	Socio-Economic
Eastern Jin (417 AD)	Founding of the Brocade Department in Jiankang. (Guo, S., et al., 2025)	Centralization of craftsmanship after regional migrations.
Yuan Dynasty (1271-1368)	Development of "Na Shi Shi" (gold-woven brocade). (Shen, Y., et. al., 2022).	Introduction of precious metals
Ming Dynasty (1368-1644)	Maturity of silk jacquard and "Zhuangzhi" techniques. (Shen, Y., et. al., 2022).	Standardization of regional "Nanjing style" patterns.
Qing Dynasty (1644-1911)	Peak prosperity with 30,000 looms and 300,000 workers. (UNESCO. 2009).	Global peak of ancient silk technology; high urban employment.
Republic Era	Decline of weaving workshops due to war and social shifts. (Chen, Y., Rojanabut, W. 2024)	Near-extinction of the craft as imperial demand vanished.

Historical Evolution of Nanjing Yunjin Brocade

2. About Loom and Technical

In the yunjin fabric the loom is the Dahualou (Large Drawloom) wooden loom, which is the Jacquard loom, and largest and the hand weaving loom (Liang. Xu, et., al., 2024). The loom is an impressive wooden and bamboo structure, measuring 4 meter tall, 5.6 meters long, and 1.4 meter wide (The craft Atlas. 2023) (Chang. Y. 2019). Operating the Dahualou loom needs two artisans to work together smoothly and in perfect sync and they are called as one called the “florist” (thread puller) and the other called the “weaver” (Li. H., et., al., 2025). The florist sits on top of the loom, in a part called the figure tower, and lifts specific warp threads by hand following the pattern templates this is called “pulling the flowers”. The weaver sits at the lower front of the loom and works the shuttle to insert the weft threads (Chang. Y. 2019).

This relationship is often compared to power loom with the jacquard weaving method is like the software, and the patterns are the programs created using an ancient rope hitching technique. The florist works at the “keyboard” (the upper part of the loom), while the weaver watches the “screen” (the lower part) to carry out the design (Focus Vision. 2024).

In this weaving process team work is more important and for weaving 5 to 6cm of fabric it takes 8 hours of working day (Meng. J. 2026)(Xu. H. 2024). The slow speed is necessary because of the technical demands of the “Zhuanghua” (makeup flower) technique. This method uses “Swivel coiled weaving” and changes colors from one flower to the next within the same width of fabric (Chinese Craft Project). The Dahualou loom differ from automated looms that produce repetitive weft patterns by enabling partial makeup. This means it can weave discontinuous supplementary weft threads of various color into designated area according to the design blueprint, allowing for more intricate and localized patterning (Chang. Y. 2019). To ensure precision across thousands of threads, weavers frequently sing mnemonic ballads in the Nanjing dialect. These ballads act as oral rhythmic guides, helping them memorize the complex formulas and patterns required for their work (Focus Vision. 2024)

Table : 2.

Aspect	Powerloom	Handloom (Dahualou)
Definition	Machine operated loom using electricity	Manually operated loom using human skill
Operation	Fully or semi automatic	Completely manual, needs skilled artisans
Workers Required	Usually 1 operator	Requiers 2 artisans (Florist + Weaver)
Design Creation	Pre programmed, repetitive patterns	Highly detailed, custom and artistic designs
Technology Used	Uses modern Jacquard	Uses traditional systems like rope-hitching technique
Flexibility in Design	Limited flexibility once set	Very high flexibility, can change patterns within fabric
Skill Requirement	Less skill needed	Requires high skill, coordination, and experience

Handloom ‘vs’ Powerloom.

2.1. Process of Nanjing Yunjin

In this process there are 5 steps are included, that can be explained here:

Design Pattern : Artisans manually draft the pattern by carefully planning the arrangement and size of the final fabric. This process includes filling in sketches on grid paper, with each square representing a specific threads intersection (Chen. Y., Gan. Z. 2023)

Pattern Drafting (Cross Stitch Knot): This “Programming” phase involves weavers using cotton thread to tie knots in a complex arrangement that encode the pattern data. These knots determine which warp threads the florist must pull during production (Focus Vision. 2024) (Chen. Y., Gan., Z. 2023).

Material Preparation: Silk threads go through a thorough preparation process that includes dyeing, oiling, and stretching. This ensures the raw material meet the required specifications, maintain consistent color, and have the necessary strength for use on the loom (Chen. Y., Gan. Z. 2023)

Loom Dressing (Making Machine): Warp yarns are set up on the Dahualou loom according to the fabric’s specific ground organization and grain requirements (Focus Vision. 2024) (Chen. Y., Gan. Z. 2023).

Weaving : The final production phase involves “pulling flowers,” “disk weaving,” and “filling,” where the coordinated efforts of two workers bring the fabric to life. Using Plain, Twill, Satin weave is use in this weaving. (Chen. Y., Gan. Z. 2023)

2.2. Materials

2.2.1. Gold and Silver Threads

In the yunjin is have the special thing that is the fold and silver threads (Xu. H. 2023). Historically, the technique for production gold thread advanced to the point where one gram of gold could be hammered into foil just 0.12 micrometer thick (China Highlights. 2024). this foil is so thin and delicate that craftsmen must carefully control their breathing to prevent it from being blown away (Xu. H. 2024) (Sun. Y., et., al., 2022).

2.2.2. Peacock Feather

The “Zhuanghua” style uses threads made from bird feathers, especially male peacock feathers. These colorful feather fiber are twisted with silk and treads to make shiny, changing colors in the fabric (Chen. Y., Gan. Z. 2023) (Sun. Y., et., al., 2022).

2.2.3. Silk Threads

The “Zhuanghua” mainly uses dyed mulberry silk threads. For warps, strong dyed mono-filament silk with high degumming is preferred for durability. High grade “Yun” brocade used dyed plied degummed silk for the ground weft, while raw or low degummed silk was for folk or palace pieces. The decorative motifs use brocading weft threads like Sirong, a special dyed degummed silk, for softness (Sun. Y., et., al., 2022).

Table: 3

Material Component	Description and Preparation	Visual/Tactile Impact
Mulberry Silk	Refined through dozens of processes like tempering and oiling.(Chen, Y., Gan, Z. 2023).	High gloss; soft "scoop" (rustle); high tensile strength (Sam. 2025)
Gold/Silver Wire	Gold hammered to 0.12 μ m; wrapped around silk/cotton cores (China Daily. 2024).	Metallic brilliance; historical association with imperial power (TextileAsArt.com.)
Peacock Feather Yarn	Biological filaments twisted with silk threads.(Focus Vision. 2024)	Iridescence; three-dimensional "stereo" visual effect.

Materials for weaving the Yunjin

2.3. Motifs and Symbols

2.3.1. Animal

The dragon and phoenix are common motifs symbolizing the emperor and empress (Huang. H., et.,al., 2025). However, their use was strictly controlled by sumptuary laws. In the Qing Dynasty, only the emperor could wear five clawed dragons and the "standing dragon" design, while three and four clawed dragons were allowed for lower ranking noble and officials (Shen Yun Performing Arts.) (Cartwright. M. 2017)

2.3.2. Floral

- **Flowers:** Peonies symbolize nobility and wealth, lotus flowers represent purity and buddhist compassion, chrysanthemums stand for longevity, plum blossoms signify winter resilience (Liang. Xu. et., al., 2024)
- **Clouds:** The "auspicious cloud" (xiang yun) symbolizes protection for the emperor, eternal good fortune, and a link to the divine (Shen Yun Performing Arts.).
- **Literati Symbols:** Objects like ancient mirrors, books, knives, and the koto instrument represent the wisdom and culture of scholar officials (Liang. Xu, et., al., 2024).
- **Plants with Seeds:** Pomegranates, grapes, and gourds symbolize wishes for many descendants and family continuity (The Palace Museum).

3. Traditional Hand Weaving “Vs” Powerloom Weaving

Yunjin today balances being a traditional handcraft with the demands of mass production, resulting in a mixed industry of hand weaving, semi mechanized, and industrial methods, each serving different purposes (Chinese Craft Project).

Table: 4

Aspect	Traditional Hand-Weaving (Dahualou)	Modern Industrial / CAD Methods
Output Speed	5–6 cm per day; extremely low volume	High-speed mass production; commercial scale
Color Complexity	20–30+ colors; partial makeup per motif.	Typically limited to 3 colors per weft line
Skill Gap	Decades of training; oral mnemonic traditions.	Requires technical CAD and machine operation skills.
Market Role	Relic replication; high-end bespoke collections.	Mass-market apparel; cultural souvenirs; e-commerce
Technological Base	Manual mechanical "rope hitching" programming.	Digital image processing; neural style transfer.

Traditional Hand Weaving “Vs” Powerloom Weaving

4. Conclusion

Nanjing Yunjin must adapt to the modern world to survive. While machine improve efficiency, only the traditional Dahualou loom preserves the true “Zhuanghua” art. Combining heritage skills with new technology and AI helps manage production and attract new weavers. Its future lies in both replicating ancient treatment and creating modern, tech inspired fashion.

5. Reference

- Cartwright, M. (2017). *The Dragon in Ancient China*. World History Encyclopedia. <https://www.worldhistory.org/article/1125/the-dragon-in-ancient-china/>
- Chang, Y. (2019). Nanjing Yunjin brocade. *Academy of Chinese Studies*. <https://chiculture.org.hk/en/china-five-thousand-years/2410>
- Chen, Y., Gan, Z. (2023). Research on development mode of intangible cultural heritage in e-commerce platform: Taking Nanjing Yunjin as an example. *Frontiers in Business, Economics and Management*, 9(3), 233–237. <https://pdfs.semanticscholar.org/57bf/fd3f162f7ff0e32fa499941dc9b69d353a66.pdf>
- Chen, Y., & Rojanabut, W. (2024). Origin and development status of Nanjing Baiju in China. *Journal of Roi Kaensarn Academi*, 10(10). <https://so02.tci-thaijo.org/index.php/JRKSA/article/view/285077/188119>
- Chinese Craft Project. *Nanjing Yunjin brocade*. <https://chinesecraftproject.weebly.com/nanjing-yunjin-brocade.html>
- China Daily. (2024). Yunjin's scintillating silks. *Art & Exhibitions; Shanghai Municipal People's Government*. <https://english.shanghai.gov.cn/en-ArtExhibitions/20240129/e28e94137bca4498877440044d237a8d.html>
- China Highlights. (2024). *Chinese Dragons Facts, Culture, Symbolism, and Zodiac*. <https://www.chinahighlights.com/travelguide/culture/chinese-dragons.htm>
- Dong, H., Yuan, M. (2023). A study on the effect of immersion experience on the communication effect of intangible heritage culture: A case study of Nanjing Yunjin Museum., *Proceedings of the 2022 International Conference on Literature, Art and Human Development (ICLAHD 2022)*, (pp. 1579–1588). https://doi.org/10.2991/978-2-494069-97-8_2
- Gao, J., Noknoi, K., Sirisuk, M (2025). Nanjing Yun brocade of China: Cultural inheritance and social education in the context of modern society. *International Journal of Education & Literacy Studies*, 13(1), 197-204. <http://dx.doi.org/10.7575/aiac.ijels.v.13n.1p.197>
- Huang, H., Fan, R, Miao, Y., Zhou, M., Ju, Q., Cao, S. (2025). Promoting communication by memory: International communication strategy of Nanjing Brocade. *International Conference on Language, Innovative Education and Cultural Communication (CLEC 2025)* (Advances in Social Science, Education and Humanities Research, Vol. 938, pp. 191-198). https://doi.org/10.2991/978-2-38476-430-3_24
- Liang, Xu., Lu, L., Liu, M., Song, C., Wu, L (2024). Nanjing Yunjin intelligent question answering system based on knowledge graphs and retrieval augmented generation technology. *Heritage Science*, 12(118), 1–23. <https://doi.org/10.1186/s40494-024-01231-3>
- Li, H., Zhang, J., Peng, W., Tian, X., Shi, J (2025). Digital restoration of ancient loom: Evaluation of the digital restoration process and display effect of Yunjin Dahualou Loom. *npj Heritage Science*, 13(3). <https://doi.org/10.1038/s40494-025-01591-4>

- Lu, L., Liang. X., Yuan. G., Jing. L., Wei. C., Cheng. C (2023). A study on the construction of knowledge graph of Yunjin video resources under productive conservation. *Heritage Science*, 11(83), 1–16. <https://doi.org/10.1186/s40494-023-00932-5>
- Meng, J. (2026). Nanjing Yunjin Brocade Weaving Technique. *China Today*. http://www.chinatoday.com.cn/ctenglish/2018/ich/202601/t20260105_800427427.html
- MIC magazine: Focus Vision. (2024). Craftsmanship of Nanjing Yunjin Brocade. *Made-in-China Business Insights*. https://insights.made-in-china.com/Craftsmanship-of-Nanjing-Yunjin-Brocade_uTRtDfWdqmllo.html
- Sam. (2025). How to choose Chinese fabric: A complete buying guide. *SmartBuy; Alibaba*. <https://smartbuy.alibaba.com/buyingguides/chinese-fabric>
- Shen Yun Performing Arts.. Traditional Chinese artistic motifs: The skies and heaven beyond. <https://www.shenyun.org/explore/view/article/e/m4NudX9jfTI/phoenix-dragons-cloud-lightning-chinese-artistic-motifs.html>
- Shen. Y., Feng. X., Ren. K (2026). Research on the spatial application of Nanjing Yunjin plant patterns based on cultural genes and extensible innovation methods. *Research Square*. <https://doi.org/10.21203/rs.3.rs-7864796/v1>
- Sun, Y., Liu. Z., Silberman. J., Hou. J., Dai. J (2022). Fabric composition and wearability analysis of Zhuanghua. *Fibres and Textiles in Eastern Europe*, 151(4), 9–20. <https://doi.org/10.2478/ftee-2022-0033>
- TextileAsArt.com. *Chinese Ming Imperial Textile: Antique Chinese Ming textile silk brocade with gold thread, Qing Dynasty circa 1680*. <http://textileasart.com/chinese-textiles-1908.htm>
- The Craft Atlas. (2023). *Nanjing yunjin brocade*. <https://craftatlas.co/crafts/nanjing-yunjin-brocade>
- The Palace Museum. An extensive search for auspicious motifs. *Palace Museum Youth*. <https://young.dpm.org.cn/en/article/1094>
- UNESCO. (2009). *Craftsmanship of Nanjing Yunjin brocade*. Intangible Cultural Heritage. <https://ich.unesco.org/en/RL/craftsmanship-of-nanjing-yunjin-brocade-00200>
- Xu, H. (2024). Yunjin's scintillating silks. *China Daily*. https://www.chinadaily.com.cn/a/202401/27/WS65b46594a3105f21a507ea41_1.html
- Xu, H. (2023). The fabric of Chinese culture. *China Daily*. <https://www.chinadailyhk.com/hk/article/342447>
- Yang, L., Haiyan, X. (2023). Gene extraction of Nanjing Yunjin culture and its application in fashion design. *The Frontiers of Society, Science and Technology*, 5(12), 55–60. <https://doi.org/10.25236/FSST.2023.051210>