



RESEARCH ARTICLE

## AN EXPLORATION OF THE DIGITAL EMPOWERMENT OF ANCIENT VILLAGES IN THE CONTEXT OF ARTIFICIAL INTELLIGENCE: A CASE STUDY OF FURONG ANCIENT VILLAGE IN WENZHOU

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### ABSTRACT

With the continuous development of science and technology, artificial intelligence begins to enter people's daily lives and gradually promote the protection and inheritance of traditional culture in many fields. Furong Village is an ancient village with more than a thousand years of history in Yongjia. There are many intangible cultural heritage here. Under the help of innovative AI multimodal technology, the intangible cultural heritage are transformed into dynamic video stories. These stories are integrated into cultural tourism, and a new type of digital integration plan has been formed, cultural exhibition, education and travel. Furong Ancient Village is located in Yongjia County. It is one of the earliest settlements existing for more than a thousand years. There is abundant intangible cultural heritage in Furong Ancient Village. Under the help of innovative AI multimodal technology, the intangible cultural heritage is transformed into dynamic video stories. These stories are integrated into cultural tourism, and a new type of digital integration plan has been formed, cultural exhibition, education and travel.

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## 1. OVERVIEW OF FURONG ANCIENT VILLAGE

Furong Ancient Village is one of the earliest settlements existing for more than a thousand years. It is located in Yongjia County. It can represent the ancient settlements distribution along the Nanxi River (Z. Chen, 1999). The overall layout of the village is integrated into the surrounding natural scenery, human-made engineering with artistic composition like painting. It shows the ancient people's deep environmental awareness and respect for the harmony between

heaven, earth, and humanity, reflecting their unique aesthetic philosophy. Originally built at the end of the Tang Dynasty, the village was destroyed at the end of the Southern Song Dynasty. It was rebuilt in the Yuan Dynasty and developed in the Ming and Qing Dynasties. Despite numerous changes over time, the village still maintains the overall layout and structure of the Yuan Dynasty (Deng, 2008). The design is coherent and systematic, with rich but simple architectural styles. The village is mainly inhabited by the descendants of the Chen family. They live in the relatively independent social living system of the single-surname village. It is a complete social living ecosystem (Hara, 2005). The founding concept of the village is: "Farming creates wealth and study creates reputation." The village and the surrounding farmland are the traditional Chinese concept of work and scholarship (Hu, 2001). Folk traditions are still alive here. The vivid Fish Lantern Festival is still held every year. There are also folk customs related to marriage, funeral and fire prevention. The stage in the village is the most sophisticated venue for culture and entertainment in the village and surrounding areas. At the same time, it is functioning as a place for moral education in clan society (Ding, 2005).

## 2. ANALYSIS OF THE CURRENT STATUS OF DIGITAL DISPLAY OF FURONG ANCIENT VILLAGE

The digital dissemination of cultural assets in Furong Ancient Village remains inadequate, as reflected by the consistently low annual visitation of approximately 4,000 to 5,000 persons. Concurrently, the village faces preservation challenges due to the renovation of historic residences for improved living conditions (Y. Shi, 2019). This trend has resulted in the demolition of older buildings and damage to the ancient architectural heritage. These factors contribute to the degradation of the "Seven Stars and Eight Dippers" layout—a spatial representation of the community's clan-based social structure and agrarian-scholarly traditions. Despite interventions such as the introduction of resident artists to enhance cultural promotion, the overall level of tourism exposure continues to be limited (Z. Shi, 2004).

Residents have no concept of protecting ancient villages and know very little about the history of old houses; few people understand that the old houses need to be protected and preserve this heritage. Due to problems such as inefficient system, inflexible mechanism and lack of funds, the old residents can not enjoy the economic benefits brought by the use of ancient villages, so the resistance is very significant resistance. The protection of ancient villages is hard and technical requirements are high; the restoration experts know little about the traditional style of buildings and can't distinguish the architectural types of dynasties before Song and Yuan dynasties, so it is very difficult to implement the principle of "restoring the old to its old" in the restoration work.

Cultural heritage is an important manifestation of national wisdom and cultural diversity, and the appearance of digital technology has also provided new ideas and solutions for the protection and preservation of intangible cultural heritage. Through the high definition image, audio and video collection, 3D modeling, virtual reality (Virtual Reality VR), augmented reality (Augmented Reality AR) and other technologies, the intangible cultural heritage projects can be recorded, stored and managed in a systematic way in digital form, and establish a scientific and orderly digital database of intangible cultural heritage. This way of inheriting intangible cultural heritage digital can not only effectively prevent the loss of cultural heritage due to natural disasters and human factors, but also break through the limitations of time and space, allow more

people to access, accept and learn about intangible cultural heritage, further expand the scope of dissemination and promotion of intangible cultural heritage. With the rapid development of Artificial Intelligence (Artificial Intelligence AI) technology, it brings about revolutionary changes in the protection, restoration and revitalization of cultural heritage (Feng et al., 2023). In the field of cultural tourism restoration, by using deep learning and big data analysis technology of AI technology, we can accurately identify, analyze and restore the damaged cultural relics. For example, it can do a smart safety inspection of the structure of ancient buildings. Intelligently restore the color of ancient painting and calligraphy. Virtual assemble and restore the fragments of cultural relics. This greatly improves the efficiency and accuracy of restoration (Qin & Jia, 2020).

In the process of animation production, AI animation generators can convert text into video quickly and even design they can design the animation style and content according to user requirements. That is, we can use the AI technology to transform intangible cultural heritage elements of Yongjia Furong Village such as story, folk activity, building, handicraft into animated content and show them to the public in a more interesting way as shown in Figure 1. The Furong Pavilion takes the pavilion as the core and water, a small boat and a corridor surround it. Mountains shaped like hibiscus flowers are in the back. It is one of the scenes with best Feng Shui proportion. Therefore, close cooperation between AI and cultural tourism can not only enrich the traveling experience of tourists, but also create new growth points in cultural tourism. fostering innovate development of culture and tourism.



Figure 1: Furong Pavilion

### 3. DIGITAL EXHIBITION DESIGN OF FURONG ANCIENT VILLAGE

#### 3.1. Design Approach for Digital Display

Use internationally advanced digital collection technology and standardized process to systematically record and archive the rich intangible cultural heritage (ICH) carried by Yongjia Furong Village (as shown in Figure 2, design process of digital exhibition of Furong Ancient Village). Firstly, do literature review on Furong Ancient Village, analyze the current situation of Furong Ancient Village and research goal. Secondly, through comparative analysis of development cases of ancient villages nearby, find out their same and different points, and do field research to explore the unique cultural characteristics of Furong Ancient Village. Finally, technical support will be provided to the ancient village and digital animation video is finished.

Use high-resolution photography to record statics. The content is relatively detailed; use professional grade HD/UHD camera to record photo and video. The content includes dynamic process (crafts process, ritual performance, folk activity process, etc.). In addition, more attention shall be paid to multi-camera and multi-angle recording; use high-fidelity sound recording equipment to collect key audio information. The content includes oral history of heritage bearers (as shown in Figure 3, village party secretary is interviewed), recitation of dialect, traditional opera singing, sound effect of ritual, etc.; specific environment sound. (4) Establish central database (as shown in Figure 4, source materials). Establish unified, secure and scalable digital resource center ICH to provide centralized storage and efficient retrieval of various data formats including text, image, audio, video, 3D model and geographic information.

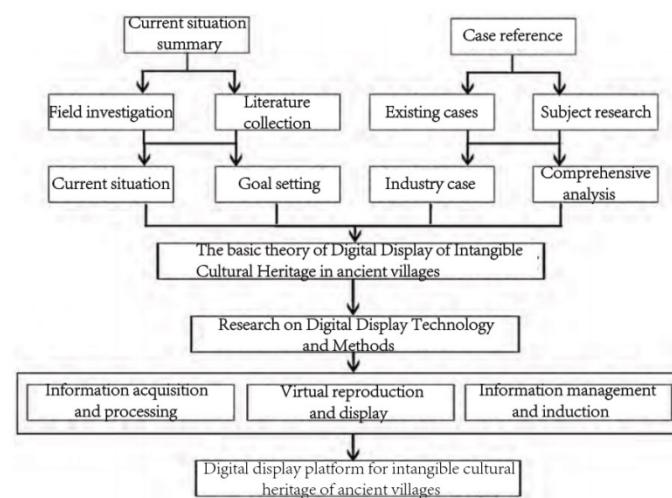


Figure 2: Design Process for the Digital Exhibition of Furong Ancient Village



Figure 3: Interviewing the Village Secretary

Figure 4: Material Establishment

### 3.2. Design and Production of the Digital Exhibition

#### 3.2.1. Synergy of AI Tools

The AI tools used to produce digital animation video of Furong Ancient Village are the latest versions of multimodal large models released this year. Including Manus, Google Veo3, Flow, Gemini, Deepseek, Doubao, etc. (As shown in Figure 5, design concept of digital exhibition of

Furong Ancient Village).

Deepseek for initial text generation (Figure 7 Video prompt word generation): It was responsible for large language models and text generation. Use the historical background of Yongjia's Furong Village and video content requirements to initially generate descriptive sentences for video storyboards. Manus AI (Figure 6 Manus generating video prompts): Rich capabilities in natural language processing, information retrieval, document generation, and task coordination. Write design specification for the whole project. Information retrieval, workflow optimization, task coordination and communication with users. To refine the words generated by Deepseek. Google Veo3 (Figure 8 Core video generation AI): Multimodal understanding and generation. Transform the video description after being refined by Deepseek into video footage, i.e. shot, scene, character, action and style. Flow (Figure 9 Video post-processing and special effects AI): Specialized in fluid video animation, special effects, smooth transition, stylized processing. Refine the video based on what Gemini generates. In strict sense, it can change a stationary picture into a dynamic picture. Doubao (Figure 10 Creative optimization and image generation): Good at multi-turn interactive optimization of script logic, refining the main narrative, and calibrating historical and humanistic content for localization. Assists in generating video copy and story board suggestions.

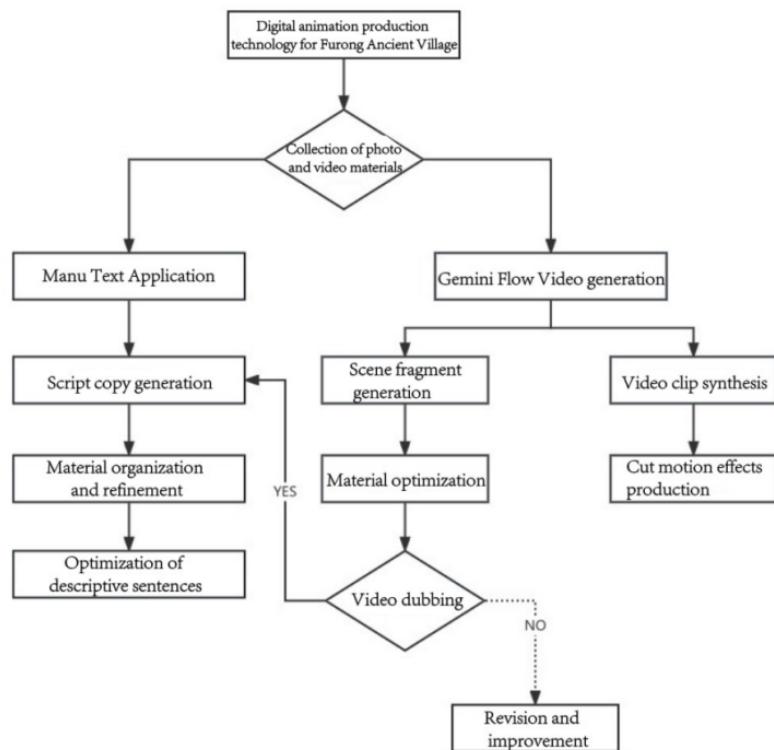


Figure 5: AI tool integration architecture



Figure 6: Manus Generating Video Prompts

Figure 7: Deepseek Generating

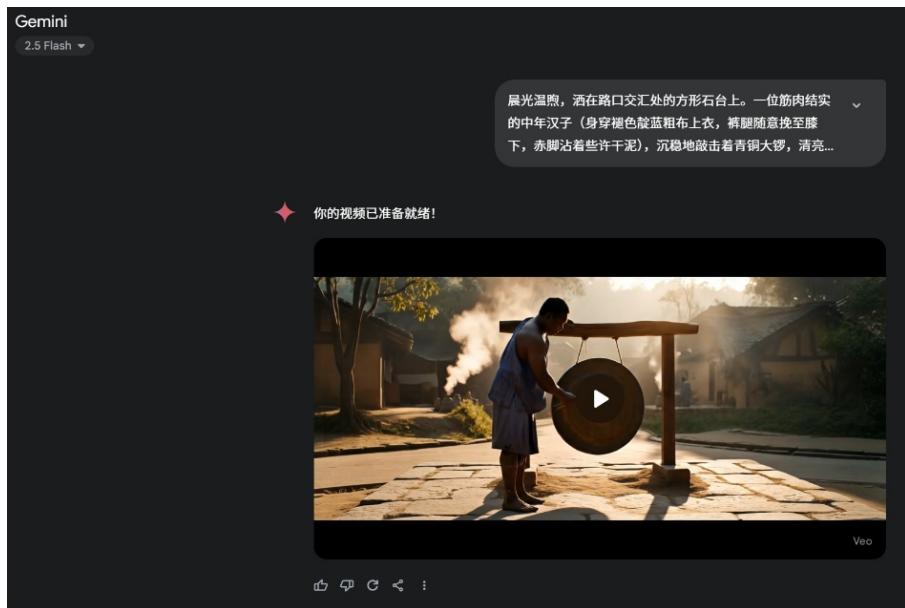


Figure 8: Veo3 Generation Showing the Function of the "Stars" in the "Seven Stars and Eight Dippers" Layout: Transmitting Information

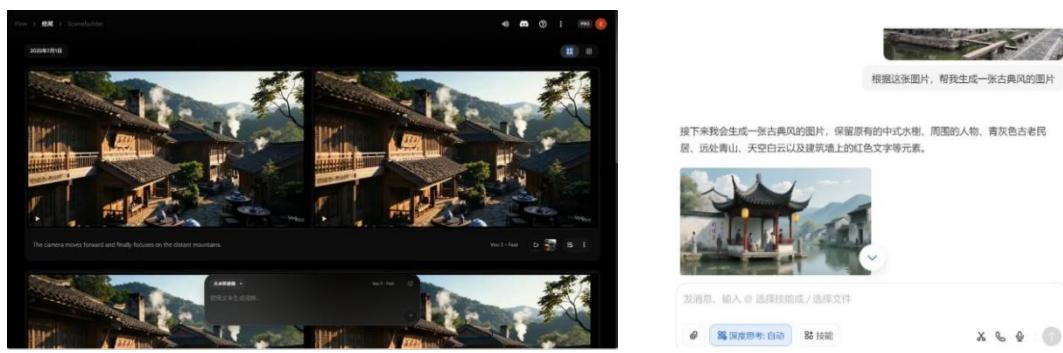


Figure 9: Video Production with Flow

Figure 10: Image Generation by Doubao

### 3.2.2. Application of Text AI

Explain the results of the research in the form of problem-solving analyzed using relevant theories. The results of the study are as follows: Discussion is accompanied by logical arguments

by linking the results of research with theory, the results of other studies.

By inputting the historical data, cultural background, and storylines of Furong Village, Manus generates text content that matches the tone of the project, is linguistically fluent, and is rich in cultural connotation. This greatly improves the efficiency and quality of copywriting.

The video script is divided into four parts: (1) Pioneers and Foundation (Migration of the Chen Clan ancestors to Furong Village and Establishment of the Furong Village in the Tang Dynasty): Showing the scenario of Chen clan ancestors migrating to Furong Village to escape from the trouble of the war and establishing the initial formation of the village at the end of the Tang Dynasty. (2) Flourishing Scenery in Song Dynasty (Prosperous Scene of the Furong Village and the "Seven Stars and Eight Dippers" Layout in the Song Dynasty): Offering a vivid description of the prosperous scene of the Furong Village in the Song Dynasty, especially the unique "Seven Stars and Eight Dippers" layout and its functions. (3) Unyielding Spirit of the Cliff (Resistance Against the Yuan and Tragedy of Furong Cliff): Storytelling of Chen Yuzhi, a Jinshi (a successful candidate in the highest imperial examinations) in "Eighteen Golden Belts", leading his clansmen resist against the southward invasion of Yuan army. Trapped in a corner by the Yuan Army, he refused to live by surrendering and led 800 of his clan members to leap from Furong Cliff. This heroic and tragic behavior created the historical site of the anti-Yuan resistance at Furong Cliff. (4) Passing the Torch (Reconstruction in the Southern Song and New Life): Showing the scene of Furong Village residents rebuilding their houses and living a new life after the wars in the end of the Southern Song Dynasty. Then transitions to modern scenes of cultural tourism (Yongjia Kunqu Opera, the Pottery Museum, the Woodcarving Museum and the Fish Lantern Parade).

When presented with historical literature, local chronicles, intangible cultural heritage materials related to Yongjia's Furong Village, Manus is able to quickly read, extract key information, summarize and refine these materials. This provides accurate and efficient textual material support for the creation of animation content and guarantees the accuracy of historical details. In the process of generating videos, Deepseek first provides descriptive sentences for video generation. Based on this, Manus further polished these descriptive sentences to meet the requirements of video generation tools, while guaranteeing the continuity of the story and artistic quality. This lays a solid foundation for the later AI video generation. Manus can also help to generate text in multiple languages, which is conducive to the future international popularization and promotion of animated works.

### 3.2.3. AI Video Generation

Google Gemini and Flow are the main AI models used to generate videos from textual descriptions. Gemini, serving as Google's core AI model with strong multimodal understanding and generation capabilities, plays a key role in producing video content. Based on the textual descriptions optimized by Manus and the reference images provided by the project, Gemini can generate video backgrounds of the ancient buildings of Furong Village, the natural scenery of Furong Village, as well as the historical streets. This includes the original appearance of the Furong Village in the Tang Dynasty, the busy scene of "Seven Stars and Eight Dippers" layout in the Song Dynasty, and the magnificence and tragedy of Furong Cliff in the Yuan Dynasty. Gemini is responsible for producing the characters in the animation and animating their appearance, expressions and actions in historical contexts, i.e. the migration of ancestors of Chen clan, the

scene of students in Furong Academy, the glorious scene of "Eighteen Golden Belts", and the tragic scene of Chen Yuzhi leading his clansmen to jump into the cliff. are all generated by Gemini in terms of characters' images and movements. By adding detailed historical information, Gemini can produce images of specific historical events or even life scenes and immersing the audience in a rich historical atmosphere in animation. When producing characters and buildings in different periods, inputting Song Dynasty textile pattern database as prompts can make the video clips generated by Gemini overall have artistic consistency. That is, traditional ink wash effect is combined with digital art expression, and the overall video has a uniform digital art effect.

As the video processing tool of Google, Flow produces more expressive and fluent videos on the basis of what Gemini generates Dynamic Effects Enhancement: Flow enhances the dynamic effects in videos, such as the simulation of natural phenomena like flowing water (in the Furong Pond, the "dippers"), clouds, mist, light, and shadow, as well as the smoke and dust effects in battle scenes. The visual effect is greatly enhanced. Smooth Transitions: Flow optimizes the connection between video clips and makes the transition effect more natural and fluent. It makes the narration part jump to the scene in the other historical period more coherent. Artistic Stylization: Flow does some artistic processing on the video footage, such as color correction and filter effect, to achieve the desired artistic effect and ensure the professionalism of the final product (Zhang, 2018).Restoration and Enhancement of Historical Materials: In addition to generating new content, AI is also used to enhance the historical photographs and videos of Furong Village, including image enhancement, color restoration and completion of missing parts. It provides high-quality reference materials for the production of animation and can even be directly used in animation strengthening its historical authenticity.

The system's video generation mainly depends on the underlying technology of Google Gemini and some algorithmic optimizations of Flow at the video processing level. It is safe to say that they use the most powerful AI technology leveraging both Transformer model (responsible for sequential understanding and generation, e.g., text and image features) and Diffusion Models (responsible for high-quality image and video generation). The joint effort of these models enables the generation of complex videos from textual descriptions.

### 3.2.4. Other Integrated Digital Media Technologies

In addition to the AI content generation, further refinements for the digital representations of architectural and cultural relics may be needed, e.g., to further improve the appearance of famous buildings in Furong Village such as ancestral halls using 3D modeling technology.

Design background music, environment effect and voice over for characters to be featured with local color of Furong Village and the feeling of animation, which will greatly improve the immersiveness and expressiveness of the emotion. Although the whole video is mainly generated by AI, we still need to use the traditional video editing software (as shown in Fig. 11, use Jianying to edit video) to fine-tune the clips generated by AI, including precise editing, color correction, adding special effects, etc. to guarantee the professional level of the video. Table 1 The whole process of producing video in detail. The resolution of cover image is 1920\*1088. The resolution of other parts of the video are all 1280\*720. The frame rate is 24 frames/second, and the duration of each video segment is 0.8 seconds. The whole video has 4 major parts with different meanings (details see appendix). In total, there are 24 small parts with varying pacing and the total time is

3 minutes and 25 seconds.

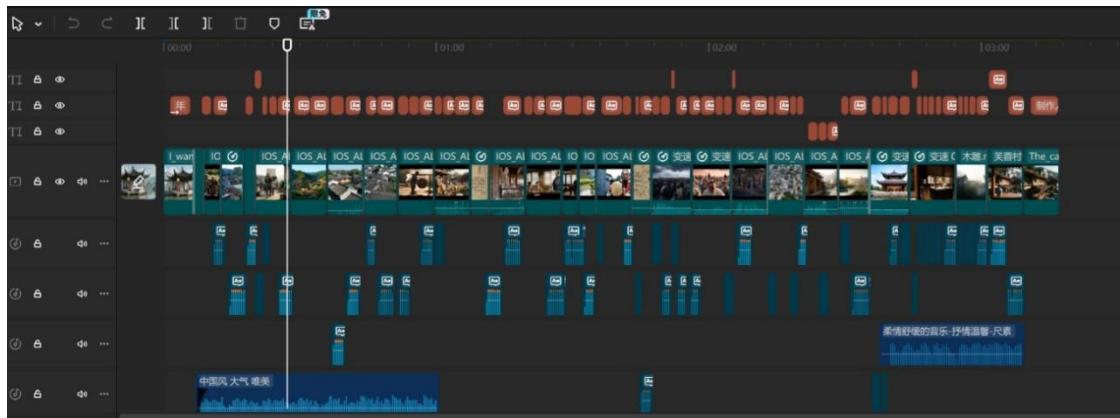


Figure 11: Editing with Jianying

Table 1: Video Clip Parameters

Fragment serial number	Fragment title	Picture	Resolution	Frame rate	Time(s)	Tools
1	Cover		1920*1088	24/s	0.08	Flow
2	Tang Dynasty Furong Village Bird 's-eye view		1280*720	24/s	0.08	Gemini
3	The bustling streets of the Song Dynasty		1280*720	24/s	0.08	Gemini
4	The Seven Stars and Eight Dipper of the Song Dynasty Bird 's-eye view of the layout		1280*720	24/s	0.08	Gemini

5	The Seven-Star Chart		1280*720	24/s	0.08	Gemini
6	The Eight Dipper Chart		1280*720	24/s	0.08	Gemini
7	The square shape of a "star" Platform		1280*720	24/s	0.08	Gemini
8	The ancient well of "Dou"		1280*720	24/s	0.08	Gemini
9	Furong Academy		1280*720	24/s	0.08	Gemini
10	Farming and reading are passed down through generations		1280*720	24/s	0.08	Gemini
11	Shi Qin Studies		1280*720	24/s	0.08	Gemini
12	The Eighteen Jin Dynasties		1280*720	24/s	0.08	Gemini
13	Agricultural cultivation		1280*720	24/s	0.08	Gemini
14	The iron cavalry of the Yuan Dynasty marched southward		1280*720	24/s	0.08	Gemini

15	Jump off a cliff		1280*720	24/s	0.08	Gemini
16	The Road to Reconstruction		1280*720	24/s	0.08	Gemini
17	The brand-new Furong Village		1280*720	24/s	0.08	Gemini
18	Work again		1280*720	24/s	0.08	Gemini
19	Peace and Hope		1280*720	24/s	0.08	Gemini
20	Yongjia Kunqu Opera		1280*720	24/s	0.08	Gemini
21	Ceramic Museum		1280*720	24/s	0.08	Gemini
22	Woodcarving technique		1280*720	24/s	0.08	Gemini
23	Fish lantern intangible cultural heritage		1280*720	24/s	0.08	Gemini
24	Daily tranquility The life		1280*720	24/s	0.08	Gemini
25	Total video		1920*1088	60/s	3:25	Jianying

#### 4. DIGITAL DISPLAY STRATEGY FOR FURONG ANCIENT VILLAGE

##### 4.1. Enhancing the User's Interactive Experience

Use new technologies (VR/AR), digital animation design, social media friendly interactive

methods to help us finely match the young people's preferences for novelty, interaction and sharing (X. Chen, 2018). This will greatly reduce the cognitive barrier of intangible cultural heritage, attract more people to sparks interest in its exploration, and create a new cultural tourism image for Furong Village (both ancient and cool).

Rich and interactive digital experience can extend the time that tourists stay in the village and enhance their naturally encourage them to visit more related scenes (handicraft workshop, themed B&B, special dining, cultural creative store) in the village. The virtuous circle of "online traffic driving offline conversion" is formed (Xu et al., 2024).

By creating immersive environment, interactive controls and game-based incentive mechanism, the experience will change from passive "watching" to interactive "participating" and "creating" (Wang, 2017). Tourist can turn from a passive observer of culture to an explorer, participant and even a temporary "cultural inheritor"). This will help them to gaining a unique and deep experience.

Transforming static digital collection into dynamic interactive cultural experience is an innovative way to help intangible cultural heritage "come alive" and "become popular" in the digital age. This will greatly expand the range and influence of its transmission.

By creating a new digital cultural tourism system connecting online and offline, virtual and real, we not only help tourists gain a high value consumption experience beyond simple sightseeing, which is more attractive than ever before. We also help Furong Village become a powerful example of a destination that uses technology to empower cultural inheritance and lead the new trend of integration between culture and tourism win-win situation in terms of both cultural value and tourism economy.

#### **4.2. Multi-channel, Targeted Dissemination and Promotion**

On Douyin, Bilibili, Xiaohongshu, and WeChat Video Accounts where young people gather, release short digital animation clips and VR/AR experience backstage videos. Use topic marketing, KOL/KOC cooperation and advertising promotion to promote. Release full-length animation, in-depth documentary and digital exhibition hall access on cultural clouds, museum/intangible cultural heritage center official website and professional cultural tourism website to attract cultural enthusiasts and in-depth tourists. Official website/public account/mini-program of Furong Village be optimized to serve as a comprehensive digital gateway, optimize official WeChat public account/mini-program, serve as a digital gateway for intangible cultural heritage, release information, booking products, online experience, community interaction, etc. Dig out the background story of people, history and legends behind the intangible cultural heritage, as well as the emotional connection of intangible cultural heritage. Produce micro-documentary and illustrated story that are easily shareable to trigger resonance. Place an "Intangible Cultural Heritage Knowledge Corner" on communication platform. Offer illustrated interpretation to animation, short pop science explanation to technique, and oral history recording as supplementary learning materials. Participate in national/provincial intangible cultural heritage exhibition, tourism expos and cultural and creative industry fair. Broadcast content in local school, community, library and cultural center, and make cooperative marketing promotion. Cultural

volunteer/guide cultivation: Use digital resources to train local residents to be disseminators and guardians of intangible cultural heritage." Intangible Cultural Heritage Enthusiasts of Furong Village" community should be established on social media to share knowledge, activities, and collect feedback. Promotional display board, promotional video, QR code for product experience reservation should be placed at tourist center, high-speed rail station and airport, partner hotel, and travel agency office. Regularly hold "Intangible Cultural Heritage Theme Day/Workshop" in Furong Village. Digital products (animation, interactive game, etc.) are combined with technique display and production by heritage bearers, and tourists are invited to try simple techniques. Thereby forming an immersive "watch-learn-do" loop.

#### 4.3. Enhancing Commercial Value

Based on the practical experience of digital protection and revitalization of intangible cultural heritage in Yongjia Furong Village, we will explore and summarize a new type of business model in an orderly manner, which is based on "cultural value transformation", empowered by "digital technology", oriented to "multi-party win-win". Ensure that the project can run sustainably and iteratively develop. Finally, summarize and form a replicable and adaptable framework, which is "Furong Village experience". Provide a practical model and decision-making basis for the digital inheritance of intangible cultural heritage and the integration of culture and tourism in similar regions across the country (Zhou, 2002). Completely make full use of the previous digital resource library of intangible cultural heritage, reduce the repeated collection cost; use AI generation and virtual technology, reduce the repeated production cost of certain content (such as animation, scene reconstruction, etc). Develop cultural tourism experience products (such as VR/AR experience tour, interactive game, digital exhibition hall module, etc), design template to be used repeatedly, updated quickly, reduce maintenance and update cost.

Based on membership system, online social network, update content/activities constantly, increase repurchase rate and organic word-of-mouth promotion, reduce customer acquisition cost. Establish profit sharing or joint operation mechanism with local B&B, restaurant, handicraft workshop, heritage bearer, share customer flow and reduce overall operation cost. Establish clear ownership and revenue distribution mechanism for digital ownership, heritage bearer and their descendants can fairly and reasonably own and benefit from the commercialization, which will promote their continued participation to protect and inherit the heritage. Try community cooperative and villagers shareholding with dividends model, residents can enjoy the benefits of development of cultural tourism, enhance cultural pride and sense of responsibility to protect. Cooperate with university and research institute for continuous technological update, deepening content, effectiveness evaluation, rapid transformation of advanced research results into practical application. Build or connect to the regional/national digital platform for intangible cultural heritage and digital cultural tourism, achieve resource sharing, customer flow integration, and brand synergy.

### 5. CONCLUSION

Adopt a multi-advanced AI collaboration model, systematically integrate advanced artificial intelligence tool such as Manus (Text AI), Deepseek (video description sentence generation), Google Gemini (core video generation AI), Flow (video post-production and special effects AI) into digital restoration and animated presentation of local cultural context. This new working

mode of multiple AI collaboration has improved the efficiency of content production, and opened up more possibilities for the digital expression of traditional culture. Try the art and technology exploration of using AI technology to inherit the intangible cultural heritage and promote the cultural revitalization. Through AI's precise restoration and vivid interpretation of historical scenes, figures, and events, dormant historical culture can be "brought to life" and presented to the public more attractively. Successfully bridging the gap between traditional culture and contemporary audiences. As a medium with strong universality and high acceptance, animation can effectively attract the attention of the younger generation, inspire their affection for and identification with excellent traditional Chinese culture, and achieve the effective dissemination and inheritance of culture.

#### CONFLICT STATEMENT

The authors declare no conflict of interest. Some of the data is derived from interview records with the secretaries of the ancient villages.

#### COOPERATION STATEMENT

All authors contributed equally to this work and approved the final manuscript.

#### REFERENCES

Chen, X. (2018). Analysis of technology integration and application innovation trends in the digital economy era. *Journal of Central South University (Social Science Edition)*, 24(5), 1–8.

Chen, Z. (1999). *Ancient villages in the middle reaches of the Nanxi River*. SDX Joint Publishing Company.

Deng, L. (2008). The influence of scholar culture on the spatial construction principles of ancient villages in Nanxi River. *College of Architecture and Urban Planning, Tongji University*, 6, 68–69.

Ding, W. (2005). *Architectural environment and Chinese home concepts*. Donghua University Press.

Feng, L., Wang, N., & Zhang, W. (2023). Research on the intelligent intangible cultural heritage inheritance platform integrating VR+AI. *Economist*, 7, 197–199. <https://doi.org/10.3969/j.issn.1004-4914.2023.07.091>

Hara, H. (2005). *100 lessons from world settlements*. China Architecture & Building Press.

Hu, N. (2001). Thoughts on the characteristic value and its protection and utilization of Furong ancient village in Nanxi River. *Small Town Construction*, 9, 65–70.

Qin, J., & Jia, R. (2020). Innovative design research of artificial intelligence in intangible cultural heritage: Taking cloisonné as an example. *Packaging Engineering*, 41(6), 1–6.

Shi, Y. (2019). From "exodus" to "return"—The development course of China's traditional villages. *Urban and Rural Development*, 22, 6–13.

Shi, Z. (2004). *A preliminary study on the ecological technology of traditional dwellings in Jiangnan*. Jiangnan University. <https://doi.org/10.7666/d.w029083>

Wang, H. (2017). *Fundamentals and applications of multimedia technology*. Tsinghua University Press.

Xu, J., Zhu, G., & Chang, Z. (2024). The application of artificial intelligence in the inhe

ritance of intangible cultural heritage. *Beauty & Times (Urban Edition)*, 8, 117–119.

Zhang, A. (2018). A study on the visual design translation of intangible cultural heritage. *Packaging Engineering*, 39(20), 121–125.

Zhou, G. (2002). A study on the development strategy of historical and cultural tourism in the ancient villages of Nanxi River. *Journal of Heilongjiang Land Reclamation Teachers College*, 10(2), 10–10.