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Mining the Value of Chinese and Foreign Art Exchange in Tang Dynasty Ceramics and the Interactive Artistic Influence of AI Digital Painting

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ABSTRACT

With the rapid development of modern technology, the country's economic and industrial structure has been adjusted, and the "14th Five-Year Plan" and the long-term goals for 2035 have proposed to achieve a "cultural power" and "digital China." The digital creative industry is the use of digital technology to carry out creative development of the cultural content industry, ceramic culture as one of the excellent traditional Chinese cultures contains rich cultural capital, to seek a breakthrough is gradually digitized, which allows the digital creative industry and ceramic culture to combine, for the development of ceramic culture provides more ways, better service to the ceramic culture industry, for some people to provide personalized choices. This paper explores the value of artistic exchange in Tang Dynasty ceramics between China and foreign countries. It analyzes the impact of this exchange on the interactive art of AI digital painting. The application of AI digital notation technology in interactive art was further discussed. AI digital notation technology combines artificial intelligence and artistic creation, enabling artists to generate drawings through computers. Applying this technology in ceramic art can provide artists with more diverse and innovative design solutions and inject new vitality into the inheritance and innovation of ceramic art.

Keywords: Ceramic Culture, Interaction between Chinese and Foreign Arts, Value Mining, AI Digital Mapping.

INTRODUCTION

As an essential part of Chinese civilization, ancient Chinese ceramics carry rich historical and cultural connotations, among which Tang Dynasty ceramics are a glorious period in the history of Chinese ceramics (Biswas & Datta, 2024). With its unique artistic style and exquisite production technology, Tang Dynasty ceramics played an essential role in domestic and international cultural exchanges (Park et al., 2024). Tang Dynasty ceramics have exceptional aesthetic value, rich cultural connotation, and exquisite production technology and have become a treasure in ancient Chinese cultural heritage (Ma et al., 2024). The brilliant and colorful glaze, beautiful and delicate ornamentation, and unique shape show the unique charm of Tang Dynasty ceramics. At the same time, as one of the glorious periods of ancient Chinese culture in the Tang Dynasty, its ceramic production became a vital embodiment and carrier of social life and cultural aesthetics (Schulze-Küppers et al., 2024). The emergence and development of ceramics in the Tang Dynasty laid the foundation for ceramic art in later generations. They played an essential role in cultural exchanges between China and foreign countries. Through the in-depth excavation and research of Tang Dynasty ceramics, we can better understand the development process of ancient Chinese ceramic art and its rich cultural connotations.

The critical influence of cultural exchanges between China and foreign countries on the ceramic art of the Tang Dynasty is reflected in many aspects (Z. Li, Sun, X. Zhang, Zhang, & Han, 2024). With the opening of the

Silk Road, the prosperity of Sino-foreign trade has promoted the exchange and integration of Chinese and foreign cultures. The import of foreign culture injected new artistic elements into Tang Dynasty ceramics, such as the Persian blue and white technique, Arabic cuneiform writing, etc., which made Tang Dynasty ceramics present a unique style and charm and, at the same time, promoted innovation and improvement of ceramic technology. The introduction of foreign pottery techniques made significant progress and innovation in the glaze, modeling, and ornamentation of Tang Dynasty ceramics, making ceramic art richer and more diverse (Grigoriev, Vinokurov, & Silvestroni, 2024). At the same time, as an emerging tool for artistic creation, AI digital notation technology is gradually showing its unlimited creative potential in the art world. AI digital notation technology can not only simulate the painting style of traditional artists (Amirkhizi et al., 2024). but also create new forms of artistic expression. Its algorithm-based efficient computing and data analysis capabilities enable art creators to develop more conveniently and open new artistic thinking and visual experiences. In ceramic art, AI digital mapping technology can provide more creative inspiration and technical support for ceramic designers and promote the innovation and development of ceramic art (Lin, Heijman, & Rietveld, 2024).

This paper aims to provide new perspectives and reflections for the research and creation of ceramic art by mining the value of Sino-foreign art exchanges in Tang Dynasty ceramics and exploring the interactive artistic influence of AI digital painting (Eremeev et al., 2024). By delving into the historical and cultural background of Tang Dynasty ceramics and exploring the application of AI digital mapping technology in ceramic art, we can better understand and inherit the treasures of ceramic art and inject new vitality and inspiration into future ceramic creation (Oliveira et al., 2024).

ARTISTIC EXCHANGES BETWEEN CHINA AND FOREIGN COUNTRIES IN TANG DYNASTY CERAMICS

Historical Status and Artistic Characteristics of Tang Dynasty Ceramics

The Tang Dynasty was an essential period in the development of Chinese ceramics, and its ceramic works have a significant position in terms of artistic value and characteristics. During the Tang Dynasty, many ceramic kilns sprung up in various parts of China, such as Dingyao, Guanyao, Ruyao, etc. The rise and prosperity of these kilns provided rich soil for the development of ceramics in the Tang Dynasty. Foreign cultures influenced many Tang Dynasty ceramics in terms of technology and artistic style, profoundly impacting their widespread dissemination.

The shapes of Tang Dynasty ceramics were very diverse (V. Zhang, Rosenwasser, & Sabin, 2020), covering a variety of types such as bottles, jars, plates, bowls, pots, and flower pots. Each model has its own unique aesthetic and functional characteristics. The glaze of Tang Dynasty ceramics was rich and colorful, with green glaze, white glaze, yellow glaze, and iron glaze as the primary expressions. Green and white glazes have become the representative colors of Tang Dynasty ceramics, giving people a fresh and elegant feeling. Tang Dynasty ceramics were known for their meticulous paintings, which used techniques such as engraving, painting, and line drawing (Knoblauch et al., 2024). The common motifs in the works include people, flowers, animals, etc., with smooth lines and delicate line drawings, showing the superb level of Tang Dynasty art. Tang Dynasty ceramics focused on simplicity and elegance and pursued natural and straightforward expression. This simple and elegant artistic style reflects the characteristics and aesthetic pursuit of the social culture of the Tang Dynasty.

The design research of Changsha Kiln ceramics must involve the Chinese culture of the same era on which Changsha Kiln is based, including ceramic objects, creation technology, customs, lifestyle, artistic aesthetics, creation thoughts, religious beliefs, and other multi-faceted contents, to obtain the overall appearance of the occurrence and development of Changsha kiln. From the design level, the study of things refers to the study of things from shape, form, color, material, texture, psychological experience, etc., including function, technology, modeling elements, and historical implications. Among them, the functional elements include the use, aesthetic, and symbolic functions; the modeling elements include form, pattern, and color; and the technical elements involve materials, structure, and technology, as shown in Figure 1.

Figure 1. Classification Framework of Changsha Kiln Ceramic Design Knowledge

Influence of Cultural Exchanges Between China and Foreign Countries on Ceramics in the Tang Dynasty

During the Tang Dynasty, China absorbed ceramic techniques such as firewood kilns, blue and white, and white glaze through cultural exchanges with other countries. Introducing these techniques enriched Tang ceramics' craftsmanship, making it more diverse and innovative. At the same time, Tang Dynasty ceramics positively impacted overseas ceramics production. For example, Central Asian glassware was technically and ornamentally inspired by ceramics from the Tang dynasty and presented a unique style (Cao, Ji, & Shao, 2024).

In the cultural exchanges with the Silk Road countries, Tang Dynasty ceramics fully absorbed the artistic elements of Persia, Central Asia, and other places. Integrating these foreign elements gave Tang Dynasty ceramics a more gorgeous and colorful artistic style. Tang Dynasty ceramics spread Chinese art and culture through trade and cultural exchange. Its unique artistic style and exquisite craftsmanship have profoundly impacted the ceramic industry in later generations. As an important medium for cultural exchanges between China and foreign countries, Tang Dynasty ceramics recorded the exchange and integration between different cultures. Excavating the value of Chinese and foreign art exchanges in Tang Dynasty ceramics helps understand and promote the diversity and inclusiveness of Chinese culture. The experience of art exchange between China and foreign ceramics in the Tang Dynasty has inspired contemporary ceramic art (Wang, Cheng, Yu, Si, & Ding, 2024), providing a new creative idea for the interactive art of AI digital painting and the decorative styles of painted bowls and porcelain pots in Changsha kiln are shown in Table 1.

Table 1. Comparison of the Decorative Styles of Painted Bowls and Porcelain Pots in Changsha Kiln

Product type	Decorated in style	Attribute	Target market
Painted bowls	Signile pattern	Sacred religiosity	The Islamic world
Porcelain jug	Chinese flower and bird painting	Civilian, fun life	Domestic market

Some of the design expression elements are considered to be a fusion of multiple cultural factors, such as the "Hu Vase," which originated in Central and West Asia and involved Persian and Sogdian cultures, which is understandable because cultures always influenced each other and can be traced back to the past. It is generally believed that Persian culture was a fusion of Roman and Byzantine cultures and that Persian culture influenced Sogdian culture. "Central Plains culture" refers to the dominant culture of the Tang Dynasty, characterized by traditional Confucian and Taoist cultures. "Huxiang regional culture" relates mainly to Hunan Chu and Wuwu cultures. The flow and interaction of multiculturalism is shown in Figure 2.

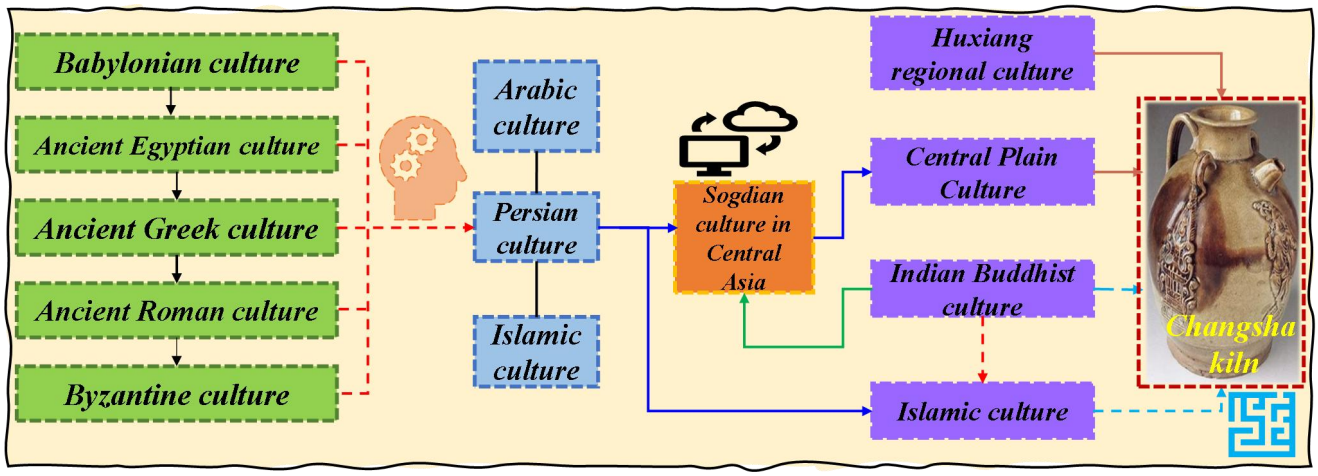

Figure 2. The Flow and Interaction of the Multicultural Culture of Changsha Kiln

Tang Dynasty Ceramics in Trade and Cultural Exchanges Between China and Foreign Countries

As one of the representatives of traditional Chinese culture, Tang Dynasty ceramics spread Chinese art and culture through trade and cultural exchanges (Shendy et al., 2024). The unique artistic style and exquisite craftsmanship of Tang Dynasty ceramics have profoundly impacted the ceramic industry in later generations. Through cultural exchanges with countries and regions along the Silk Road, Tang Dynasty ceramics absorbed artistic elements from Persia and Central Asia (Gao et al., 2024). Integrating these foreign elements gave Tang Dynasty ceramics a more gorgeous and colorful artistic style. At the same time, in the cultural exchanges between the Tang Dynasty and Japan, Tang Dynasty ceramics also positively impacted the production of Japanese ceramics and promoted the development of Japanese ceramics. Tang Dynasty ceramics record the exchange and integration of different cultures at that time (Chen et al., 2024).

VALUE MINING IN TANG DYNASTY CERAMICS

Value and Significance of Ceramics in Art Exchange in Tang Dynasty

The Sino-foreign exchanges carried out through Tang Dynasty ceramics reflected the prosperity of the ancient Silk Road and witnessed the collision and integration of Eastern and Western cultures (Kuscer et al., 2024). By excavating the value of artistic exchange between China and foreign countries in Tang Dynasty ceramics, we can understand the interaction between Chinese culture and other cultures and promote the inheritance of cultural diversity and inclusiveness (Hevorkian, Nerubatskyi, Vovk, Szumiata, & Latosińska, 2024). The artistic elements of Persia and Central Asia in Central Asia positively impacted Tang Dynasty ceramics, making them present a more gorgeous and colorful artistic style. The artistic characteristics of Tang Dynasty ceramics also inspired overseas ceramic production and promoted the prosperity of the ceramic trade along the Maritime Silk Road (Coulon, Cohen, & Pillet, 2024). This creative influence enriched the craftsmanship and decorative style of Tang Dynasty ceramics and profoundly impacted the ceramic industry in later generations. The shape of the small and large bowls is the same as the decoration style, and the preliminary statistical results of the decorative motif theme are shown in Table 2.

Table 2. Statistics of the Decorative Patterns of the Painted Bowls of the Blackstone

Decorative pattern theme	Number of small bowls	Number of large bowls	Remark
Clouds	31	16	Includes clouds and clouds with flowers and plants
Flowers	19	15	
lotus	10	6	
Birds	21	13	Often accompanied by aquatic weeds and cirrus clouds
Poetic inscriptions	12	7	Written in Chinese characters
Arabic	26	1	Basically accompanied by cloud streaks
landscape	4	3	
Capricorn	4	7	
Other	3	2	Swimming fish, Hu people's heads, etc.

During the Abbasid period (750-1258), the influence of Chinese ceramics (Guven, Anil, Ozturk, & Kara, 2024) led to technological innovations, including glazing and ornamentation, as well as more precise molding and firing techniques. Since then, ceramic products, basically used as containers for practical life in the Persian period, began transforming from a primarily utilitarian function to decorative art (X. Li et al., 2024). From a cosmetic point of view, Islamic pottery has undergone several significant stages of development, from unglazed (unglazed and decorated) to pewter white glaze and cobalt blue-white glaze to painted and iridescent, as shown in Figure 3. The experience of art exchange between China and foreign ceramics in the Tang Dynasty has inspired contemporary ceramic art (B. Li et al., 2024) and provided a new creative idea for the interactive art of AI digital mapping.

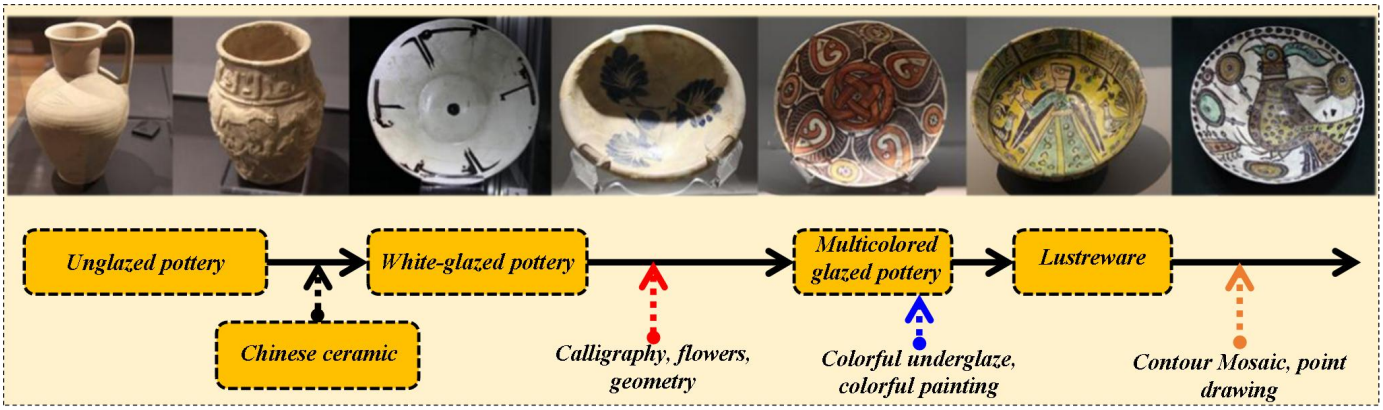

Figure 3. Diagram of the Evolution of Early Islamic Ceramic Decoration

Cultural Connotation and Aesthetic Value in Tang Dynasty Ceramics

Tang Dynasty ceramics reflect the social, political, economic, and cultural aspects of the time (X. Zhang et al., 2024) and have distinctive characteristics. Its decorative patterns, vessel shapes, and other elements reflect Tang Dynasty society's style and aesthetic taste. They are a vivid record of the social and cultural life of the Tang Dynasty. Through Tang Dynasty ceramics, we can understand the religious beliefs, customs, habits, and artistic concepts of Chinese society at that time, which is of great significance for studying Tang Dynasty social history and culture (de Lima Gomes et al., 2024).

Tang Dynasty ceramics show a high artistic level in modeling, glaze, decoration, etc., and have incredibly high aesthetic value. Its lines are smooth, the shape is elegant, and the glaze is gorgeous and rich, showing the aesthetic taste and artistic pursuit of the people of the Tang Dynasty. Tang Dynasty ceramics integrated Chinese and foreign cultural elements into creative expression, reflecting the exquisite craftsmanship and excellence of artistic creation in ancient China, and had a profound impact on the ceramic art of later generations (J. Zhang et al., 2024).

Tang Dynasty ceramics not only carried rich cultural connotations and recorded all aspects of the society at that time but also showed profound aesthetic value, becoming one of the essential representatives of Chinese ceramic art (Cocco et al., 2024). By studying the cultural connotation and aesthetic value of Tang Dynasty ceramics, we can better understand the diversity and uniqueness of Tang Dynasty society and culture and help promote ceramic art's inheritance and development.

According to the archaeological findings of the port (Table 3), which shows that the proportion of Chinese porcelain is still relatively small compared to that of locally produced ceramics (Wei et al., 2024). Overall, from 750-850 AD (B4+B5+B6 in the table below, mainly for the same period of Changsha kilns), the proportion of Chinese ceramics in all ceramic fragments was about 0.6%, the standard class mainly used unglazed ceramics, and the aristocratic class used Chinese ceramics in a higher proportion. Therefore, a small number of imported utensils from Changsha kiln ceramics can only bear some of the functions of eating and drinking containers and are mainly used by the elite and wealthy classes or play a role in embellishment during meals (Chun et al., 2024).

Table 3. A Number of Ceramic Fragments of Various Types Found in the Ports of the Persian Gulf

Period	Speculation on the era	Number of Chinese ceramic fragments/ratio	Number/proportion of Islamic glazed pottery fragments	Number of unglazed pottery fragments/proportion	Total number of ceramic fragments excavated
B6	No later than 850 AD	230/0.5%	3193/7.2%	40684/92.3%	44107
B5	Between 815 and 5 B.E	1818/0.6%	45782/16.5%	230446/82.9%	278046
B4	750-775 to 815-825 AD	88/0.2%	3097/7.6%	37914/92.2%	41099
B3	Umayyad dynasty, early Abbasid, ending in 750-775 C.E	46/0.1%	1539/3.5%	42880/96.4%	44465

Craft Techniques and Artistic Characteristics in Tang Dynasty Ceramics

Tang Dynasty ceramics are known for their exquisite craftsmanship and unique artistic characteristics. The production of ceramics in the Tang Dynasty adopted many advanced techniques, such as carcass making, glaze preparation (Fang et al., 2024), and decorative techniques. Among them is the use of high-quality clay carcasses after fine modeling, trimming, and firing processes so that the ceramic has a solid carcass and delicate texture. Tang Dynasty ceramics used various glazes, such as green glaze, white glaze, three-color glaze, etc., which enriched the color change and expressiveness of ceramic objects. In terms of decorative techniques, Tang Dynasty ceramics were mainly decorated with techniques such as engraving, painting, and embossing, forming a unique ornamental style and decorative effect.

The artistic characteristics of Tang Dynasty ceramics are mainly manifested in the shape of the vessel, the change of glaze color, and the decorative style. There are various shapes and shapes, including square plates and boxes that imitate ancient bronzes and unique shapes of the Tang Dynasty that are self-contained, such as terracotta figurines and animal shapes. Glaze color change is one of the essential artistic characteristics of Tang Dynasty ceramics; through the preparation of glaze and the redox reaction in the firing process, a wide variety of glaze effects have been formed, such as blue, sky blue, white porcelain, etc., which increases the visual impact and aesthetic value of ceramic objects. In terms of decorative style, the decorative patterns of Tang Dynasty ceramics are diverse, ranging from abstract ornamentation to figurative figures, animals, and plants. With their flowing lines, delicate painting techniques, and rich symbolism, these decorative motifs show the unique style of Tang Dynasty art.

INTERACTION BETWEEN ARTIFICIAL INTELLIGENCE DIGITAL PAINTING AND TANG DYNASTY CERAMIC ART

Principle and Development of AI Digital Mapping Technology

AI digital mapping technology is an artificial intelligence-based image generation technology that enables computers to generate highly realistic images through machine learning algorithms and large amounts of data training. The principle mainly includes data collection, model training, and image generation. Originating from research in computer vision and machine learning, this technology has gradually become a research hotspot with the development of deep learning algorithms and improved computing power. It has begun to be widely used in artistic creation, injecting new innovative power into traditional ceramic art.

Based on the ancient ceramic dating algorithm based on CNN, the dating recognition of cultural relics images was carried out, a CNN network model was built, and the network model was repeatedly iteratively trained to optimize the parameters of the CNN network model. A CNN classification model with the ability to date ancient ceramics was generated. Finally, the function of the CNN classification model was tested using the test sample set, and the specific computer model iteration process is shown in Figure 4.

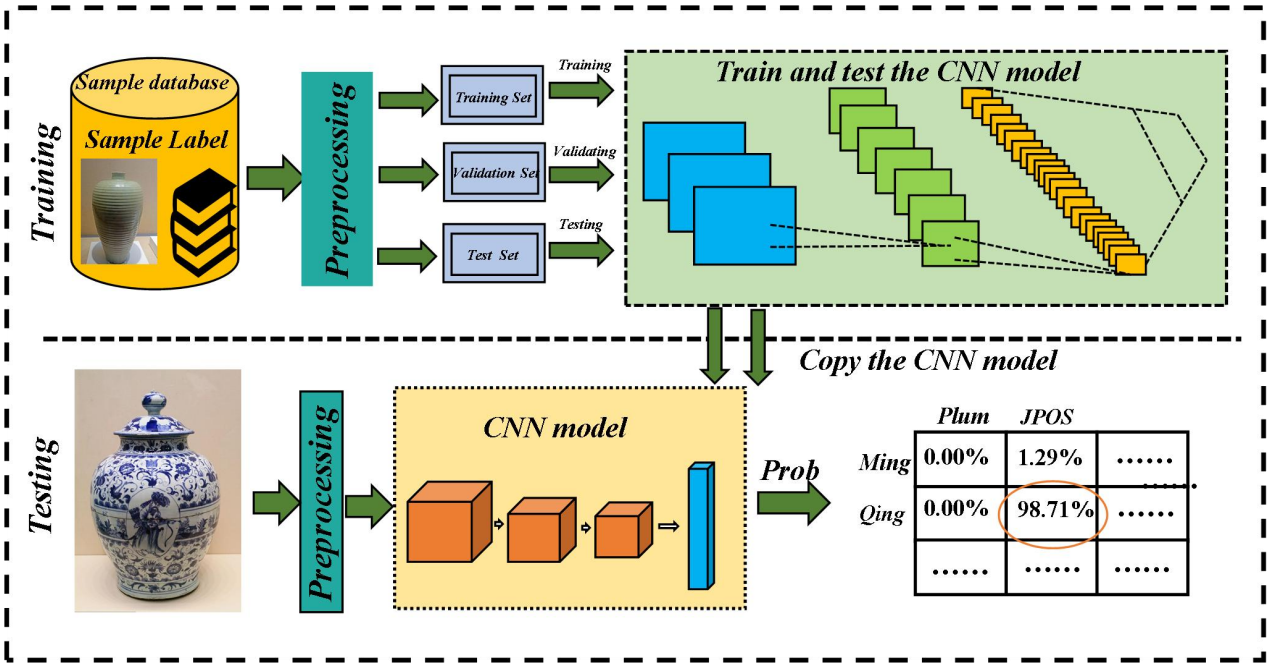

Figure 4. Block Diagram of Ancient Ceramic Image Dating based on CNN

Application of AI Digital Painting in the Reproduction and Innovation of Ceramics in the Tang Dynasty

The application of AI digital mapping technology in the reproduction and innovation of ceramics in the Tang Dynasty has excellent potential. Tang Dynasty ceramics represent ancient Chinese porcelain significantly, and their production process and artistic style are unique. They have had a profound impact on ceramic art at home and abroad. In traditional ceramic art, replication and innovation have always been essential themes and difficulties, and the emergence of AI digital mapping technology provides a new solution.

In the application of holographic technology, there are high requirements for the working platform and the environment, so the whole experimental system is carried out on the shockproof holographic working platform. The CCD is the receiver, the camera parameters are shown in Table 4, and the CCD is connected to the computer.

Table 4. CCD Camera Parameters

Model	Resolution	Sensor	Pixel size	Chip size	Maximum frame rate
QHYIII5290	1920×1080	IMX290	2.9 μm	1/2.8 inch	135 FPS

The loading system adopts a digital push-pull gauge, a hand-cranked spiral frame, a tensile pressure testing machine, and a performance testing machine, and the parameters of the testing machine are shown in Table 5.

Table 5. Parameters of Pressure Testing Machine

Model	Load index value	Indication error	Communication interfaces	Sensor	Working environment
HP-K500	0.1N	±0.5%	RS-232	Built	5 ℃~35 ℃

The digital ancient ceramics software packages and transplants the old ceramic dating model based on Python into the software dating module, so it is necessary to test the accuracy of the ancient ceramics dating realized by the relevant software design. The dating results were verified by randomly sampling the pertinent ceramics of the test samples, and the confusion matrix is shown in Table 6.

Table 6. Confusion Matrix of Software Test Results

	Predict class (M)	Predict class (Q)	Predict class J (M)	Predict class J (Q)	Accuracy
Actual class P (M)	28	2	0	0	93.33%
Actual class P (Q)	0	30	0	0	100%
Actual class J (M)	0	0	29	1	96.67%

	Predict class (M)	Predict class (Q)	Predict class J (M)	Predict class J (Q)	Accuracy
Actual class J (Q)	0	0	1	29	96.67%
Total Accuracy: 96.67%					

Regarding the reproduction of Tang Dynasty ceramics, AI digital mapping technology can generate highly realistic images by analyzing the characteristics of Tang Dynasty ceramics, such as ornamentation and decoration techniques. The artist only needs to enter the required parameters, and the image with the attributes of Tang Dynasty ceramics can be quickly generated to reproduce the ceramics rapidly. This can improve production efficiency and maintain the artistic style and traditional characteristics of Tang Dynasty ceramics. In terms of ceramic innovation in the Tang Dynasty, AI digital mapping technology can also promote the innovation and development of ceramic art. Artists can use this technology to personalize their creations and designs, combining traditional elements with modern expressions to create more contemporary works. In addition, AI digital mapping technology can also assist in protecting and restoring ceramic art and improve the accuracy and efficiency of cultural relic restoration. The influence of each part of the ceramic jar on the style characteristics is shown in Figure 5. The application of AI digital mapping technology in the reproduction and innovation of ceramics in the Tang Dynasty has excellent potential. By combining the elements of ornamentation and decoration in Tang Dynasty ceramics, the rapid replication and personalized creation of ceramics can be realized.

In the future, we can further deepen the research on AI digital mapping technology principles, explore more ways to apply it in ceramic art, and combine other technical means to promote the innovation and inheritance of ceramic art.

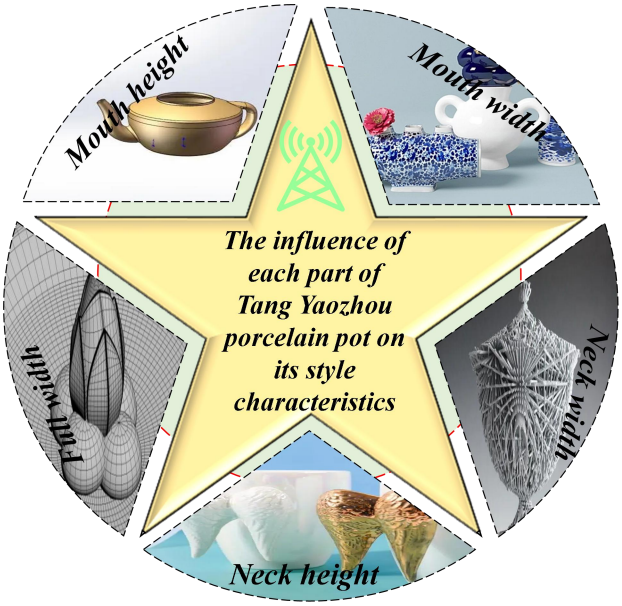

Figure 5. Radar Chart

Interaction Between AI Digital Mapping Technology and Ceramic Cultural Elements in Tang Dynasty

The combination of AI digital mapping technology and the interactive art of Chinese and foreign cultural elements in Tang Dynasty ceramics has rich creative potential and value mining. As an essential representative of ancient Chinese ceramic art, Tang Dynasty ceramics integrated the exchange and influence of Chinese and foreign cultures. AI digital mapping technology allows artists to explore and express this cross-cultural artistic value more flexibly.

AI digital mapping technology can help artists present the fusion of Chinese and foreign cultural elements in the reproduction and creation of Tang Dynasty ceramics. AI can generate new works of art by analyzing the ornamentation, patterns, and other characteristics in Tang Dynasty ceramics combined with the input of different cultural elements. For example, artists can combine the traditional ornamentation of Tang Dynasty ceramics with Western painting styles to create works with Tang Dynasty ceramics' characteristics and incorporate elements of foreign culture. This interactive art practice broadens the creative field of ceramic art and enriches the artist's way of expression. Through digital analysis and model training of many Tang Dynasty ceramic works, AI can help

identify, classify, and study Chinese and foreign cultural elements in Tang Dynasty ceramics. Artists and scholars can use these research results to dig deeper into the cultural exchanges and influences of Tang Dynasty ceramics and further understand the integration and interaction of Chinese and foreign cultures. At the same time, AI fusion technology can provide new creative methods and innovative ideas for ceramic creation and enrich the expression of works. At the same time, it can also help artists and scholars to deeply explore and understand the cultural exchanges and influences between China and foreign countries in Tang Dynasty ceramics. With the continuous development and promotion of this interactive art, we can expect more works with cross-cultural characteristics and unique charm to emerge to promote further the exchange and development of Chinese and foreign cultures.

Application of Artificial Intelligence Digital in the Innovation Inheritance of Ceramics in Tang Dynasty

AI digital mapping technology has a critical application and role in the innovation and inheritance of Tang Dynasty ceramics. As an essential representative of ancient Chinese ceramic art, Tang Dynasty ceramics integrated the exchange and influence of Chinese and foreign cultures. The application of AI digital mapping technology makes the innovation and inheritance of Tang Dynasty ceramics more flexible, efficient, and accurate.

AI digital mapping technology can help artists quickly reproduce and accurately inherit Tang Dynasty ceramics. By digitally identifying and analyzing the characteristics of Tang Dynasty ceramics, AI can generate highly realistic ceramic patterns and ornaments, helping artists replicate Tang Dynasty ceramics more quickly and accurately. At the same time, AI digital mapping technology can help artists design and innovate ceramics, improving creative efficiency and quality. Using digital analysis and model training of Tang Dynasty ceramics, AI can help artists and scholars dig deeper into the cultural elements and artistic characteristics of Tang Dynasty ceramics. Especially for those Tang Dynasty ceramic works that are incomplete or destroyed, AI digital mapping technology can realize the restoration and reproduction of ceramics through digital reconstruction and repair.

Feature classifier is an essential method in the field of data mining by constructing a classification function or classification model based on its feature data and mapping different kinds of data features to the corresponding classification labels; standard classifiers include decision tree, logistic regression, naive Bayes, neural network and support vector machine. Different classification methods may perform better under specific dataset performance, and this paper designs a multi-feature classification algorithm based on a Support Vector Machine (SVM) for the above-mentioned instrumental features. The classification results of SVM features are shown in Figure 6.

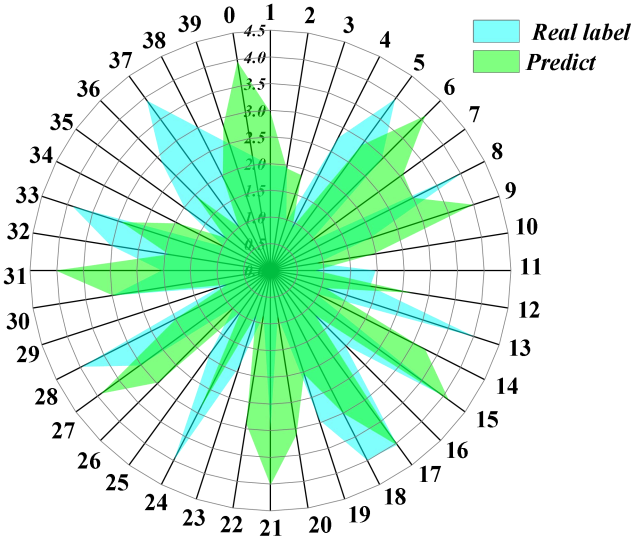

Figure 6. Classification Results of SVM Type Features

Enlightenment of AI Digital Mapping Technology on the Development of Ceramic Art in the Future

In the future, AI digital mapping technology will have a profound impact and enlightenment on the development of ceramic art. With the continuous development and application of technology, AI digital mapping technology will provide more innovation and development space for ceramic art. It will also bring new feelings and experiences to people's aesthetic experiences.

AI digital mapping technology will further promote ceramic art's digital and intelligent development. Thanks

to digital analysis, model training, and technological innovation, AI can generate more realistic ceramic patterns and ornaments, realizing rapid replication and accurate inheritance of ceramics. At the same time, AI can also automatically generate distinctive and creative ceramic works according to the needs and preferences of users to achieve personalized customization and intelligent design. AI digital mapping technology will be integrated with ceramic art to promote the development of interactive art. With the continuous upgrading and application of VR, AR, and other technologies, ceramic art will pay more attention to interaction and experience with the audience in the future. AI digital mapping technology can help artists and designers create more interactive and experiential ceramic works, providing a richer visual and sensory experience in exhibitions, museums, and other occasions.

AI digital mapping technology will promote the integration and innovation of ceramic art and other art forms. For example, combining music, dance, performance, and other art forms will create more colorful cross-border artworks. AI digital mapping technology can provide more accurate, efficient, and flexible technical support and creative inspiration for this cross-border art.

All in all, AI digital mapping technology will have a profound impact and enlightenment on the development of ceramic art in the future. In the future, ceramic art will be more digital, intelligent, interactive, and cross-border, and AI digital mapping technology will become a necessary support and driving force for ceramic art. At the same time, the future of ceramic art will also provide a broader innovation space and application scenarios for the development of AI digital mapping technology.

CONCLUSION

This paper not only deepens the understanding of the artistic exchange between China and foreign countries in Tang Dynasty ceramics but also explores the impact of this exchange on AI digital painting. The following conclusions can be drawn from this:

The in-depth excavation of Chinese and foreign artistic exchanges in Tang Dynasty ceramics reveals the importance and value of ceramics in cross-cultural exchanges. As an essential carrier of cultural exchanges between China and foreign countries, Tang Dynasty ceramics carry the historical information of ancient Sino-foreign trade and cultural exchanges and integrate multicultural artistic elements, becoming a vivid witness of Chinese and foreign artistic exchanges. Studying Tang Dynasty ceramics gives us a deeper understanding of the influence and contribution of cultural exchanges between China and foreign countries on ancient ceramic art.

With the development of science and technology, AI digital notation technology has provided new possibilities for artistic creation, and Chinese and foreign art exchanges have injected rich creative materials and inspiration into it. By combining Chinese and foreign art elements, AI digital mapping can present more diverse and cross-cultural artworks, expanding the boundaries of artistic expression. Future research can further deepen the application of Sino-foreign art exchanges in digital mapping, explore more possibilities of cross-cultural art creation, and make more significant contributions to the development of the art field.

AUTHOR CONTRIBUTIONS

All the author's contributions are equally in the manuscript.

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