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Innovative Research on the Model Innovation of Cultural Tourism Content Production Based on Artificial Intelligence

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Abstract

At present, China's cultural tourism industry is in a critical period of transformation and upgrading. Cultural tourism consumption has shifted from simple sightseeing to a new stage focusing on cultural experience, local characteristics and personalized leisure. High-quality cultural tourism content is not only the core support for attracting tourists and building local cultural tourism brands, but also an important carrier for inheriting regional historical context and activating intangible cultural heritage and folk custom resources. The traditional model of cultural tourism content creation relies mostly on manual planning, copywriting and offline production, which is time-consuming, costly and prone to solidification. With the popularization of digital technology, artificial intelligence has gradually entered various scenarios of cultural tourism, providing a new feasible path for the innovation of content creation. This paper focuses on the model innovation of artificial intelligence empowering cultural tourism content production, sorts out the application status, analyzes the root causes of existing problems and puts forward improvement ideas, which is of practical significance for promoting the digital upgrading of the cultural tourism industry and realizing the sound development of cultural inheritance and tourism industry.

Keywords

Artificial Intelligence, Cultural Tourism, Content Production, Model Innovation, Human-Computer Collaboration

1. Introduction

China's cultural tourism industry is now at a key stage of transformation and upgrading. Cultural tourism consumption has gradually changed from simple sight-

seeing to a new stage that emphasizes cultural experience, local characteristics and personalized leisure. High-quality cultural tourism content is not only the core support for attracting tourists and building local cultural tourism brands, but also an important carrier for inheriting regional historical context and activating intangible cultural heritage and folk custom resources. Improving the construction of cultural tourism content has become an inherent demand for industrial development.

In the traditional model, cultural tourism content creation mostly relies on manual planning, copywriting and offline production, which is time-consuming, costly and prone to rigid thinking. The excavation of local history, folk culture and intangible cultural heritage elements is often insufficient, resulting in similar promotional content, tour guide services and cultural and creative designs, lacking unique regional identification, which is difficult to meet the diverse and high-quality consumption needs of tourists. The industry urgently needs a new breakthrough in content production.

To clarify the analytical scope of this paper, the core concepts are defined as follows. "Cultural tourism content production" refers to the creation and reproduction of various information, symbols, and experiential products for cultural tourism activities, including promotional videos, guide narrations, and cultural and creative goods. "Model innovation" in this study specifically denotes a shift from the traditional linear model driven by human creativity and experience to a new paradigm centered on data, powered by AI tools, and characterized by human-AI collaboration. "Human-AI collaboration" means a clear division of labor in the production process: humans (e.g., cultural experts, designers) are responsible for value judgment, creative direction, and final review, while AI handles data processing, draft generation, and efficiency optimization.

With the continuous popularization of digital technology, artificial intelligence has gradually entered various application scenarios of cultural tourism, providing a new feasible path for the innovation of cultural tourism content creation. By means of intelligent creation, digital human interaction and cultural element decomposition design, the shortcomings of low efficiency and single creativity in traditional creation can be effectively compensated. However, in the actual implementation, problems such as distorted cultural interpretation, homogeneous content style and excessive pursuit of commercial traffic have also emerged.

Based on the practical needs and existing contradictions of industrial development, this paper conducts research on the model innovation of artificial intelligence empowering cultural tourism content production, sorts out the practical application status, analyzes the root causes of existing problems and puts forward improvement ideas, which is of practical significance for promoting the digital upgrading of the cultural tourism industry and realizing the sound development of cultural inheritance and cultural tourism industry.

2. Literature Review

This section begins with a brief methodological explanation of the literature and

case selection process. The literature review focuses on peer-reviewed Chinese-language studies published between 2025 and 2026 that directly address AI applications in cultural tourism content production. Three representative application scenarios, intelligent promotional video generation, virtual digital human guides, and cultural and creative product design, were selected because they cover the core domains of cultural tourism content and represent the current mainstream areas of AI commercialization. The cases discussed within each scenario were chosen based on their typicality, availability of verifiable information, and diversity of cultural contexts.

1) Application paths and scenario exploration

Liu Ruru believes that generative artificial intelligence has penetrated into the cultural tourism industry and played an increasingly important role. She focuses on the application paths of relevant technologies in the integration of culture and tourism and the construction of immersive scenes (Liu, 2025). Song Yanyan and Wang Fang point out that a digital museum guide platform designed based on virtual simulation technology can improve the existing online guide structure, integrate dynamic generation of virtual scenes and human-computer interaction functions to enhance users' immersive exhibition experience, providing a reference for the digital transformation of traditional museums (Song & Wang, 2025).

2) Technical solutions and content quality control

Wan Tongjiao and Li Sixuan aim at the pain points of large language models in producing cultural tourism content, such as factual errors, similar creativity and difficult control of content quality. They have built an intelligent generation system of cultural tourism content with multi-agent collaboration, forming a closed-loop mechanism of "generation-evaluation-identification-optimization". Verified by real cultural tourism scenarios, it can significantly improve content authenticity, creativity and quality stability, providing technical solutions and practical references for a new high-quality, efficient and standardized production mode of cultural tourism content (Wan & Li, 2026).

In summary, domestic scholars have carried out relevant research on artificial intelligence empowering cultural tourism content production from the perspectives of application scenarios, innovation paths and production methods. However, the existing results lack systematic sorting of application innovation, incomplete induction of practical problems, and supporting optimization strategies need to be improved. Therefore, the following part will specifically analyze the application innovation and existing problems of artificial intelligence in cultural tourism content production, and put forward corresponding optimization suggestions.

3. Application Innovation of AI in Cultural Tourism Content Production

Based on specific cases, this section investigates in detail the role of AI in cultural tourism content production from three main scenarios: intelligent generation of cultural tourism promotional videos, virtual digital human guides, and cultural

and creative product design. These three scenarios were selected because they represent the core links of audiovisual communication, interactive services, and physical consumption in cultural tourism content production, and are currently the most commercially mature areas of AI application. Figure 1 presents the technical workflow of AI in cultural tourism content production. It also analyzes the principles and advantages of human-AI collaborative production.

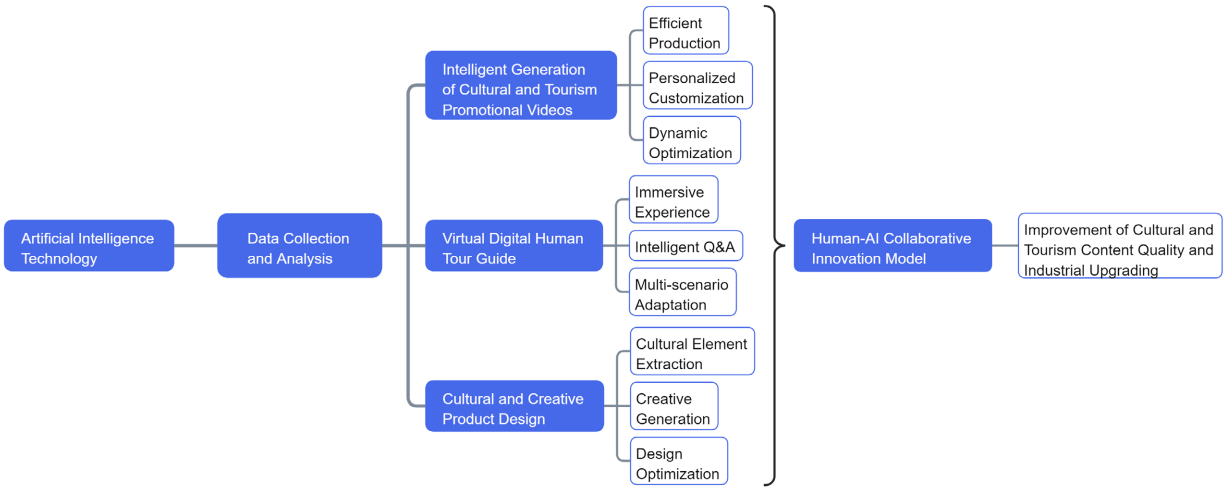

Figure 1. AI technical flowchart.

3.1. Intelligent Generation of Cultural Tourism Promotional Videos

Embedding AI into the creation of cultural tourism promotional videos can enhance the emotional atmosphere and artistic appeal of city promotional videos, allowing audiences to genuinely feel the historical and cultural heritage. It can also incorporate local characteristics and creativity to enrich visual effects, and tailor personalized creations based on the city's traits and audience needs, comprehensively displaying local charm (Lu et al., 2025).

In terms of production workflow, fully intelligent production can greatly simplify manual steps, increase efficiency, adapt to various promotional scenarios, and strengthen the atmospheric and cultural immersion of the video. Currently, AI-assisted production of cultural tourism promotional videos generally follows a data-driven, intelligent synthesis approach. The whole process can be divided into three parts: data collection and analysis, intelligent script generation, and intelligent video synthesis. In practice, data such as scenic spot images, local historical records, local chronicles, and online tourist reviews are first collected through AI crawlers and public data channels. Then, computer vision technology is used to sort and classify image materials, while natural language processing extracts cultural keywords and regional characteristic elements from textual materials, building a dedicated cultural tourism material repository. With this resource base, the system automatically generates a complete script including copy, shot sequence, background music, and voiceover, taking into account public aesthetic prefer-

ences, platform characteristics, and promotional themes. The narrative style can be flexibly adjusted according to local cultural characteristics, for example, historical landscapes like the Qilou buildings in Lingnan are more suitable for a humanistic, nostalgic expression, avoiding hollow content. For image production, generative AI tools such as Midjourney and Runway are commonly used to automatically generate images according to the script, and speech synthesis technology is used to record suitable voiceovers. Later steps such as editing and color grading can also be completed with one click, greatly shortening the production cycle of promotional videos (Xie & Yang, 2025). Industry reports and case studies indicate that using the above AI process can compress a traditional production cycle of weeks or months to just hours or days; the efficiency improvement claims in this section are based on such empirical evaluations.

Furthermore, another prominent advantage of AI in creating cultural tourism promotional videos is that it completely breaks away from the stereotyped pattern of traditional promotional content. In terms of innovation advantages, AI can be used to generate precise, customized content based on the regional characteristics and cultural heritage of different cities and cultural tourism landmarks, as well as the preferences, age groups, and aesthetic tastes of various audience segments. Whether it is a classic promotional style suitable for the general public or a fast-paced, trendy short-video format favored by younger audiences, AI can flexibly produce them. It can also incorporate current hot topics and support social interaction, so that cultural tourism promotion is no longer rigidly uniform, but truly tailored to people and places, greatly enhancing the appropriateness and dissemination effectiveness of the promotion.

3.2. Virtual Digital Human Guides

Virtual digital human guides represent a new combination of AI and cultural tourism guidance. Using technologies such as 3D modeling, speech synthesis, and natural language processing, they create virtual guide images with human-like features, making guide services more intelligent and immersive.

The innovation of virtual digital human guides can be seen mainly in three aspects.

To begin with, innovation in appearance, the virtual guide can be designed to embody the unique cultural temperament of a locality, incorporating local costumes, folk customs, and cultural symbols to create a strong sense of identity and realism. Many scenic spots recreate historical figures as virtual agents; the "Zuo Zongtang AI Agent" is a typical example.

Next, functional upgrades, beyond simple commentary, virtual guides can answer questions intelligently, customize narration content, and plan tour routes. Tourists can converse directly with the virtual digital human; the system responds to queries in real time and can adjust the tour sequence based on visitor preferences, truly providing on-demand service. Moreover, its interaction model is completely different from traditional guides, and it is very flexible in application

scenarios. It can be used on-site at scenic spots, in online exhibitions, or on short-video platforms, connecting online and offline guidance services. Tourists can access scenic area information at any time through mini-programs, short videos, holographic projections, AR, and other means.

Finally, innovation in the visitor experience: this new interactive method also narrows the distance between scenic spots and tourists, enhancing the overall immersive travel experience.

To ensure that virtual digital human guides provide accurate, reliable services, the support of large AI models is essential. Taking Jilin's regional culture as an example, a dedicated small cultural tourism model was built locally, integrating seasonal views of Changbai Mountain, the formation of rime, Korean folk customs, and other local cultural tourism resources. This ensures that the guide content is professional and matches the regional characteristics. When tourists ask questions about tourism in Jilin, the system gives priority to local data for answers, effectively avoiding distorted or false information. This approach, which integrates general large models with cultural tourism-specific small models, offers a valuable technical reference for the local promotion and application of virtual digital human guides. The effectiveness of this case in improving guidance accuracy is mainly based on technical white papers and some media field reports, representing preliminary practical evidence.

3.3. Cultural and Creative Product Design

As cultural tourism content production increasingly moves toward intelligent upgrading, cultural and creative products themselves are a crucial link in cultural dissemination and tourism consumption. They also need to leverage AI to improve efficiency, enhance the expression of regional characteristics, and meet diverse market demands. The value of AI in cultural and creative design is mainly reflected in three areas.

One key aspect is the intelligent extraction of cultural elements. Using computer vision, big data analysis, and other technologies, local traditional patterns, folk motifs, ancient artifact styles, and various intangible cultural heritage techniques are organized. Through digital recording and knowledge graph mapping, usable design elements such as shapes, colors, and decorations are selected, laying the foundation for subsequent creative work.

Another important function is the intelligent generation of creative ideas. Based on the organized cultural materials and combined with current aesthetic trends and market consumption preferences, AI can directly produce product shapes, patterns, and color schemes. These can be flexibly adjusted according to usage scenarios, target audiences, and budget. A collaboration between Guangxi Tourism Investment Group and Evolution Intelligence (He, 2025) is a good example: using AI, they combined the classic patterns of Zhuang brocade with modern aesthetics to launch cultural and creative products with local identity, providing new ideas for the contemporary expression of traditional culture.

A third value lies in design optimization based on feedback. AI can integrate market reputation and public evaluations to adjust the complexity of patterns and overall color matching in a timely manner, aligning with ordinary people's aesthetic habits. This gradually creates a virtuous cycle of design and adjustment.

On this basis, the integration of AI design with flexible supply chains enables rapid connection from design to production, greatly shortening the production cycle. Evolution Intelligence's AI design service can increase the speed of cultural and creative design by 90%, and its flexible supply chain, covering more than 2000 partner factories nationwide, can shorten the production cycle by 70%. These data on efficiency improvement are directly cited from corporate publicity materials and related news reports, representing cutting-edge commercial practices but requiring independent academic evaluation for validation. This allows local cultural tourism to create distinctive cultural IPs at low cost and high efficiency, solving the problems of long production cycles and high costs typical of traditional cultural and creative product development.

3.4. Summary of the Innovation Model

AI is driving a new model of cultural tourism content production characterized by data as the core, human-AI collaboration, and closed-loop optimization. This model differs significantly from traditional production models. To clearly show the differences between the two models, a comparison table is provided below (Table 1).

Table 1. Summary of the innovation model.

Comparison dimension	Traditional cultural tourism content production model	AI-empowered cultural tourism content production model
Core driver	Manual creativity, experience-driven	Data-driven, technology-driven
Production efficiency	Low, long cycle (months)	High, short cycle (hours to days)
Degree of personalization	Low, standardized supply	High, personalized customization, precise matching
Depth of cultural exploration	Limited, relies on manual discovery	Deep, multidimensional data mining of cultural elements
Interactivity	Weak, one-way communication	Strong, two-way interaction, real-time feedback
Cost investment	High, high labor and equipment costs	Low, reduces repetitive labor costs
Innovation capability	Limited, prone to homogenization	Strong, diversified creative generation

3.5. Applicability Limitations of AI

Despite the strong potential demonstrated by the above cases, it is necessary to recognize that AI's applicability in the cultural tourism field is not unlimited. First,

AI is highly dependent on structured data and clear rules; it struggles with cultural interpretation that relies on unstructured knowledge, tacit experience, and intuitive judgment. Second, in complex scenarios requiring deep empathy and dynamic interaction, such as comforting guide services, emotional support during crises, AI's mechanical nature appears rigid and cannot replace the warmth and adaptability of human guides. Finally, for sites carrying heavy historical memory or high sanctity, completely AI-generated content may raise ethical concerns; such scenarios still require strong human-led interpretation. Clarifying these limitations helps to adopt a rational view of AI's role and avoid technological determinism.

4. Analysis of Problems in AI-Driven Cultural Tourism Content Production

While AI brings efficiency improvements and expands the boundaries of cultural tourism experiences, problems such as cultural connotation alienation, homogenization of cultural expression, and deviation of cultural value orientation have gradually emerged during actual implementation. Figure 2 illustrates the main problems and risks associated with AI-driven cultural tourism content production.

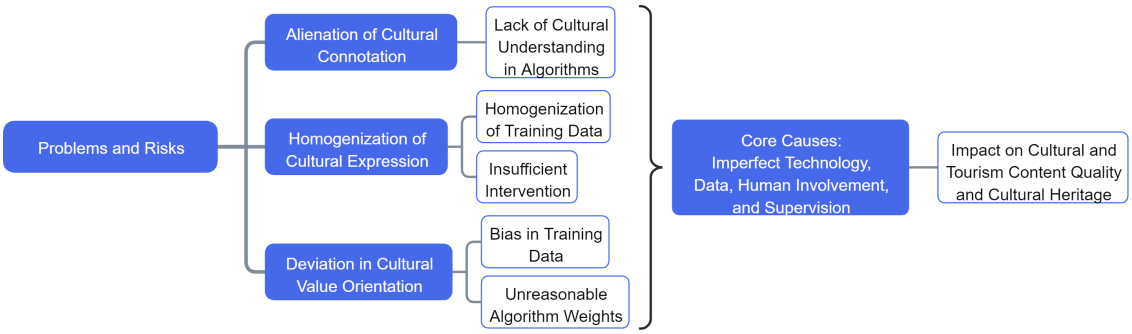

Figure 2. Problem and risk flowchart.

4.1. Cultural Connotation Alienation

AI-generated cultural tourism content often captures only the superficial forms of culture, failing to reach deeper meanings. Factual and common-sense errors are common.

On the stone tablet of the Yaotou Kiln Ancient Town in Weinan, Shaanxi Province, the "Ode to Yaotou Kiln" had the signature "DeepSeek" directly. This AI-written text was publicly displayed in the scenic area for nearly a year, sparking public discussion about the seriousness of humanistic expression (Liang, 2026). In an early AI curation experiment at the Nasher Museum in the United States, the system fabricated non-existent artworks from the museum's collection and produced a fake exhibition list (Xiong & Chen, 2025). Problems such as training data bias and algorithmic black boxes mean that AI output is often inaccurate or

completely wrong (Wei, 2025). Cultural connotations are simplistically deconstructed and alienated; cultural heritage that should be treated with rigor and respect is reduced to arbitrarily combinable graphic materials. The value of cultural inheritance that cultural tourism content should bear is thus undermined.

The deeper causes can be analyzed from three perspectives: data foundation, algorithmic mechanisms, and machine capabilities.

Starting with the data level, most of the training materials currently used in the industry are scattered, raw graphic and textual materials. There is a lack of targeted annotation by professional cultural researchers regarding contextual background, key historical facts, and folk taboos. As a result, there is no truly standardized dataset suitable for deep cultural applications.

Moving to the algorithmic mechanism level, AI learns by capturing co-occurrence patterns among different elements in massive data. It only performs shallow feature matching and struggles to grasp the historical context and humanistic depth embedded in folk traditions and regional symbols.

Finally, at the machine capability level, machines lack human-like critical thinking and fact-checking habits. When generating content, they do not distinguish truth from falsehood or actively verify historical facts. They mechanically replicate common surface associations present in the data.

The combination of these factors is the deep-seated reason why AI misinterprets culture and distorts its expression.

4.2. Homogenization of Cultural Expression

Cultural tourism projects from different regions and cultural backgrounds produce promotional and design styles that are highly similar, gradually erasing the unique character and cultural identity of each place. This homogenization is quite evident in content forms.

In terms of visual imagery and copywriting, AI-generated promotions for ancient towns universally adopt old streets, flowing water, red lanterns, slow-motion shots, and classical music. The copywriting focuses on phrases like "millennium ancient town," "idyllic life," and "poetic dwelling". Whether it is a water town in the south of the Yangtze River, an ancient town in the north, or a characteristic town in the southwest, the visual feel and textual expression are almost indistinguishable.

In the field of cultural and creative product design, AI-involved outputs mostly imprint traditional symbols onto everyday objects. What sells in scenic spots are mobile phone cases, bookmarks, and umbrellas engraved with patterns; museums print artifact motifs on canvas bags and keychains. There is little creative transformation that aligns with contemporary aesthetics. The design expressions of intangible cultural heritage and cultural relics are becoming increasingly similar.

As for virtual IP images, most scenic spots' digital guides adopt a rigid, ancient scholar image. Their language style, explanation logic, and interaction techniques are largely the same, failing to create a distinctive local IP memory.

In essence, AI lacks genuine cultural creativity; it merely replicates mature paradigms that have been validated in the market, dragging cultural tourism content creation into a low-level cycle of reproduction.

The root of this homogenization lies in AI's training logic. On one hand, during learning, the model naturally tends toward patterns that appear more frequently, fixing well-known traditional landscapes and cultural symbols into standard templates. It ignores unique cultural details of different regions and minority groups, inherently limiting the space for diverse innovation. On the other hand, AI's "creative" method essentially involves splitting and splicing elements from existing high-quality works. It cannot actively explore cultural cores and then reconstruct them in modern expressions like human creators can. Over time, it abandons differentiation and clings to safe, mature frameworks, constantly repeating itself, and homogenization becomes increasingly severe.

4.3. Deviation of Cultural Value Orientation

When AI models are iteratively optimized, the cultural tourism content they produce generally prioritizes traffic and market appeal, weakening cultural heritage, historical accuracy, and spiritual substance. This deviates from the core mission of cultural tourism, which is to educate and cultivate through culture. This deviation is clearly reflected in various aspects of content production.

In content selection and traffic allocation, AI-made cultural tourism short videos often deliberately chase after popular check-in spots, photogenic angles, and niche places that look good in pictures, while downplaying core content such as historical explanations, folk custom introductions, and intangible cultural heritage skills. When tourists are surrounded by such content for a long time, their experience is gradually reduced to taking photos and checking in; cultural reflection and spiritual experience are noticeably compressed.

In the relationship between commercial and public-interest aspects, commercial demands persistently crowd out the public-interest nature of cultural tourism. AI-generated promotional content tends to highlight tickets, consumption, dining, and paid experiences, while paying little attention to public cultural services, heritage protection, and popular science. Cultural tourism promotion gradually turns into pure commercial marketing.

In historical narrative, the entertainment of historical content has become increasingly prominent. When recreating historical figures or ancient scenes, AI often alters images, fabricates plots, and playfully narrates history just to attract attention. This deviation is not simply a matter of inappropriate style; it reflects that AI's technical logic overrides cultural logic, gradually reducing cultural tourism content to an appendage of commercial traffic.

To understand the roots of this value deviation, we can analyze from three dimensions: data ecology, optimization objectives, and value judgment. From the data ecology perspective, the structure of publicly available online resources is inherently unbalanced. Entertainment content is abundant, while serious cultural

heritage materials and academic research are limited. AI passively replicates this data distribution, so its creative tendency naturally leans toward entertainment. From the optimization objective perspective, AI only optimizes around quantifiable metrics such as traffic, interaction, and conversion. However, the cultural creation values of historical accuracy, respect for ethnic cultures, and transmission of spiritual values cannot be measured by data and thus hardly enter the model's optimization scope. Finally, from the value judgment capability perspective, machines have no formed historical cognition or humanistic ethical boundaries. They cannot distinguish between the appropriate uses of authentic historical records versus artistic interpretation. They lack the sense of reverence necessary for cultural creation and can only imitate existing expression patterns. These three dimensions reinforce each other, and over the long term, cultural imbalance and value orientation deviation are almost inevitable.

5. Optimization Suggestions for AI-Empowered Cultural Tourism Content Production

In response to the problems and risks of AI in cultural tourism content production, this paper proposes optimization suggestions from four aspects: technology improvement, data construction, human-AI collaboration, and regulatory enhancement. The optimization suggestions in this section are designed to directly correspond to the three major problems analyzed in Section 4. The goal is to achieve deep integration of AI with cultural tourism content production, avoid related risks, and promote high-quality development of cultural tourism content. Table 2 provides a matrix matching each identified problem with the corresponding optimization suggestions presented in Section 5.

Table 2. Problem-Solution correspondence matrix.

Problem	Specific manifestations	Corresponding optimization suggestions and subsection
Cultural connotation alienation	Historical errors, common-sense mistakes, superficial cultural representation	5.1 Optimizing the technical system; 5.2 Improving the data system
Homogenization of cultural expression	Similar promotional visuals, design styles, virtual IP images across regions	5.2 Improving the data system; 5.3 Establishing a sound human-AI collaboration mechanism
Deviation of cultural value orientation	Prioritizing traffic over heritage, over-commercialization, entertaining history	5.3 Establishing a sound human-AI collaboration mechanism; 5.4 Enhancing the regulatory system

5.1. Optimizing the Technical System

Technical limitations are an important factor causing cultural connotation alienation and content distortion. Technological iteration is needed to improve AI's ability to understand cultural connotations.

Initially, at the algorithmic transformation level, continuously promote algorithm innovation to shift AI algorithms from a data-statistical type to a culture-understanding type. Use natural language processing, computer vision, knowledge graphs, and other technologies to build models with cultural understanding capabilities. Integrate regional cultural knowledge, historical background, folk customs, and other information so that AI can truly grasp the meanings behind culture, preventing cultural misinterpretation.

Next, at the data annotation and context construction level, integrate training datasets professionally annotated by cultural experts. Establish correspondences between cultural connotations and application contexts to improve the model's accuracy in interpreting local culture.

Furthermore, at the generation precision level, focus on improving the precision and logic of content generation, reducing detail distortion. Explore directions such as multi-model integration and manual-annotation improvements to enhance the detailed depiction ability in cultural tourism promotional videos and cultural and creative designs.

Finally, at the application deployment level, rely on diverse scenarios such as museums, historical ancient towns, and intangible cultural heritage theme parks to advance technology pilots. Accumulate problems and solutions through real-world operation, continuously refine technical solutions, and steadily improve actual effectiveness and scenario adaptability.

5.2. Improving the Data System

Data is the carrier of AI-driven cultural tourism content production. Data quality and richness directly determine content quality and innovation. Current training data in the cultural tourism field is fragmented, repetitive, and lacks context. Improvements are urgently needed from multiple dimensions.

To begin with, establish a unified data standard system that sets rules for the collection, organization, storage, and sharing of cultural tourism data, specifying the scope, standards, and procedures for data collection.

Next, systematically organize and annotate existing historical documents, local chronicles, and cultural symbols to form high-quality datasets with cultural connotations and context.

Additionally, expand the scope of data collection, focusing on collecting text and image resources related to niche cultures, local characteristic cultures, and intangible cultural heritage. Process and augment them to avoid content homogeneity caused by identical data, enabling AI to create cultural and creative products with stronger unique characteristics and local cultural flavor.

5.3. Establishing a Sound Human-AI Collaboration Mechanism

Establish a sound human-AI collaboration mechanism that highlights the leading role of humans in grasping cultural connotations, guiding creativity, and reviewing content, so that humans and AI complement each other's strengths.

First of all, clarify division of labor boundaries. AI should handle repetitive tasks such as data processing, first-draft generation, and basic editing. Humans are responsible for controlling cultural cores, adjusting creative directions, and final content review. This ensures that the generated cultural tourism content conforms to cultural connotations and value orientations. Humans should also modify AI-generated scripts for promotional videos and adapt to modern aesthetic and market needs, improving the design quality of AI-created cultural and creative products. Promote the integration of technology and culture, ensure that people use AI applications correctly, and prevent cultural risks.

Moreover, to make this collaboration work smoothly, process regulations alone are insufficient; talent reserves are needed. Universities can offer interdisciplinary courses on AI and cultural tourism to cultivate compound talents with both technical skills and cultural literacy.

In addition, at the review system level, establish a joint review panel composed of cultural experts and technical professionals. Assess AI-generated content from dimensions such as cultural authenticity, value orientation, and creativity. For content like scenic area narrations and intangible cultural heritage videos, strictly examine the accuracy of cultural connotations and resolutely prevent the dissemination of vulgar or distorted content.

5.4. Enhancing the Regulatory System

A robust regulatory system can effectively prevent various risks that arise when AI is used to produce and disseminate cultural tourism content.

One crucial measure is to formulate industry standards that specify the standards, responsible entities, and review requirements for AI in cultural tourism content production. Set norms for the cultural authenticity and value orientation of AI-generated content, and prohibit the release of vulgar, distorted, or value-deviated cultural tourism content. Aim to establish industry standards for AI-generated cultural tourism content, stipulating that AI-generated content must be cultural in nature and cannot be published without human review.

Another key action is to strengthen the supervision of AI cultural tourism content production and dissemination by cultural tourism departments and cyberspace administrations. Guide cultural tourism enterprises and technology providers to establish a correct view of cultural development, adhere to cultural bottom lines, and standardize AI applications. Hold legally responsible persons accountable in cases of serious impact.

A further important step is to enhance industry self-discipline. Encourage cultural tourism enterprises and AI technology companies to establish a correct view of cultural development, adhere to cultural bottom lines, consciously avoid cultural risks, and proactively regulate AI application behaviors. Make cultural heritage the primary purpose of AI-driven cultural tourism content production, avoiding excessive use of AI technology just to chase traffic and commercialization. Cultural tourism enterprises can create internal self-regulation mechanisms to manage AI content production, thereby ensuring the cultural quality and value

orientation of the content.

6. Conclusion

This paper, set against the background of the cultural tourism industry's transformation from sightseeing tours to in-depth cultural experiences, systematically explores the innovative models, underlying problems, and optimization paths of AI-empowered cultural tourism content production. The main contributions of this study are threefold. First, it constructs a complete analytical framework of "application innovation, problem analysis, and optimization suggestions", moving beyond a single technical or risk perspective. Second, through specific cases, it distills a new production paradigm characterized by data driving, human-AI collaboration, and closed-loop iteration. Third, it categorizes the cultural risks induced by AI into three types: connotation alienation, expression homogenization, and value orientation deviation, and analyzes their respective technical and social roots.

The research confirms that AI can significantly shorten creation cycles and enhance personalized supply capabilities, but the other side of its efficiency advantage is the systematic emergence of cultural risks. The main risks include: cultural misinterpretation due to data and algorithm limitations; erasure of local characteristics due to the model's preference for popular paradigms; and a tilt toward commercialization and entertainment due to optimization objectives overly reliant on quantifiable traffic metrics. The crux of these problems is that technical logic overrides cultural logic.

To address the above risks, this paper proposes a four-pronged coordinated optimization scheme. Future research could explore the following directions: first, conduct longitudinal studies to evaluate the dynamic effects and cost-benefit of human-AI collaboration mechanisms in real-world cultural tourism projects; second, develop more nuanced cultural metrics and attempt to incorporate them into AI's optimization objective functions to balance traffic and cultural value; third, compare the acceptance and risk differences of AI-generated content across different cultural backgrounds.

Looking to the future, AI can only serve as an augmenting tool in cultural tourism content production, not as a replacement for cultural narrative. Only by achieving a dynamic balance between technical sharpness and humanistic warmth can digital technology truly serve the deep exploration and creative transformation of local cultural heritage, playing a lasting positive role in telling regional stories and continuing the spirit of Chinese aesthetics.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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