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Abstract: *Spring Outing Painting of Madam Guo* is one of the representative works of Zhang Xuan, a famous Chinese court painter of the Tang dynasty (618–907), who was the "leader" of the trend of figure painting in the Tang dynasty and had a great influence on later figure painting. The costumes of the characters in the paintings not only show the artistic aesthetics of the prosperous Tang dynasty, but also reflect the rich cultural connotation. At present, the research on this painting is mainly about character discrimination and painting appreciation. There are few studies involving the costumes in this painting. With the rapid development of digital clothing technology, it provides a new way and path for the restoration of ancient costumes. Based on the costume archaeology of *Spring Outing Painting of Madam Guo*, this paper uses 3D virtual simulation and reverse engineering technology to restore the costume style of the characters in the picture, realize the digital restoration and protection of the style drawing, paper pattern, and 3D simulation drawing of the characters' costumes in the picture. Finally, we introduce the fuzzy analytic hierarchy process (FAHP) to comprehensively evaluate the costume restoration effect. Our proposed method solves the problem of the constraints of time and space on the presentation of ancient traditional costumes, promotes the excellent historical culture of China, and provides a certain reference for the modern redesign of ancient costumes.

Keywords: *Spring Outing Painting of Madam Guo*; virtual reality technology; reverse engineering; ancient costumes; FAHP

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1. Introduction

Cultural heritage is of great historical, scientific, and artistic value. Historic and cultural heritage is an important vehicle for strengthening national spiritual and promoting exchanges and mutual appreciation of civilizations. It is a non-renewable resource that condenses traditional culture and plays an irreplaceable role in passing on excellent historical traditions, enhancing national self-esteem and self-confidence, and promoting exchanges and mutual appreciation of civilizations. With the development of digital technology, the preservation and dissemination of historical and cultural heritage is gradually extending towards a trend from 2D to 3D—from static to dynamic. Costume is a product of the development of historical civilization, and as ancient Chinese costume changes, its rich spiritual and cultural connotations map out the context of the times, social thought, and humanistic customs of each historical stage. The Tang dynasty (618–907) was not only one of the most important and powerful periods in Chinese history, but also the heyday of trade activities along the ancient Silk Road. This paper takes the costumes of the characters in *Spring Outing Painting of Madam Guo* as an object of study, not only to restore the appearance of the costumes of the nobility in the central region of the Silk Road during the Tang dynasty (618–907), China, but also to reflect the rich cultural connotations embedded in the lives of the people of the time.

The original painting, *Spring Outing Painting of Madam Guo*, was drawn by Zhang Xuan, a famous court painter of the Tang dynasty, whose exquisite painting style made him famous for his paintings of figures, and this painting is one of his representative works. The original work is lost, and the surviving copy from the Song dynasty is in the Liaoning Provincial Museum. This copy (Figure 1), while retaining the appearance of the original work from the Tang dynasty, is more refined and delicate, combining the graceful confidence of the Tang dynasty with the elegance and delicacy of the Song Dynasty into a classic volume. It depicts the third sister of Yang Yuhuan, the favorite concubine of Emperor Xuanzong of the Tang dynasty, Lady Guo, and her family on a trip in full costume, perfectly illustrating the graceful, elegant, confident, and optimistic style of the Tang dynasty nobility. The painting was the "leader" of the figure painting trend in the Tang dynasty, contributing to the emergence of the painting style in the late Tang and Five Dynasties periods and providing great guidance for the direction of figure painting in later generations.

Figure 1. *Spring Outing Painting of Madam Guo* (the original painting is lost, and the Song Dynasty copy is collected in the Liaoning Provincial Museum of China).

2. Literature Review

With the advent of the digital age, digital technology is widely used in the field of clothing, such as pattern making [1], fashion style design [2], clothing interaction design [3], costume modeling [4,5], costume archaeology [6–8], and costume restoration [4,5]. Applying digital technologies, such as 3D printing [9], 3D scanning [10], virtual reality [11], artificial intelligence [12], machine learning [13], and human–computer interaction [14] to the field of archaeology is the trend for the protection, development, and utilization of sites and cultural relics in the future [6–8]. At present, many researchers rely on computer technology and use digital equipment to collect, save, process, output, and disseminate the required information, including establishing a database on the computer system, to achieve the purpose of information sharing and dissemination. Wulf proposed a method of 3D reconstruction of archaeological excavation sites, which obtains image sequences through a digital camera to form the model of the excavation site, and allows users to explore the scene interactively [15]. Criado displayed and determined the authenticity of the reconstruction model obtained by using the historical archaeological evidence scale and the level of detailed description type, and carried out a virtual reconstruction of archaeological relics [16]. Digital technology is now used in all aspects of archaeology. It can complement the methodological and empirical shortcomings of traditional archaeology, reduce damage to artifacts in the process, and help us to complete our archaeological work more efficiently.

Apparel virtual simulation technology mainly consists of 3D anthropometric measurement and modeling, digital pattern making, and apparel virtual fitting technology. In order to meet consumer demand for personalized products, the development of 3D anthropometric measurement and modeling is an inevitable trend and there are now a number of different approaches. For example, Gu et al. proposed a camera-based image acquisition and 3D reconstruction system for human modeling [17]. Hu et al. Proposed a human body reconstruction method based on scanning data, which is decomposed into pose symmetry and shape symmetry. In terms of shape symmetry, they proposed a slice-based 3D network symmetrical human body generation method that maintains

the user's size and height at the same time [18]. However, the traditional pattern-making process is very time-consuming and requires professional clothing design knowledge. Liu et al. proposed a "what you see is what you get" method to effectively develop clothing patterns, which can enable users to complete a personalized pattern without having professional pattern-making knowledge [3]; Wu et al. studied various characteristics of the trunk through three-dimensional human body scanning technology, and proposed the deformation process and method of digital "twin" mannequins, created different deformed "twins" with different postures for fitting and evaluation, and designed an optimized diving suit sample version with virtual technology [19].

With its advantages of convenience, intelligence, and efficiency, virtual fitting technology gradually changed the process of traditional dress making and fitting. The technology provides a new way to recover ancient costumes. Moskvin used digital tools to parametrically model ancient dresses, and flexibly established the relationship between all elements of the dress to complete the recovery of cage-shaped petticoats [20]. Jiang proposed an interactive multimedia system for traditional Chinese costumes based on fabric parameter algorithms, and improved Verlet algorithms to complete the production and presentation of ancient costumes [21].

Spring Outing Painting of Madam Guo is shown in Figure 1. This paper presents a three-dimensional (3D) digital restoration of the costumes of the characters in *Spring Outing Painting of Madam Guo* based on virtual simulation technology. The traditional display methods of historical and cultural heritage have some defects, such as a poor sense of interactive experience, the fact that they can easily damage cultural relics, are limited by time and space, only have a single communication channel, and make preservation difficult. Digital technology widens the way of presenting historical and cultural heritage information.

3. Method

3.1. Overall Scheme

In this paper, the process of costume digital restoration mainly consists of archaeological analysis of the costumes of *Spring Outing Painting of Madam Guo*, extraction of 3D contour lines, 3D model construction, 3D model adjustment, drawing 3D model division lines, surface smoothing of the 3D model, pattern adjustment, and costume 3D digital restoration (Figure 2). Firstly, a general study of the shape, style, color, and pattern of the costumes of the figures in the paintings from a historical and cultural perspective is performed; secondly, the development of the flat and patterns with the aid of graphics digitization technology and virtual simulation technology is carried out; and finally, the 3D digital restoration and display of the research object is completed.

3.2. Recovery Object Analysis

Lady Guo's Spring Journey depicts the Lady Guo and her attendants travelling on horseback during the Tianbao period (742 to 756) of the Tang dynasty, China. There are eight horses and nine men on horses in front of and behind the painting, the foremost of whom is a middle-aged servant wearing a hooded head and a narrow-sleeved, round-necked, shrimp-green robe, riding a Sanhua horse. The latter, a man and a woman, are a lady-in-waiting wearing a narrow-sleeved, round-necked robe of carmine red with a saffron and white brocade skirt, and a middle-aged eunuch wearing a narrow-sleeved, round-necked robe of white. The two women in the center of the scroll are the Lady of Guo, wearing a narrow-sleeved upper garment of pale blue, draped in a white floral scarf and a long blush-colored skirt with gilt-painted grouped flowers. The Lady Qin wears a different-colored upper garment. After the sisters of the Lady Guo, the horizontal row of three horsemen is followed by an elderly mother-in-waiting in the center. Her right hand is protecting a young daughter in front of her saddle, flanked by attendants and maids of honor dressed in narrow-sleeved, round-necked robes of different colors. Throughout

the scroll, the figures are mainly dressed in two types of costume, the Ru skirt and the narrow-sleeved, round-necked robe (see Figure 3).

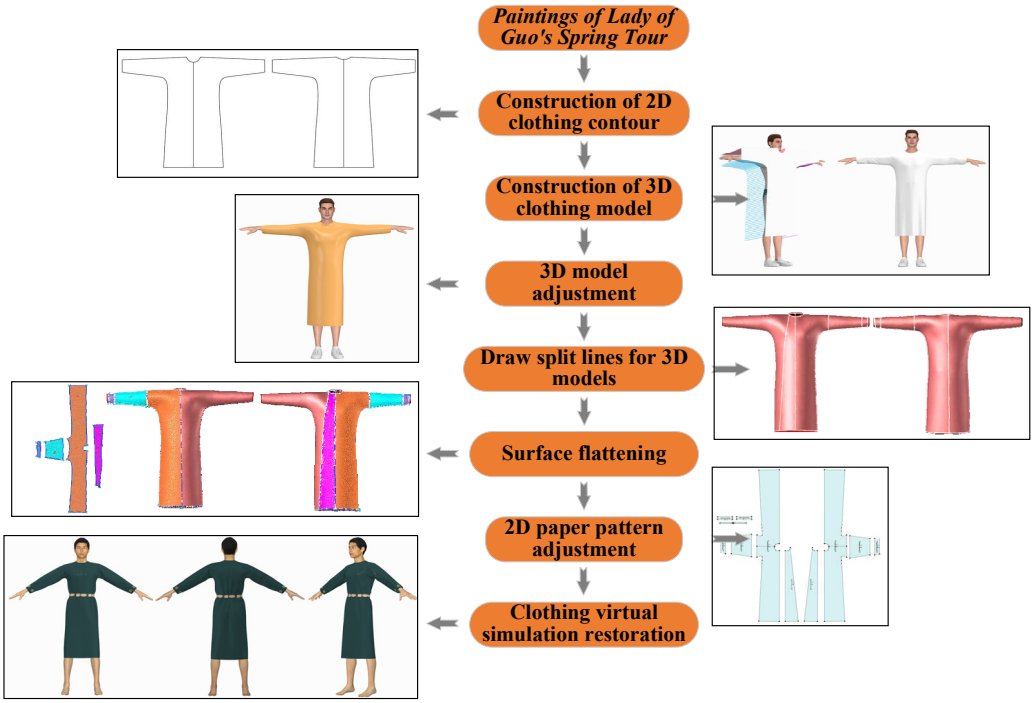

Figure 2. Overall scheme of this paper.

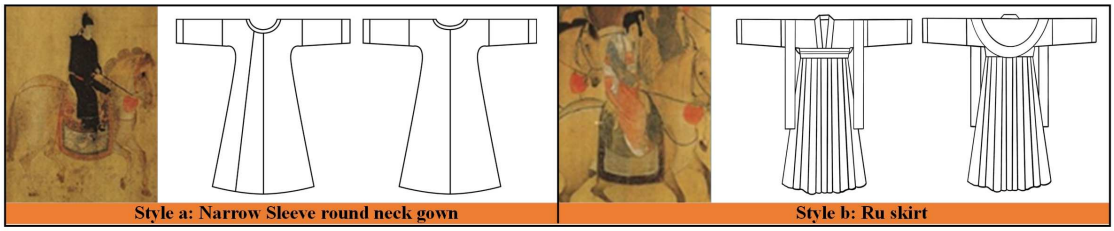

Figure 3. Costume flat in *Spring Outing Painting of Madam Guo*.

The typical clothing style for men in the Tang dynasty was to wear a Fu towel on the head, a round-necked or turned-necked robe, and boots, which, in contrast to the broadness of women's clothing, was flattering, flexible, and easy to move around, and was loved and imitated by women. Four of the women in the painting are dressed in a Ru skirt, while the rest are wearing men's narrow-sleeved, round-necked robes, with the woman in the red narrow-sleeved, round-necked robe being a woman in men's clothing. Women wearing men's clothing was prevalent in costume culture in the Tang dynasty, reflecting the open-mindedness, economic prosperity, and inclusive world view of the Tang dynasty, and reflecting the colorful costume culture of the Tang dynasty.

In *Spring Outing Painting of Madam Guo*, the figures are dressed in red, cyan, and white, forming a harmonious color palette that reveals the fullness of spring, even without the landscape depicted in the painting. The colors of the costumes reflect the aesthetic interest and style of the people of the time. The women of the Tang dynasty were generous and free spirited, and loved strong and bright colors. Their clothing was mostly red. Many of the women in the painting are dressed in red, a color that was highly sought after by Tang women for its noble beauty and brightness. The color cyan, with its unique bright and fresh color expression, shows the energy and vitality of the Tang dynasty. As a popular color in Tang dynasty clothing, the cyan was often matched with red, yellow, and white, with contrasting colors. White was also the color often worn by court eunuchs at the time. The patterns in the painting are mainly two common patterns in the Tang dynasty. One is the

first middle-aged slave in the painting wearing a shrimp blue narrow sleeved round neck robe. The cuffs of the figure's clothes are painted with gold phoenix flowers (see Figure 4a). The second is the lady of the state of Guo, who is dressed in rouge Ru skirt. The figure's Ru skirt is painted with a round golden flower pattern (see Figure 4b).

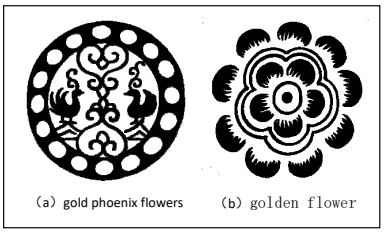

Figure 4. Costume pattern.

3.3. Construction of 3D Human Model

The object of this restoration was chosen to be the costume of the figure in The Lady of Guo's Spring Journey. As there are differences between the human body dimensions of the Tang dynasty and the dimensions of the human body model in the 3D digital restoration system, a new human body model conforming to the dimensions of the Tang dynasty figure was to be established. As China's human body size is roughly similar to that of the modern Han Chinese spanning back to the Han dynasty, the human body size in this paper adopts the Chinese adult human body size standard GB1000-88 released by China in 1988, as shown in Table 1. The 3D human model of the recovered object is generated by setting the corresponding dimensional parameters in the model size editor of Clo 3D software according to the selected dimensions (Figure 5a).

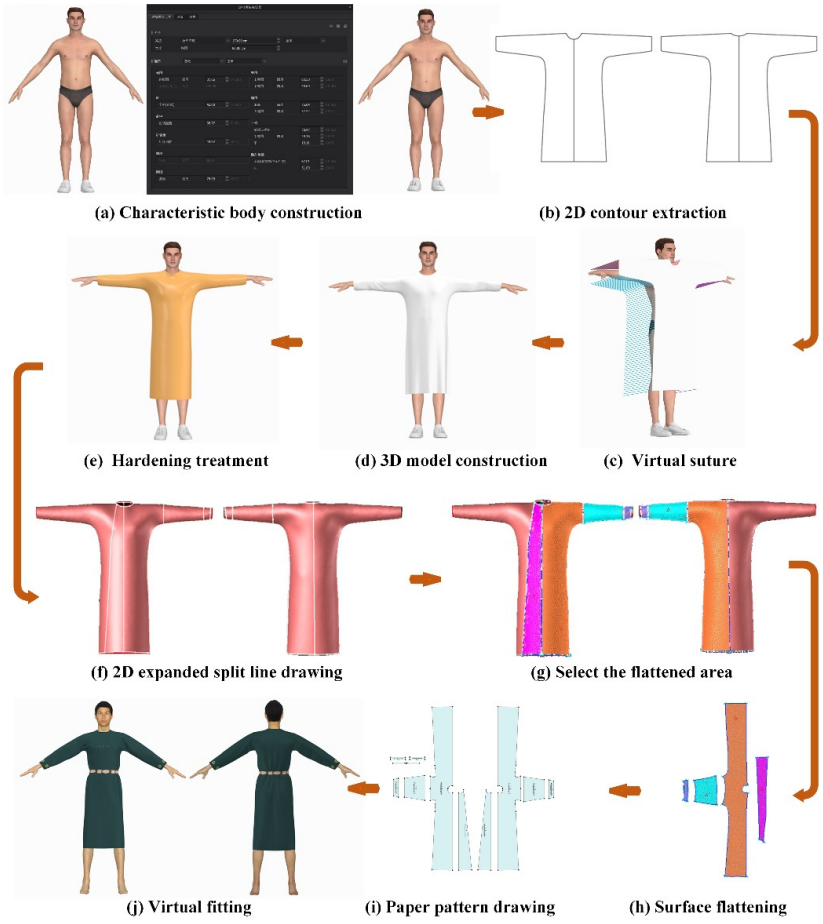

Figure 5. Restoration modeling scheme.

Table 1. Body size.

	Height	Upper Arm Length	Forearm Length	Shoulder Width	Chest Width	Bust	Waistline	Hipline
Male	170 cm	31 cm	25 cm	42 cm	34.5 cm	88 cm	74 cm	90 cm
Female	160 cm	29 cm	24 cm	40 cm	33 cm	84 cm	68 cm	90 cm

3.4. Construction of Clothing Contour Model

To construct a 3D virtual dress model, a 2D dress model must first be constructed. The line drawing of the restored object is drawn by CAD software according to the dress shape and style mentioned above (see Figure 5b). Then the drawn line drawing is exported to DXF format for importing into 3D virtual simulation software for costume modeling. Firstly, the pose of the feature body constructed in the 3D window is adjusted to prevent the large perforation phenomenon. Next, the constructed 2D dress outline is imported into the 3D virtual simulation software, the dress outline is adjusted in the 2D window according to the drawing, the adjusted version is arranged on the characteristic human body using the "arrange points" tool, and virtual stitching is carried out corresponding to the stitching process of the recovered object in the 2D window (see Figure 5c). Finally, the dress contour is corrected according to the real-time simulation results simulated by the 3D window (see Figure 5d), so as to achieve a better visual effect. In order to achieve better results in the subsequent surface flattening, the obtained 3D simulation model is hardened (see Figure 5e), which can prevent the error caused by the wrinkle of the 3D clothing model on the surface flattening. The 3D contour model of the final clothing is exported to DXF format.

3.5. Surface Flattening

Apparel reverse engineering technology is used to segment the 3D clothing model in the surface flattening software according to the clothing structure. In this paper, Design Concept auto software is used. Compared with other surface unfolding software, this software can unfold the target object more efficiently and conveniently. Firstly, the 3D contour model in DXF format is imported into the surface flattening system. According to the previous analysis of the form and style of the restored object, the structural division line is drawn on the surface of the 3D clothing model (see Figure 5f). In the process of drawing the structural division line, the principle of surface flattening is followed, and the paper pattern that meets the desired effect is obtained.

The area to be flattened is selected according to the structural division lines drawn (see Figure 5g), and a reasonable surface flattening is carried out (see Figure 5h). The unfolded pattern is then accurately corrected and the edges of the pattern are smoothed using CAD software to ensure that the pattern dimensions are reasonable and the lines are smooth (see Figure 5i), so that it can be imported into the fitting system for modeling later (see Figure 5j).

3.6. 3D Virtual Fitting

The steps of 3D digital restoration mainly include 3D feature human body construction, 3D layout and virtual stitching of the paper pattern, and fabric construction. The first step is to establish a characteristic human body that conforms to the size of the characters in the painting according to the restored object. The second is to import the final paper pattern that was reverse engineered (see Figure 6a), arrange the 2D paper pattern in the 3D window to the corresponding position on the mannequin (see Figure 6b), pay attention to the correlation between the paper patterns, combine the knowledge of the clothing process with the virtual sewing of the paper pattern (see Figure 6c), and carry out a virtual fitting (see Figure 6d). Thirdly, fabric modeling is carried out, which includes the setting of fabric properties, colors, patterns, and other elements of fabrics and accessories. According to the previous study, fabric properties and colors are set (see Figure 6e), the pattern

of the garment is drawn using CAD drawing software, and the pattern is attached to the corresponding position of the paper pattern using the "paste" tool in the 3D virtual simulation software (see Figure 6f) to complete the fabric modeling. Finally, a 3D virtual simulation of the restored object is carried out, and the result is fine-tuned to achieve the desired effect, completing the virtual simulation of the restoration of the costumes of the characters in the painting.

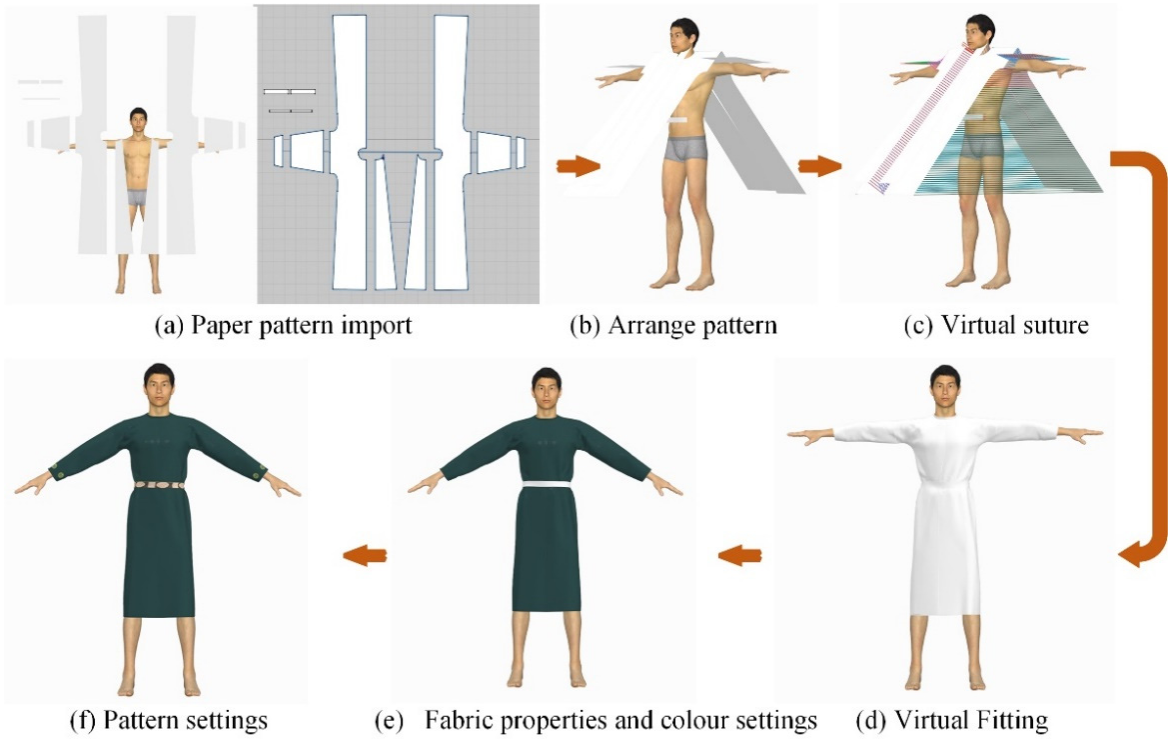

Figure 6. Clothing 3D digital restoration process.

4. Result

4.1. Virtual Simulation Effect Display

Zhang Xuan was a seminal figure in the Tang dynasty style of figure painting, and as one of Zhang Xuan's masterpieces, *Spring Outing Painting of Madam Guo,* is an important guide to the development of figure painting for future generations. This paper completes the 3D digital restoration of the costumes of the figures in the painting. A total of six costumes in the Spring Outing of the Lady of the Guo State were restored, including three narrow-sleeved round neck robes and three Ru skirts. The flat, pattern, and virtual simulation diagram of the six costumes are shown in Figure 7.

4.2. Restoration Effect Evaluation

At present, there is no unified standard for the evaluation of costume restoration, which is subjective and fuzzy in nature. Therefore, in order to transform the fuzzy and complex problem into quantitative data analysis, this paper uses the fuzzy analytic hierarchy process (FAHP) to analyze and evaluate the six costumes restored.

Using the idea of the analytic hierarchy process, the influencing factors of restoration effect Z are divided into two layers. The first layer is the criterion layer and the second layer is the index layer. The first layer represents the total target factor set $Z = (Z_1, Z_2, Z_3)$; the second layer represents the sub target factor set $Z_1 = (Z_{11}, Z_{12})$, $Z_2 = (Z_{21}, Z_{22}, Z_{23}, Z_{24})$, and $Z_3 = (Z_{31}, Z_{32}, Z_{33})$, as show in Table 2.

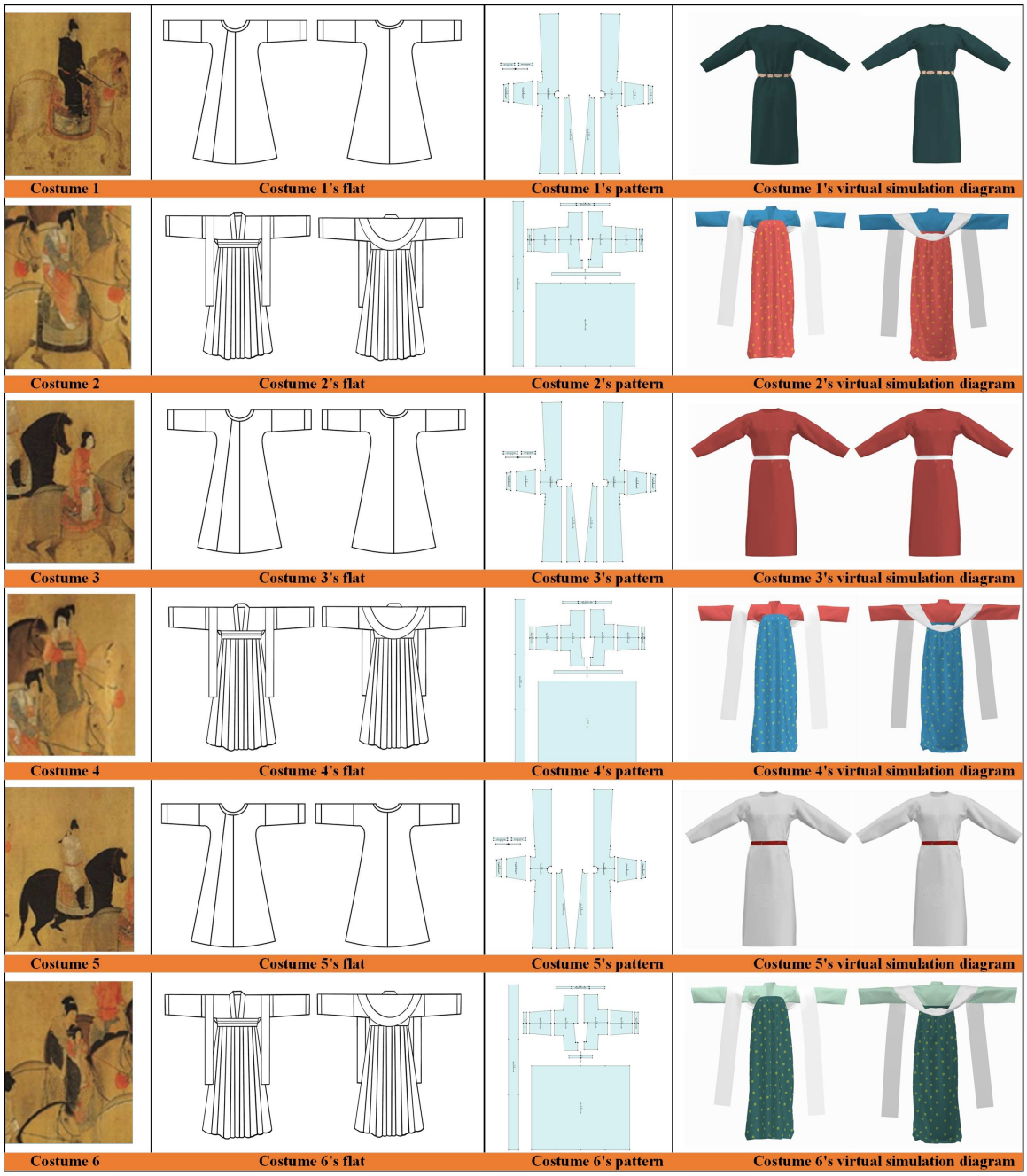

Figure 7. The results of digital restoration.

Table 2. Evaluation system of 3D digital restoration effect of *Spring Outing Painting of Madam Guo*.

Target Layer	Criterion Layer	Index Layer
Restoration effect of virtual simulation of characters' costumes in the picture of *Spring Outing Painting of Madam* Z	Form Z_1	Silhouette Z_{11} Style Z_{12}
	Clothing structure Z_2	Top structure Z_{21} Sleeve structure Z_{22} Collar structure Z_{23} hem structure Z_{24}
	Clothing fabric Z_3	Color Z_{31} Pattern Z_{32} Drapability Z_{33}

The evaluation set V = (V_1, V_2, V_3, V_4, V_5) is set to five levels according to the restored effect, V1 = very good, V2 = good, V3 = fair, V4 = poor, and V5 = very poor, i.e., the evaluation set of the virtual simulation effect of *Spring Outing Painting of Madam Guo* costume is V = (very good, good, fair, poor, very poor).

Because the impact of indicators at all levels on the restoration effect is different, the analytic hierarchy process (AHP) is used to calculate the weight coefficient of factors at all levels in order to obtain a reasonable evaluation. Firstly, seven experts are invited to compare and score each group of indicators according to Saaty's 1–9 scale scoring rule, and then establish the judgment matrix G.

Taking the shrimp blue narrow sleeve round neck robe shirt as an example, G corresponds to Z = (Z_1, Z_2, Z_3), G1 corresponds to Z_1 = (Z_{11}, Z_{12}), G2 corresponds to Z_2 = (Z_{21}, Z_{22}, Z_{23}, Z_{24}), and G3 corresponds to Z_3 = (Z_{31}, Z_{32}, Z_{33}). Next, the eigenvectors Z = (0.398, 0.304, 0.297) and the maximum eigenvalue λ_{max} = 3.001 are calculated using SPSS for the matrix G. The consistency test is passed by calculating the consistency ratio (*CR*) as follows:

$$CR = CI/RI \quad (1)$$

where, *CI* is the consistency index, and *RI* is the random consistency index. The calculation of *CI* and *RI* can refer to our previous studies [6]. The values of *CI*, *RI*, and *CR* are in Tables 3 and 4. Finally, the indicator weight coefficients are calculated for each tier of indicators shown in Table 5.

Table 3. AHP analysis results.

	Feature Vector	Weighting	Maximum Eigenvalue	Consistency Index (CI) Value
Form	1.205	39.815%		
Structure	0.922	30.443%	3.001	0.001
Fabric	0.900	29.742%		

Table 4. Summary of conformance inspection results.

Maximum Characteristic Root	Consistency Index (CI) Value	Random Consistency Index (RI) Value	Consistency Ratio (CR) Value	Consistency Test Results
3.001	0.001	0.520	0.001	Pass

Table 5. Weight coefficient of 3D digital restoration effect index in *Spring Outing Painting of Madam Guo*.

Primary Index	Weighting	Secondary Index	Weighting	Comprehensive Weighting
Form	0.398	Silhouette	0.486	0.193
		Style	0.514	0.205
Clothing structure	0.304	Top structure	0.338	0.103
		Sleeve structure	0.182	0.055
		Collar structure	0.234	0.071
		hem structure	0.247	0.075
Clothing fabric	0.297	Color	0.452	0.134
		Pattern	0.306	0.091
		Drapability	0.242	0.072

According to the questionnaire survey method, the evaluation data of secondary indicators are summarized and counted. Taking the shrimp blue narrow sleeve round neck gown as an example, the corresponding fuzzy comprehensive evaluation results are shown in Table 6.

Table 6. Score statistics of restoration effect of the shrimp cyan narrow sleeve round neck gown.

Criterion Layer	Index Layer	Very Good	Good	General	Very Bad	Bad
Form R_1	Silhouette R_{11}	0.500	0.500	0.000	0.000	0.000
	Style R_{12}	0.567	0.433	0.000	0.000	0.000
Clothing structure R_2	Top structure R_{21}	0.467	0.500	0.033	0.000	0.000
	Sleeve structure R_{22}	0.333	0.600	0.067	0.000	0.000
	Collar structure R_{23}	0.467	0.500	0.033	0.000	0.000
	hem structure R_{24}	0.533	0.433	0.033	0.000	0.000
Clothing fabric R_3	Color R_{31}	0.400	0.567	0.033	0.000	0.000
	Pattern R_{32}	0.467	0.400	0.067	0.067	0.000
	Drapability R_{33}	0.400	0.433	0.167	0.000	0.000

Combined with the weight of each index and the principle of fuzzy comprehensive evaluation, the affiliation degree of each set of costume is calculated. The results are shown in Table 7. The restoration effect of the first set of shrimp blue narrow sleeve round neck robes is very good, the affiliation degree is 0.477, the good affiliation degree is 0.482, the general affiliation degree is 0.035, the poor affiliation degree is 0.006, and the very poor affiliation degree is 0.000. According to the principle of maximum affiliation, the 3D digital restoration effect of the costumes is good. Similarly, the maximum affiliation degrees of the second, fourth, and sixth sets of clothing are 0.509, 0.517, and 0.491, respectively, that is, the restoration effect is very good; the maximum affiliation degree of the third and fifth sets of clothing is divided into 0.517 and 0.505, that is, the restoration effect is good.

Table 7. Fuzzy comprehensive evaluation results.

	Very Good	Good	General	Very Bad	Bad
 First set of membership	0.477	0.482	0.035	0.006	0.000
 Second set of membership	0.509	0.420	0.065	0.005	0.000
 The third set of membership	0.447	0.517	0.032	0.004	0.000
 The fourth set of membership	0.517	0.456	0.027	0.000	0.000
 The fifth set of membership	0.441	0.505	0.043	0.011	0.000
 The sixth set of membership	0.491	0.473	0.030	0.003	0.003

5. Discussion

The Tang dynasty is the peak period of the development of ancient Chinese figure painting. The characteristics of both the spirit and form of meticulous figure painting truly reflect people's daily life and cultural ideology. As one of the representative paintings of figure paintings in the Tang dynasty, *Spring Outing Painting of Madam Guo* shows the characteristics of noble costumes in the Tang dynasty and contains a rich cultural connotation of costumes.

At present, the study of *Spring Outing Painting of Madam Guo* is mainly concerned with the identification of the characters and the appreciation of the painting, but there is very little research on the costumes of the characters, and even less research on the restoration of the costumes. There are two main approaches to the restoration of ancient costumes, namely, real and 3D digital restoration.

This paper combines human–computer interaction and virtual simulation technologies to restore costumes, which is a more cost-effective and efficient way to restore costumes than realistic simulation restoration. During the restoration process, modifications can be made quickly and easily to achieve better restoration results. In this study, the costumes of the characters in the painting are restored, allowing the ancient costumes that contain traditional culture to be presented in a digital way, which is more conducive to the preservation, transmission, and dissemination of ancient costume culture.

6. Conclusions

In order to promote and protect China's historical and cultural heritage, this paper takes the costumes in the figure painting of the Tang dynasty's *Spring Outing Painting of Madam Guo* as the research object. Based on the analysis of the culture and characteristics of the costumes, the 3D digital restoration of six sets of costumes in the painting is completed, and the restoration effect is evaluated by using FAHP.

- Through the analysis of the shape, style, color, and pattern of the dress in the picture of *Spring Outing Painting of Madam Guo*, this paper summarizes the dress characteristics in the painting, and completes the digital restoration and protection of the costume in a flat, pattern, and 3D simulation diagram.
- FAHP is used to evaluate the restoration effect, thereby transforming the restoration effect (which is a complex and fuzzy issue) into a quantitative data analysis, and the evaluation result has high reliability.
- Digitally restored costumes offer new ways of storing and displaying traditional ancient costumes, enabling the artistic and cultural value of ancient costumes to be communicated in a more diverse way.
- The 3D digital restoration results can more intuitively show the dynamic and static visual effects of costumes, provide reference for the modern redesign of ancient clothing, the clothing design of film, television, and game characters, provide materials for the construction of a digital museum of ancient clothing, and strengthen the inheritance and dissemination of ancient clothing culture.

Author Contributions: K.L. developed the research idea; S.L. collected clothing information and data. J.Z., Z.J., C.Z., X.H. and K.Z. made style drawings, patterns and 3D garments; B.Z., Z.L. and X.Z. provided a lot of modification suggestions. All authors have read and agreed to the published version of the manuscript.

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Informed Consent Statement: Not applicable.

Data Availability Statement: The data (patterns, flats, 3D restored clothing, etc.) used and analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

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