

## The Transformation of Uzbekistan's Juma Mosque Architecture into Avant-Garde Fashion Through Tucking and Gathering Ruffles Techniques

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### ABSTRACT

This study describes the application of Juma Mosque architecture in Khiva, Uzbekistan, as a source of inspiration for avant-garde fashion design through tucking and gathering ruffles techniques. The research employed a descriptive practice-based design approach using the Double Diamond model, consisting of Discover, Define, Develop, and Deliver stages. Data were collected through visual observation, design documentation, and expert judgment involving three design experts using a Guttman scale observation sheet. The data were analyzed using percentage calculations and descriptive interpretation. The results show that the tucking technique effectively represents the geometric ornamentation of the Juma Mosque through structured and consistent folds, while gathering ruffles successfully create volume and expressive visual effects but are less effective in directly representing the smooth dome silhouette. Expert assessment showed strong results in most indicators, including tucking suitability, avant-garde characteristics, volume formation, material selection, visual rhythm, balance, and conformity between the final product and the initial design. However, several aspects, such as dome silhouette representation, color suitability, and overall unity, still require further refinement. This study demonstrates that architectural forms can be translated into avant-garde fashion through fabric manipulation, producing a garment that combines conceptual inspiration, structural exploration, and visual aesthetics.

**Keywords:** Avant-garde Fashion; Fabric Manipulation; Tucking; Gathering Ruffles; Juma Mosque Architecture

### INTRODUCTION

The development of fashion in Indonesia shows increasingly varied growth in line with socio-cultural change and the advancement of the creative industry. Fashion is no longer only a daily clothing need, but has also become a medium for expressing identity, lifestyle, and creative ideas (Nayoan et al., 2021). In contemporary practice, fashion design increasingly explores cultural heritage, technology, and artistic concepts to produce works that go beyond conventional garment forms.

Avant-garde fashion is one approach that enables designers to challenge common boundaries in fashion design. It is often associated with wearable art, conceptual expression, experimental silhouettes, and unconventional visual forms (Budiono, 2018; Kankariya, 2023; Lie et al., 2024). Avant-garde design focuses not only on beauty, but also on the delivery of ideas through texture, volume, proportion, material

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exploration, and construction. Therefore, this approach is suitable for interpreting architectural inspiration into fashion works with strong conceptual and visual character.

One architectural source with strong visual potential is the Juma Mosque in Khiva, Uzbekistan. The mosque is part of the historical context of Khiva and is known for its long roof structure, carved wooden pillars, geometric ornaments, and dome-related architectural references (Durdieva et al., 2020; Shokhrukh, 2024). Its architectural character provides visual elements that can be translated into fashion design, particularly through shape, rhythm, repetition, texture, and volume. In this study, the geometric ornamentation and dome silhouette of the Juma Mosque became the main inspiration for avant-garde fashion design.

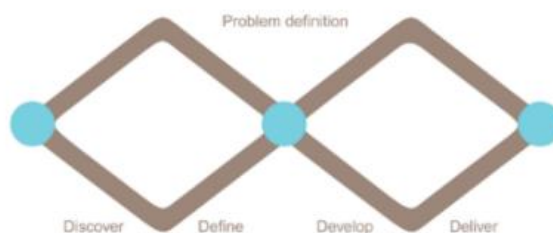
Fabric manipulation offers a relevant medium for translating architectural ideas into clothing. It allows designers to process fabric through folding, sewing, gathering, and shaping to create new textures, surfaces, and volumes (Fernandi & Ruhidawati, 2021; Hasibuan et al., 2024; Nissa & Angge, 2023). In this research, tucking and gathering ruffles were selected as the main techniques. Tucking creates regular folds and textured surfaces that can represent geometric ornamentation (Haq & Afizah, 2022; Indarti & Putri, 2020), while gathering ruffles can create volume, wrinkles, and expressive forms that support avant-garde silhouettes (Parafitasari & Siagian, 2019; Pertiwi & Marlina, 2015).

Based on this background, this study aims to apply the architectural characteristics of the Juma Mosque in Uzbekistan to avant-garde fashion design through tucking and gathering ruffles techniques. The study is expected to produce an innovative fashion work and enrich references for architecture-based fashion design, particularly in the use of fabric manipulation as a medium for conceptual interpretation.

## METHOD

### Research Design

This study used a descriptive practice-based design approach. The descriptive approach was used to explain the design process, production stages, and final outcomes in detail, while practice-based research was applied because the study produced a fashion work as the main research output. The design process followed the Double Diamond model, which consists of Discover, Define, Develop, and Deliver stages (Ledbury, 2017; Rahmawati et al., 2022).



**Figure 1.** Double Diamond method (Ledbury, 2017).

### Research Object and Design Focus

The research object was an avant-garde fashion design inspired by the architecture of the Juma Mosque in Khiva, Uzbekistan. The design focused on two main visual characteristics: geometric ornamentation and dome-related volume. These elements were interpreted through tucking and gathering ruffles using duchess satin as the primary material.

### Design Procedure

The Discover stage involved collecting visual and theoretical information about the Juma Mosque, avant-garde fashion, and fabric manipulation techniques. The Define stage organized the collected references into a moodboard and color palette to guide the design direction. The Develop stage included design exploration,

selected design refinement, production design, and experimentation with tucking and gathering ruffles. The Deliver stage involved final garment construction, public presentation, documentation, and expert evaluation. The stages were also supported by references related to Double Diamond design development (Farhan, 2022; Yulianto, 2025).



*Figure 2. Moodboard.*



*Figure 3. Color palette.*

### **Data Collection and Analysis**

Data were collected through visual observation, documentation of the design process, and expert judgment. The final garment was evaluated by three design experts using an observation sheet based on the Guttman scale, which provides dichotomous responses such as yes/no (Septiani et al., 2025). The data were analyzed using percentage calculations to describe the achievement of each indicator, supported by descriptive interpretation of the relationship between the design concept, techniques, and final garment results.

## **RESULTS AND DISCUSSION**

### **Discover and Define: Architectural Inspiration and Concept Formulation**

The Discover stage identified the Juma Mosque as a source of inspiration because of its geometric ornamentation, repeated architectural rhythm, and dome-related visual character. These characteristics were then developed into a design concept titled Form Echoes. The Define stage translated the visual references into a moodboard and color palette. The turquoise, gold, cream, and neutral tones were derived from the mosque color references and then adapted to create a strong avant-garde visual identity.

**Develop: Design Development and Technique Experimentation**

The Develop stage began with several avant-garde design alternatives based on the moodboard. The designs combined cape, underdress, and train elements with strong surface manipulation. The selected design was chosen because it most clearly showed the relationship between architectural inspiration and fabric manipulation. The development process also considered the suitability between design sketches, production details, and the expected final garment structure.



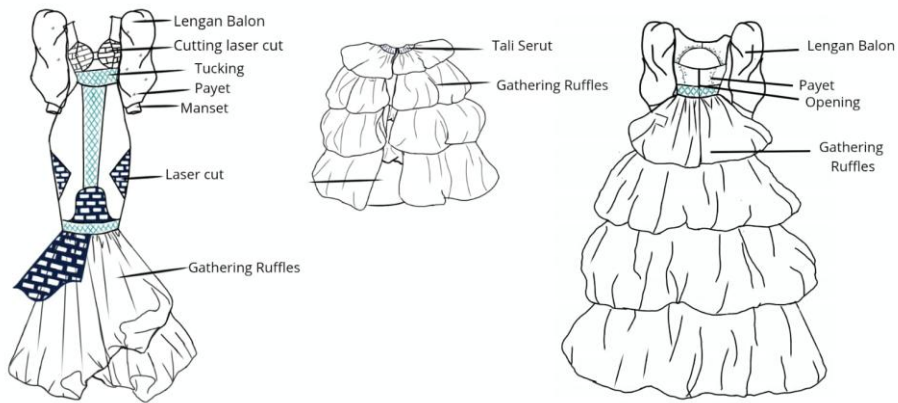
*Figure 4. Development of avant-garde fashion design: front view.*



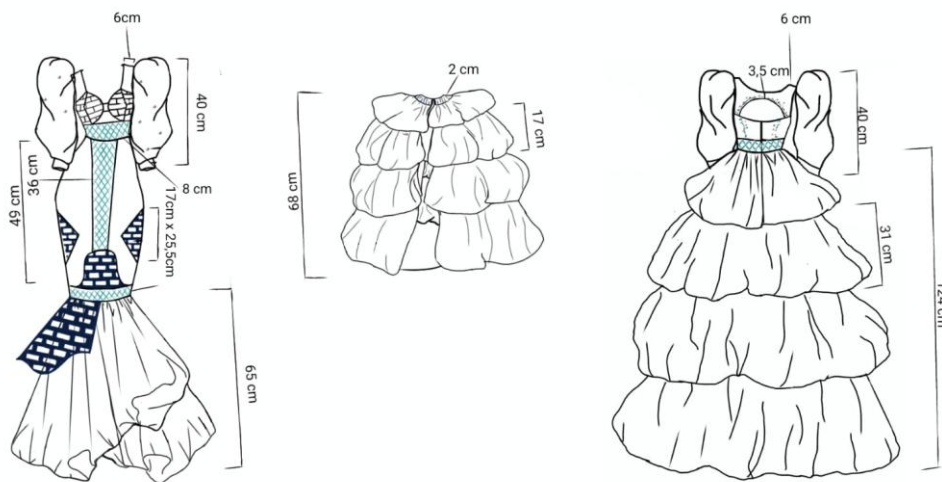
*Figure 5. Development of avant-garde fashion design: back view.*



**Figure 6.** Selected design.



**Figure 7.** Production design I.



**Figure 8.** Production design II.

The tucking technique was applied by measuring, folding, ironing, and stitching the fabric to form consistent folds. The folds were then arranged to represent the geometric ornamentation of the Juma Mosque. The gathering ruffles technique was created by sewing wide stitches and pulling the thread to form layered wrinkles. These ruffles were used to create volume and strengthen the dramatic character of the avant-garde garment.



*Figure 9. Tucking process.*



*Figure 10. Gathering ruffles process.*

#### **Deliver: Final Garment Realization**

The Deliver stage resulted in an avant-garde garment consisting of cape, underdress, and train components. The final garment was presented in the 4th Annual Show of Vocational Fashion Design at Tunjungan Plaza Convention Hall, Surabaya. The presentation allowed the design experts to observe the garment directly in terms of visual appearance, technique application, concept suitability, and final construction quality.



*Figure 11. Final garment result.*

## Expert Judgment Results

The expert judgment results showed that most indicators achieved high scores. The tucking technique obtained strong results because it successfully represented geometric ornamentation and produced neat, consistent folds. Gathering ruffles were considered successful in creating volume, but less effective in directly representing the smooth dome shape of the Juma Mosque. The summary of the assessment is presented in Table 1.

*Table 1. Expert judgment results.*

Indicator	Total	Percentage
<b>A. Application of tucking and gathering ruffles techniques</b>		
Suitability of tucking technique with Juma Mosque inspiration	3	100%
Suitability of gathering ruffles with the dome shape of Juma Mosque	1	33.3%
Suitability of the combination of tucking and gathering ruffles in representing avant-garde fashion	3	100%
Avant-garde characteristics in the design	3	100%
Success of gathering ruffles in creating garment volume	3	100%
Consistency of tucking fold width	3	100%
Suitability of fabric material for tucking technique	3	100%
Suitability of fabric material for gathering ruffles	3	100%
<b>B. Final result of avant-garde fashion inspired by Juma Mosque</b>		
Visual clarity of clothing lines and tucking	3	100%
Color suitability with Juma Mosque inspiration	2	66.7%
Avant-garde impression of color combination	3	100%
Suitability of clothing silhouette to the dome shape	1	33.3%
Balance of detail placement	3	100%
Consistency of visual rhythm of gathering ruffles	3	100%
Overall unity of clothing structure and inspiration	2	66.7%
Conformity of final product with initial design	3	100%

## Discussion

The application of the tucking technique achieved a high level of suitability with the architectural inspiration, as shown by the 100% score. This indicates that tucking was able to translate the geometric ornamentation of the Juma Mosque into regular and structured fabric folds. The neatness and consistency of the folds also strengthened the visual rhythm of the garment. This finding supports the view that fabric manipulation can create new surface forms, textures, and dimensions in fashion design (Fernandi & Ruhidawati, 2021; Ilmiyah & Suhartini, 2019; Nissa & Angge, 2023).

In contrast, the gathering ruffles technique achieved a lower score of 33.3% in representing the dome shape. The experts considered that the ruffles produced a flared and layered effect, while the dome of the Juma Mosque has a smoother and more unified curve. However, gathering ruffles were still effective in creating volume, as shown by the 100% score in the volume indicator. This means that the technique successfully supported the avant-garde character even though its representation of the dome form requires further refinement. This finding is consistent with the role of ruffles in adding volume and texture to clothing surfaces (Parafitasari & Siagian, 2019; Pertiwi & Marlina, 2015).

The combination of tucking and gathering ruffles achieved 100% in representing avant-garde fashion. Tucking contributed to the structural and geometric aspects, while gathering ruffles created dramatic volume and expressive form. This combination produced a garment that balanced structural clarity and visual experimentation. The use of duchess satin also supported the final result because its smooth and semi-rigid

characteristics helped form stable tucks and voluminous ruffles. Material characteristics are important because fabric texture and thickness affect the success of fabric manipulation (Yuniarti, 2018).

The final garment showed strong achievement in several design principles, including balance, rhythm, line clarity, and conformity with the initial design. However, some indicators still received lower scores, particularly color suitability, silhouette representation, and overall unity. These results indicate that the garment was successful as an avant-garde work but still needs improvement in translating the dome silhouette more clearly and in aligning the final color with the moodboard. Overall, the study shows that the architecture of the Juma Mosque can be used as a conceptual source for avant-garde fashion, but architectural interpretation requires careful consideration of form abstraction, technique selection, material behavior, and design unity.

## CONCLUSION

This study concludes that the architecture of the Juma Mosque in Khiva, Uzbekistan, can be applied as a source of inspiration for avant-garde fashion through tucking and gathering ruffles techniques. The tucking technique successfully translated the geometric ornamentation of the mosque into neat, consistent, and structured folds, while the gathering ruffles technique created strong volume and expressive texture that supported the avant-garde character of the garment. The final garment also showed good conformity with the initial design, especially in terms of line clarity, balance, rhythm, detail placement, material suitability, and overall visual expression.

The expert judgment results indicate that the design outcome was generally successful, although several aspects require further refinement. Gathering ruffles were less effective in directly representing the smooth dome shape, while color suitability, silhouette interpretation, and overall unity still need improvement. Therefore, future studies are recommended to explore more precise dome-based silhouette construction, improve color translation from architectural references, and test additional fabric manipulation techniques or materials to strengthen the relationship between architectural inspiration and avant-garde fashion design.

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