# The Dilemma and Coping with the Inheritance of Traditional Culture Enabled by Artificial Intelligence

## –A Case Study of Chinese Traditional Culture

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*Abstract:* With the continuous change in human civilization triggered by the rapid development of technology, it is worth considering the role of AI in the inheritance of traditional culture. This essay primarily investigates the impact of AI technology on traditional culture and applies Chinese culture as a case study. Through introducing the prevalence of artificial intelligence, demonstrating the functions of AI in the spread of traditional culture, and analyzing the pros and cons brought by AI, this essay utilizes both quantitative and qualitative analysis to reveal the overall influence of AI in the case of Chinese traditional culture. This essay will be helpful for researchers and scholars interested in topics related to the future expectations of Chinese culture and students who are learning the change brought by AI to the cultural impact of artificial intelligence.

*Keywords:* Chinese traditional culture, artificial intelligence, cultural inheritance, social change

## 1. Introduction

There is always a term that can accurately represent the most significant movement in an era. For the 21st Century, artificial intelligence is the most representative element, no doubt. According to the estimation, 53.6% of the population in the world now have access to digital technology before the COVID-19 pandemic [1]. In addition, "the global shutdown due to the COVID-19 pandemic also accelerated the rate of change" [2]. During this unusual period, all types of work were conducted online, from teaching at school to communication and work and even the creation of arts. This further increased AI's importance and attachment to cultural content. Thus, it is reasonable to conclude that AI's participation in human lives has been increasingly frequent, from simple repetitive work to complex white-color occupations [3]. Besides physical changes, the involvement of AI technology in human life also profoundly impacts the relationship between people and the operating mode of society.

In this trend, applying this new technology and preserving the precious culture of the past is very important for people worldwide. "Any records kept before 2000 do not exist because we cannot view them. We urgently need to bring our archives into the digital age. We must not lose contact with the past' [4]. The person who said this is Frederic Kaplan, who initiated the prototype Venice

Time Machine project. This machine can analyze more than 1,000 years of history in Europe. Iran Davar Ardalan also established IVOW as a tool to incorporate traditional cultures [5].

In China, artificial intelligence creates an even more substantial impact on the cultural perspective. As a country with a history of more than five thousand years, the history of China is complex and varied. Since cultural value is relatively challenging compared to other data like economic indicators, there are few comprehensive studies on artificial intelligence's impact on traditional Chinese culture.

However, it is undeniable that AI indeed has a widespread impact on multiple fields of traditional culture in China. Accessibility is one of the advantages brought by AI in the digital era. By recording traditional cultural content and publishing it on the internet, people worldwide can learn about these cultures they cannot see in person. In this way, many uncommon cultures from rural areas in China can be seen by people from other places. Enhancing the popularity of these minority cultures is also a way offered by AI to protect these traditional Chinese cultures. Furthermore, artificial intelligence can also improve the traditional culture in China. This advantage is beneficial in fields like medicine and architecture. Last but not least, digitally presenting conventional cultural information can change people's stereotypes of traditional culture, thus making it more acceptable to the general public.

Although AI brings many benefits at the cultural level, many drawbacks also co-occur. "Information cocoon" is the most commonly mentioned concern by artificial intelligence. In the modern era, AI can already recommend what users are interested in based on the analysis of their data. Nonetheless, this would result in a severe problem of narrowing users' vision. By only suggesting internet users view information that they are interested in, much information in the past and traditional culture will risk disappearing in the future. Other potential issues of AI in Chinese culture include the precision of cultural records and the accuracy and fairness of AI content. Hence, this essay's primary focus will be artificial intelligence's impact on the inheritance of traditional culture in China. Through analyzing the function of AI in the spread of Chinese conventional culture, discussing the advantages and disadvantages of AI, the combined influence brought by artificial intelligence to Chinese historical culture in the digital era will be evaluated.

## 2. The Function of AI in the Spread of Traditional Culture

The development of artificial intelligence has provided many application opportunities in the cultural industry. Some of these vital technological innovations can be combined with the cultural industry to achieve innovation in the production of cultural content. In this process, artificial intelligence mainly acts as the disseminator in the field of art culture, the supervisor in the field of traditional medicine, and the transmitter in the field of literature.

Firstly, AI can protect and preserve the less well-known cultures in China. China has experienced more than ten dynasties, has more than 5,000 years of history, and has 56 ethnic minorities. Therefore, not every culture in China is famous. Many cultures included in China's Intangible Heritage are gradually forgotten. Thanks to the digital era and the rapid development of AI, many of those cultures can be preserved and spread worldwide. "ChinaVine" is a collaborative website founded by the University of Central Florida, the University of Oregon, and other organizations in China. "The group is sharing Chinese customs and folk culture using modern technology" [6]. With the development of the Chinese economy, more and more people are moving from the countryside to urban areas. Due to this, many folk tales and regional cultures originating in rural areas are endangered. Initiators of ChinaVine highly value these traditional folk cultures and believe they should be protected. In the past ten years, they captured descriptions and pictures, including forms of dance, music, art, and architecture, and posted them on the website. There, people from all over the world can get familiar with this distinctive culture without traveling to

those small places in China. The precious content of these cultures can also be preserved permanently.

Secondly, artificial intelligence can also provide accurate estimation, which benefits the application of traditional medical systems in China. Traditional Chinese Medicine is a well-established system that has been applied widely. By using the four diagnostic methods of looking, listening, asking, and hearing, TCM could provide relatively effective medical treatments for patients [7]. Although the involvement of scientific and biological experiments in the industry of medicine weakens the priority of TCM, artificial intelligence can improve TCM's accuracy of diagnostics. In this case, the old method of four diagnostics is sometimes inaccurate and can be abandoned. Objective data analysis based on data collection from patients can generate very accurate judgement on the body conditions of patients, thus improving the performance of TCM considerably [7].

Artificial intelligence also creates new ways for Chinese traditional culture to spread by transforming their style. One of the significant reasons that directly leads to the loss of culture is the unattractive form. The usage of AI in the spread of traditional culture changes the bland characteristics of this content and makes it attractive to the general public. The Chinese Poetry Conference is one of the most representative examples that indicates the success of artificial intelligence's function. In the past, people often thought it was tedious and complicated. The only few places people can see them are the textbooks at school and some art museums. However, this form of culture has been transformed into another style and included in a Chinese Poetry Conference TV show. This change made the poetic elements very popular in China, and many people were willing to memorize those poems and learn their historical insights. The innovative combination of tradition and modernity changes traditional culture transmission and the audience's learning and cognition of traditional culture, which can better promote the inheritance of traditional Chinese culture [8].

## 3.    Difficulties Brought by AI in the Inheritance of Traditional Culture

While artificial intelligence plays a vital role in preserving Chinese culture, it also brings many drawbacks to traditional Chinese values and conventions. This effect can be primarily seen from the social, linguistic, and production perspectives.

Firstly, with the increasing use of technology in daily life, face-to-face communication and interaction between people are decreasing rapidly. With numerous software and machines supported by artificial intelligence, the need for personal interaction is decreasing continually. The most affected part is the domestic dialects. Since China is a country with a long history and more than 50 ethnic minority groups, it has 302 official languages [9]. However, "the number of speakers of many of China's minority languages and dialects has decreased in recent years, and some of them are now considered endangered" [9]. The presence of AI-supported technology and devices is considered the leading cause.

On top of that, artificial intelligence also boosted the skills of production significantly. The production of many objects, once done manually, is now conducted automatically by machines. Indeed, the rise of AI in manufacturing improves production and economic performance in many fields, but it also causes the loss of traditional craftsmanship. Some examples of this include ceramics, traditional Chinese opera, and craftsmanship. The process of constructing these objects often requires very detailed techniques that are passed through generations. With AI gradually replacing the construction of these traditional objects, their cultural value is also disappearing at the same time. With this, society must balance applying artificial intelligence and preserving traditional culture. How to maximize the benefits of automatic technology and minimize the loss caused by this double-edged sword is the purpose of manufacturers and the Chinese government.

## 4.    How to Apply the Advantages of AI in the Inheritance

With a long history and valuable connotation, Chinese traditional culture is an essential trace of human development. It ranges from arts, literature, language, and countless physical objects. Therefore, how to apply the rapidly evolving artificial intelligence technology in the preservation of culture is essential. "The integration of modern science and technology and traditional culture is bound to broaden and upgrade the inheritance and innovation path of excellent traditional Chinese culture so that it can achieve new development" [10]. This section will present the advantages of artificial intelligence in the inheritance of Chinese culture. They will be divided into three parts: fundamental preservation, innovative transformation, and cross-cultural communication.

### 4.1.    Preservation of Traditional Culture

Among the various ways to protect the history of China, the most crucial aspect is the protection of past artifacts and documents. These firsthand objects and materials are beneficial for researchers to identify their content and for citizens to continue to inherit them. The newly developed technology supported by artificial intelligence can digitalize many of the pieces and protect them from getting damaged. For example, one of the recently developed skills called "machine learning algorithm" can fulfill the goal of protecting and recording past culture successfully. "Machine learning algorithms are computational models that allow computers to understand patterns and forecast or make judgments based on data without explicit programming" [5]. With the help provided by my machine learning algorithm, historians can categorize historical items and record them permanently. On top of that, the ability to replicate existing objects developed by AI can also assist in the inheritance of traditional culture. Researchers can analyze the formation, technology, and cultural background of found objects without using the real ones. Therefore, the authenticity of these original crafts can be preserved while the cultural values are found effectively.

### 4.2.    Transformation of Culture to Raise People's Awareness

In the conventional Chinese education system, the history of China and the culture of multiple dynasties are compulsory parts of Chinese standard education. However, this way of teaching cannot guarantee students a good learning experience, causing most people to have no interest in traditional culture. With the inclusion of artificial intelligence in the education system, the way Chinese culture is taught has been changed completely. The adaptive setting of AI can create a personalized learning experience for each participant. With this, each student can acquire knowledge related to their interest, thus making learning traditional culture more effective and joyful. The online system powered by AI can also enrich learning experiences by revolutionizing former ways of reading and memorizing into interactive activities. The Chinese Poetry Conference mentioned before is a real-life application of this method. By transforming the process of learning historical poems into a contest, audiences of different ages and social classes are more willing to participate and learn from this process. With this, the public interest in culture will increase, and the goal of inheriting traditional culture can be reached.

### 4.3.    Cross-cultural Communication

Exchanging Chinese traditional culture with foreign culture is also a way to preserve the heritage of Chinese ancestors. Furthermore, this can also promote multiculturalism from a global perspective. "With the application of artificial intelligence technology, the protection and utilization of Chinese folk intangible cultural heritage is being carried out in an orderly manner, and the revival and prosperity of national traditional culture is imminent" [11]. People from all over the world can learn

about the intangible cultural heritage of ancient China through the power of government, social media, and academic exchange. At the same time, Chinese citizens can also learn about foreign culture's values. This "trade of culture" worldwide can protect the precious traditional culture and promote the understanding, identification, and integration between different cultures.

## 5.    Conclusion

With the increasing engagement of artificial intelligence in human lives, it is impossible to separate traditional culture from the involvement of artificial intelligence. Hence, the impact of artificial intelligence on culture should be identified. By using the case study of traditional culture in China, an eastern country with more than 5,000 years of history and the largest population in the world, this essay reveals the function of AI in the spread of culture, difficulties of preservation of traditional culture caused by AI, and the advantages of AI in cultural inheritance.

There are many advantages of AI in the inheritance of traditional culture in China. In investigating the functions of AI in the spread of conventional culture, artificial intelligence has enabled the ability to spread rural minority cultures by posting them online through creating websites. It also enhances the validity and credibility of measurement in traditional methods applied in medical care, such as Traditional Chinese Medicine (TCM). Furthermore, the adaptive learning system supported by AI can allow participants to study the culture they are interested in, thus increasing the public interest in conventional culture. Lastly, AI can also spread traditional culture by exposing it to the general public through innovative ways such as television shows.

There are also drawbacks brought by artificial intelligence. The increasing involvement of technology in daily life is likely to cause a decrease in face-to-face communication between people. Uniform communication via the Internet can lead to the extinction of many dialects, especially in a country with more than 300 different languages. However, it is worth mentioning that there is a potential flaw in this research essay. Since the analysis is based on the case study restricted to the region of China, the conclusion might not be applicable worldwide.

## References

[1]    Cutting Edge | Protecting and preserving cultural diversity in the digital era. (2023). UNESCO. https://www.unesco.org/en/articles/cutting-edge-protecting-and-preserving-cultural-diversity-digital-era

[2]    Bryan, Hancock., Bill Schaninger., Lareina Yee. (2023). Generative AI and the future of HR. McKinsey & Company.https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/generative-ai-and-the-future-of-hr

[3]    Erensoy, E. (2023). How AI is Changing Human Communication. Chicago Policy Review. https://chicagopolicyreview.org/2021/04/07/how-ai-is-changing-human-communication/

[4]    Ibaraki, S. (2019). Artificial Intelligence For Good: Preserving Our Cultural Heritage. Forbes. https://www.forbes.com/sites/cognitiveworld/2019/03/28/artificial-intelligence-for-good-preserving-our-cultural-heritage/?sh=7e2535404e96

[5]    IVOW is an AI and Storytelling Startup. (2018). IVOW AI - CULTURAL INTELLIGENCE FOR AI. https://www.ivow.ai/

[6]    Courtney, Gilmartin. (2019). Modern technology helps preserve disappearing art culture in China. University of Central Florida News | UCF Today. https://www.ucf.edu/news/modern-technology-helps-preserving-disappearing-art-culture-in-china/

[7]    Wang, Y., Shi, X., Li, L., Efferth, T., & Shang, D. (2021). The impact of artificial intelligence on traditional Chinese medicine. The American Journal of Chinese Medicine, 49(06), 1297–1314. https://doi.org/10.1142/s0192415x21500622

[8]    Peihan, Li. (2020). Innovation and Challenge of Artificial Intelligence Participation in Traditional Culture Inheritance -- A Case Study of Chinese Poetry Conference. Chinese newspaper (24), 24 and 25. Doi: 10.13854 / j.carol carroll nki cni. 2020.24.007.

[9]    Meredith, A. (2022). Languages in China | Chinese Dialects | Spoken Chinese Languages. CLI. https://studycli.org/learn-chinese/languages-in-china/

[10] *GeeksforGeeks.(2023). Machine learning algorithms. GeeksforGeeks. https://www.geeksforgeeks.org/machine-learning-algorithms/*

[11] *Zhang, J., & Jing, Y. (2022). Application of Artificial Intelligence technology in Cross-Cultural communication of intangible cultural heritage. Mathematical Problems in Engineering, 2022, 1–12. https://doi.org/10.1155/2022/6563114*