Analyze the Future form of AI Spreading Chinese Opera Video

Yang Yuejia[1]*, Lee KuokTiung[b], Ng Wei Liang[c]

[a]Universiti Malaysia Sabah, Communication Department, Faculty of Social Sciences & Humanities, 88400 Kota Kinabalu, Sabah, Malaysia, [b]Universiti Malaysia Sabah, Communication Department, Faculty of Social Sciences & Humanities, 88400 Kota Kinabalu, Sabah, Malaysia, [c]Universiti Malaysia Sabah, Communication Department, Faculty of Social Sciences & Humanities, 88400 Kota Kinabalu, Sabah, Malaysia

Abstract
AI Artificial Intelligence is increasingly being used in all aspects of life, and AI is also being used in traditional Chinese opera. This paper collects the current application of AI in current drama videos from the aspects of AI video repair, drama script generation, VR watching drama and so on. According to the current investigation and research, it summarizes the relevant problems of AI technology application in drama videos and puts forward some thoughts on the development direction of AI drama videos. It will pave the way for the further study of the application of AI in opera by relevant scholars in the future.
Keywords. AI, VR, ChatGPT, Chinese Opera, Big Data, TikTok, Metaverse.

Introduction
Shortly after the release of ChatGPT, a natural language processing tool by the US artificial intelligence laboratory OpenAI, on November 30, 2022, the CPC Central Committee and The State Council issued the Overall Layout Plan for the Construction of Digital China in February 2023, emphasizing that "digitalization drives the transformation of production, life and governance. Inject strong impetus to comprehensively promote the great rejuvenation of the Chinese nation with Chinese-style modernization ", "develop efficient and coordinated digital government affairs, and promote the precision of digital social governance". Chinese opera is an important part of Chinese traditional culture. In the future, using VR to watch opera or opera video clips generated by AI will be a new way to explore the inheritance and innovation of Chinese traditional culture.

Nowadays, text, voice, painting and video are all generated by AI, while the application of AI in Chinese opera is relatively small. In the future, the new AI technology will definitely play an increasingly important role in the field of ancient Chinese opera. Based on the existing AI technology and literature, this paper summarizes and analyzes the future development of Chinese opera, to contribute some inspiration for future researchers to better promote and spread Chinese opera culture.

---

1   * corresponding author:all authors contributed equally

The propagation of Chinese opera video through AI is new research. This paper first clarifies relevant research concepts. AI can be divided into two types: weak AI ⬚ and strong AI ⬚. Weak AI, also known as narrow AI, refers to AI systems that can perform specific tasks, such as speech recognition ⬚ and image recognition ⬚. Strong AI, also known as general AI ⬚, refers to AI systems that can think, learn, and solve multiple problems like humans. Today's AI technology is still in the stage of weak artificial intelligence, because the current AI is not intelligent enough to think and create automatically by itself and can only perform repetitive behaviors based on big data and input instructions and does not have feelings like humans. The strong artificial intelligence of the future is a system with feelings and the ability to think independently. This article studies AI based on the current stage, not strong AI.

As for the classification of AI, the application of AI in Chinese opera can be divided into AI video restoration, ChatGPT text and speech generation, 360 panoramic VR viewing, AI full-process drama video generation, AI algorithm push, AI custom drama, the generation of drama in the meta-universe, etc. After sorting and researching, this paper analyzes the application of AI video repair, ChatGPT text and speech generation, 360 panoramic VR viewing and AI full process generation of drama video in the field of drama video.

Literature Review

In imagining the future role AI plays in Chinese opera video, one explores into a realm where digital innovation and the rich tapestry of cultural heritage interact seamlessly This multi-layered journey from a method of sophisticated technologies such as large power transformative emphasis under data analytics. These cloud-based communication systems and digital wonders act not only as tools but as catalysts, moving traditional opera into new areas of impact and effectiveness in cultural communication. Indeed, the fusion of AI and Chinese opera together signals a paradigm shift in which the preservation and expansion of this revered art form is being reinvigorated with unprecedented vigor and sophistication.

On this new digital front is the promise of AI's skills to facilitate the automated processing of Chinese Peking opera and its structural analysis using complex algorithms and pattern recognition techniques. By enhancing human understanding and preserving historical accuracy, AI comes from a noble quest to preserve the essence of Chinese opera for future generations.

However, the transformative power of AI extends its reach beyond mere research and into the fabric of an engaged and interactive audience. Business innovations like live video are emerging as genuine ways of experiential engagement, weaving dynamic visual and acoustic canvases that capture emotions and ignite the flames of cultural appreciation. With this fusion of technology and tradition, AI marks a new era of Chinese opera.

Objective

Here is the research objective
- To explore the current state of AI technology in networking, including its diffusion, applications, and implications.
- To examine the impact of AI-powered communication tools on traditional and new media formats, examining changes in content production, distribution, and audience engagement.

- To assess the impact of AI-generated content on audience perceptions, attitudes and behaviors related to information consumption and interaction with the media.
- To explore the ethical considerations and challenges associated with integrating AI technologies into networks, including issues of bias, privacy, and transparency.
- Recommendations and guidelines are provided for the effective use of AI in communication practices to minimize potential negative effects and maximize benefits for stakeholders.

Findings

AI Video Restoration

In the inheritance of traditional culture such as opera, the challenges facing the first is that most of the precious images of the older generation of artists were shot and recorded in the 1950s and 1960s, mostly using film and tape as the storage medium, and due to the passing of time, there have been audio-visual problems such as fading, scratches and noise. Many classic songs are old in format, and many precious opera video materials are retained in the form of film, and many of them have been damaged due to poor storage. In the face of these conditions, using AI image restoration technology to restore and present classic opera image data in 4K will allow Chinese opera videos to be better protected and inherited, and ultimately help the spread of traditional Chinese opera culture. This AI image restoration technology not only digitally repairs the image data of classic opera repertoire, but also ensures the circulation of precious works of art. This kind of digital restoration of Chinese opera will also form a new digital resources database of opera, which is of great significance to the collection and sorting of opera videos.

To analyze the AI video restoration of Chinese opera from the technical level, it is mainly divided into four modules: intelligent analysis of Chinese opera video, restoration of Chinese opera video missing picture quality, enhancement of Chinese opera video picture quality and intelligent coding of Chinese opera video format compression.

The intelligent analysis of Chinese opera video refers to the use of a variety of artificial intelligence evaluation algorithms, the video content for frame level, scene level and video level and other multi-dimensional analysis, evaluate the video motion and texture complexity, compression distortion degree, get different dimensions of content analysis results, for the next step of video repair and classification to provide intelligent and fast help.

The missing picture quality restoration of Chinese opera video is to repair the common problems such as vertical lines, snowflake points, noise, compression distortion and jitter in Chinese opera video after combining the information obtained from intelligent analysis. Among them, the key and difficult point of Chinese opera video restoration is to repair the facial and facial makeup of the moving opera characters. AI video repair will make use of face detection, face repair and fusion modules, transfer image repair to the video process and add the interframe stability processing to solve the face detection stability, and finally get a clear and complete new opera characters face and facial makeup video. It achieves high-quality scratch repair and "super resolution", significantly improves the clarity of details when enlarging the video resolution and generates some details through GAN (Generative Antagonistic network).

The image quality enhancement of Chinese opera video is based on the repair module, the use of the best video enhancement algorithm to improve the multi-dimensional image quality of the picture, including improving the resolution and frame rate of the video in space

and time, and improving the clarity of details and color richness in the airspace, so that the final video presents a better effect.

The intelligent encoding of Chinese opera video format compression is the final stage of AI video restoration. According to the results of video analysis and pre-coding, AI intelligent coding adaptively adjusts the video output bit rate and various coding parameters and combines ROI interest area coding and scene adaptive coding to reduce the size of the output video file and reduce the cost of video transmission, while ensuring the subjective quality of the video is not affected to achieve the best 4K picture effect.

Figure 1. Image data of the drama Mulan before and after restoration (Photo: Tencent)

AI Drama Text Generation

ChatGPT software is used to generate Chinese opera text. ChatGPT, full name is Chat trained Transformer. It was developed by OpenAI, an AI-driven natural language processing tool, on November 30, 2022. Its main functions were language understanding and text generation. At the same time, ChatgPT can generate simple images with text and analyze images according to requirements. ChatGPT is currently prohibited in China due to legal and other reasons. One of the more popular ChatGPt-like apps in China is ERNIE Bot, a software developed by Baidu Inc. The application of AI opera can be divided into text generation, virtual picture generation, text reading, etc., and most of them are the generation of story scripts. AI technology can be used as an auxiliary tool for the script story creation team to collaborate with scriptwriters, directors and other personnel to help scriptwriters with the conception and organization of the script, thus providing the scriptwriters with creative inspiration and guidance, and greatly saving the scriptwriters' time and energy. However, there are still many shortcomings in Chinese opera scripts that rely entirely on AI, such as the lack of a deep understanding of the artistic characteristics of opera. Chinese opera has a long history and unique artistic features, including performance forms such as singing, reciting, doing gong and beating gong, as well as specific opera structures and performance norms. When AI generates opera scripts, it is often difficult to fully understand and embody these characteristics, resulting in the generated scripts lacking the charm and charm of opera. In addition, the characters and plot arrangement of Chinese opera scripts generated by AI are not vivid enough. Opera scripts require careful characterization of characters and tight and dramatic plots. However, when AI generates scripts, it is often difficult to grasp the complexity of characters' personalities and the twists of plots, resulting in thin characters and plain plots that are difficult to attract the audience's attention. And the language of Chinese opera scripts generated by AI is not accurate enough: the language of opera scripts needs to conform to the rhythm and rhythm of opera, and at the same time, it should be able to accurately express the feelings and inner world of characters. However, when AI generates scripts, it is often difficult to grasp the essence of opera language, resulting in the generated language is not refined and vivid, and may even have grammatical errors or unclear expression. Moreover, the most important thing is that machines cannot replace the emotional experience and creativity of excellent scriptwriters and writers. Chinese opera scripts generated by AI lack of

innovation and individuality. Because AI is based on a large number of existing classical opera data to learn and generate, the generated opera scripts often lack of innovation and individuality. This makes the generated script easy to fall into stereotypes, lack of novel and unique elements, difficult to break through the artistic level of the original classic opera, and ultimately unable to create a script beyond the classic Chinese opera.

This is a new Chinese opera script about love generated by the author with AI. (generated url: https://openai.com/blog/chatgpt/)

Love drama script: Butterfly love flowers
    Act One: First encounter
    (Stage background: Spring garden, flowers blooming, butterflies flying)
    (Dan-Jiao, named Wan 'er, walks into the garden lightly, holds a flower basket, and sings while picking flowers)
    Wan 'er (singing) : The spring breeze touches the potpourri on the face, and the butterflies dance in the air.
    Walk alone in the garden to find fragrance trace, the heart is difficult to hide.
    (Shengjiao, name Yunfei, by chance through the garden, see Wan 'er beautiful, heart born love)
    Yunfei (singing) : Suddenly seeing the beauty of a woman like a flower, my heart is surging.
    Want to come forward to ask her name, but afraid of sudden beauty.
    (Yunfei gathers up his courage and goes to talk to her)
    Yunfei: Miss, the fragrance of flowers here is striking, I wonder if Miss can enjoy it?
    Wan 'er (shy) : Prince polite, little girl Wan 'er, is about to pick flowers to pray for the elders in the family.
    (The two talk happily and gradually fall in love)
    Scene Two: Love
    (Stage background: Night, moonlight like water, Wan 'er sitting alone in the boudoir, missing the clouds)
    Wan 'er (singing) : The bright moon hangs in light of the lone shadow, Acacia endless tears touch the front.
    Since the day we met at the beginning, our hearts have been tied to the clouds.
    (Yun Fei was also at home, tossing and turning, unable to sleep.)
    Yunfei (singing) : In the quiet of night, I think of the beauty, Wan son's beautiful image in the dream.
    May the beauty stay with you for a long time and spend this life without regret.
    Scene Three: Twists and turns
    (Stage background: A sudden accident occurs in Wan 'er's home, and her parents want to marry her to the son of a powerful man)
    (Wan 'er, with tears dancing in her eyes, tells her parents her heart)
    Wan 'er: Father and mother, my daughter already has a lover in her heart, but it is difficult to obey.
    (Parents bitter advice fruitless, Wan 'er determined to find the clouds fly, discuss countermeasures)
    (Wan 'er and Yunfei meet in the suburbs and tell each other their hearts)

Wan 'er: Yunfei, there is a sudden accident in my family. My parents want to marry me to someone else. What should I do?

Yun Fei (firmly) : Wan 'er, please relax. I will do my best to protect you.

Scene Four: Reunion

(Stage background: After many twists and turns, Yunfei and Wan 'er finally overcome many difficulties and get married)

(Wedding scene, festive and lively, two people hand in hand, walk down the red carpet)

(The guests have blessings, Wan 'er and Yunfei face filled with a happy smile)

Wan 'er, Yun Fei (chorus) : Love has gone through ups and downs, and finally reunited.

May I always be with you in this life, forever together.

(The curtain falls, the drama ends)

According to this AI-generated opera script, although AI has the elements of a complete script in generating Chinese opera scripts, there are many areas that need to be improved after careful reading of the script. It is believed that in the future, with the continuous expansion of AI database and the continuous progress of algorithm program, AI will be able to generate more excellent opera scripts and make contributions to the inheritance and development of opera art.

360 Panoramic VR Viewing

In addition to AI repairing image data, there is also a way for AI to spread Chinese opera videos, which is to generate Chinese opera videos with AI. This kind of AI drama video can be a traditional 2D video or a 360 panoramic VR drama video. The advantage of VR drama video is that it can allow the audience to break the barriers of time and space, and truly make the traditional drama video more real. This kind of VR drama video, different from the traditional flat video can only see the fixed Angle of view, VR drama video is user-centered, with VR glasses, can show the stage scene of opera singing 360 degrees, at the same time, the audience's Angle of view can move, users can walk freely in the viewing screen, choose their own Angle of view to watch, so that when watching VR drama video, It is like walking into a theater. For the audience watching VR drama video, the significance is not only to improve the experience of watching, but more importantly, it can become a three-dimensional and multi-dimensional detail of drama teaching and research. For example, suspend or enlarge at any time to show the actors' wrist rotation, eye movement and other very small actions and emotions in VR drama videos with different perspectives.

At the technical level, the classic program of professional opera actors recorded by AI based on stereoscopic scanning is a database, and the main difficulties it will face include large amount of data, large amount of calculation, long download time, no ready-made file standards, and limited terminal application. Each frame of VR drama video is a 3D model, which is difficult to transmit due to the large amount of data. At the same time, the 3D model data is encoded, compressed, decoded and rendered with a large amount of computation, which requires the terminal to have a good performance for playback and rendering. Different from the ordinary video can be played side by side, the traditional volume video file needs to be downloaded completely before it can be played, which takes a long time to download. In addition, volume video has no ready-made file standards, can not use the existing video infrastructure, in the video transmission, playback and other application ecology is limited. To

solve these problems, AI must be programmed to solve problems manually, rather than AI solving the problems it faces by itself.

Figure 2.6DoF video demonstration of "sleeping fish" (photo: Tencent)

For example, the existing VR video of "Princess Mei" has first set the goal of watching Chinese opera in 360 panoramic VR. (Video website: https://baijiahao.baidu.com/s?id=1789818807123546220&wfr=spider&for=pc) on February 2, 2024, a farmer, when science and technology met opera beauty of live events, For the first time, the whole process of "Digital Technology deconstructs Chinese Opera" is presented on the screen in a vertical immersive live broadcast. In the VR video of "Mei Fei", "Mei Fei" wears a light pink long-sleeved dance dress and drags the ground with a long skirt, flying like a flying swan goose. This is the most classic dance in the selection of "Mei Fei" -- the Surprise Hong dance. The video was deconstructed by China's Tencent Multimedia Lab using AI technology. Guests can zoom in, zoom out and adjust any Angle to watch every movement and expression of the dancer. This video is different from the traditional VR360 video, which focuses on the user to see the surrounding 360-degree scene with only three degrees of freedom. The selected video of "Mei Fei" displayed this time has a VR video with 6 degrees of freedom of view, which not only allows the audience to increase the displacement when watching the video, but also allows the user to walk freely in the viewing frame and choose their own view Angle to watch. In order to achieve such an effect, there are three main difficulties to face. The first is data compression. Tencent Multimedia Lab team in China adopted a new generation of self-developed 3D mesh codec. Under the premise of maintaining the quality of model details, the number of surfaces required for model expression is greatly reduced, so as to effectively reduce the bandwidth required for storage and transmission of dynamic high-quality 3D models, and reduce the data volume by more than 50% compared with traditional solutions. For the Texture texture data, the team adopted a lab-developed encoder to analyze the correlation of the texture data in the time domain and space, and combined with scene adaptive coding to further improve the compression efficiency and reduce the amount of data. The overall compression ratio of multidimensional data is 25-50 times higher, which solves the problem of large amount of multidimensional data from the root cause. The second is data encapsulation. In view of the existing volume of video files without a unified standard, need to download the whole to play and other difficulties, China Tencent Multimedia lab developed mesh data and texture data fusion solution, the use of streaming media format standards, can reuse the existing video infrastructure, to achieve progressive file loading, so as to achieve download while playing. Finally, play and render. On the playback side, Tencent Multimedia Lab in China realizes multi-model, multi-material and physical rendering through self-developed efficient decoding and rendering algorithm, while supporting 4K/8K ultra HD texture map, meeting the application scenarios with higher requirements for graphics quality. In terms of playback capability, it breaks through APP restrictions to achieve lightweight web side playback support, and realize full terminal playback support including mobile phones, headsets and PCS.

Therefore, the complexity of AI drama video technology is beyond imagination. The existing AI technology is not the VR video automatically generated by AI, but the AI setting program must be written first. The AI at this stage is only in accordance with the established setting program to assist the generation of videos with large amounts of data. Of course, compared with traditional 3D animation, AI has reduced a lot of staff workload. It is expected that in the future, with the application of 5G high-speed mobile network in the enhanced mobile broadband scene, AI will further develop, at that time, Chinese opera video will not only have ultra-high definition video and virtual reality VR viewing, but also the Chinese opera video in the field of augmented reality (AR) and mixed reality (MR) application, ushering in new opportunities for the development and inheritance of Chinese traditional opera.

AI generates drama video in the whole process

At present, although there is no mature Chinese opera video generated by the whole process of AI, But there have been in the China central radio and television reception desk 2024-03-22 create AI whole flow generated video series "China myth" (https://www.bilibili.com/video/BV1S2421P788/?share_source=copy_web&vd_so Urce = 362 c0b8b6c3d34c1b08a4d05885a206a) (https://baijiahao.baidu.com/s?id=1794208782938500249&rcptid=15746505146729316756)

Figure 3. The video TV series "Chinese Mythology" generated by the entire process of AI (photo: CCTV)

The art, storyboard, video, dubbing and soundtrack of the video were all completed by AI. This is undoubtedly a milestone breakthrough, but it is still difficult to predict whether AlphaGo can become a milestone such as surpassing human intelligence in the field of Go. In 2016, the world was shocked when Google's Go AI program AlphaGo defeated world Go champion Lee Se-dol in four out of five games. In order to successfully copy the AI of Go to the field of drama video, from the perspective of computing power, compared with the AI calculation amount of Go, the computing power required for creating a drama is hundreds of millions of times higher than the AI calculation amount of Go. This is because on the one hand, there are essential differences between opera video and Weiqi in the target mode and evaluation system. Weiqi belongs to the game of competition, as long as the machine exceeds the human in computing power, it can win the game. But the opera art is a process of pursuing self-transcendence, and there will never be a winner. Today, the AlphaGo AI software doesn't need to be upgraded because it can't find an opponent, but opera writers are still updating their knowledge and looking for ways to break through themselves. On the other hand, in terms of the evaluation system, the game of Go has strict objective standards, which means that you win if you reach the standard, but there are no objective indicators for opera creation, and the saying "no writing is first, no martial arts is second" just applies here. In addition, the complexity of opera is far more than that of Weiqi. In terms of the basic properties of opera singing voice, in addition to pitch, there are three major elements of the music: length (affecting the rhythm and speed of music), intensity (affecting the change of

sound intensity) and timbre (affecting the orchestration). If the voice, reverberation, emotion and other factors are also included, then using AI to generate a opera work from scratch is not as simple as imagined. Although the development of AI technology has undoubtedly been more powerful, but want to rely on AI to automatically create a complete Chinese opera video, there are still a lot of challenges. There are the following difficulties in the whole process of AI to generate opera videos.

The first is the establishment of opera large database. The effective application of AI technology requires a large number of high-quality data for training and learning, and an important feature of Chinese opera is multi-genre, multi-genre, it is very difficult to obtain a comprehensive and complete opera performance database for AI database, especially for traditional operas, folk operas and ethnic minority operas.

The second problem is the complexity of script and performance. Drama script and performance have complex structure and characteristics, including the requirements of stage movement, language expression, tone control and so on. AI technology needs to be able to accurately understand and simulate these complex movements, language and content, and generate videos in real time that can adapt to meet the inheritance and development of different opera genres.

Finally, the understanding and expression of emotions. The most difficult part of the existing AI technology is to let the program get the same thoughts and feelings as human beings, and let the AI program learn the joys and sorrows of human beings, but no AI can truly have human feelings at present. The core of Chinese opera is the expression of feelings, and the process of opera performance is the process of conveying the feelings of opera characters to the audience. Rich feelings are also an important reason why Chinese opera can spread for thousands of years. If AI can't truly understand human culture and feelings, then AI will certainly not be able to produce high-quality opera videos. Due to the lack of creativity, AI drama videos will also lose the spirit that art should have, which is another key factor to determine whether AI drama videos are artistic.

According to the information the author has currently queried, there are indeed some AI systems that can provide whole-process generation services to instantly generate a drama video or drama animation, but the generated video has a style of immobilized format, which may only meet the needs of low-end video soundtrack, and it is still far away from generating drama video works with personality characteristics and delicate feelings. Not to mention the ability to generate opera videos that completely surpass human opera writers, but this is a very necessary and positive progress. For example, the full AI folio play -- Kunqu Opera "Pipa Story · Description", "Pipa Story · Description" is in May 2023, jointly developed by Shanghai Dunlu Biomedical Technology Co., LTD., Shanghai Runzhijia Art Technology Co., LTD., using its previous Runzhijia opera AI platform, developed a virtual person -- Kunqu Sanyi "Ruolan", Generate full AI folding play -- "Pipa Story · Description". This is a one-man show, singing and reading for the virtual person "Ruolan", and accompanied by the AI platform previously developed Gongqu music into a key into Kunqu accompaniment intelligent engine. The virtual character of "Ruolan" was completed by the Kunqu Opera reciting robot in the opera reciting TTS system. The TTS system program can broadcast the character in the form of Kunqu rhyme according to user input. Users can use Runzhijia Gongqipu AI program to generate accompaniment or AI singing of any song with one click. Based on the singing and reading function of AI virtual human and the accompaniment generation function of AI Kunqu Opera, Runzhijia has preliminarily completed a breakthrough from AI generating single songs and AI generating single sentences to AI generating entire Chinese opera production. (all AI drama

adaptation of pipa, tracing, let video link address: http://life.china.com.cn/baijia/detail2_2023_05/15/3959783.html?bsh_bid=5956957285) :
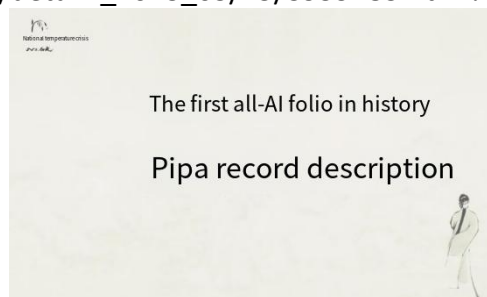

FIG. 4. Full AI Drama "Pipa Story · Description" (Photo source: Run Zhijia)

Suggestion

The future form of Chinese opera video dissemination through AI will definitely pay attention to the authenticity of role performance and emotional transmission. Chinese opera performance emphasizes the emotional transmission and authenticity of actors. Although the character generation and performance assistance methods of AI technology can help actors create characters, how to ensure that the generated characters can truly convey feelings and show the actor's personal charm is still a challenge. Ai-generated character images and performances may lack the unique emotional expression and artistic style of human actors.

At the same time, AI dissemination of Chinese opera videos will also face a balance between inheritance and innovation. AI technology can generate new scripts and character images, and promote innovation in opera creation. However, how to maintain respect for and inheritance of tradition in innovation, and ensure that the creation conforms to the basic principles and aesthetic standards of opera, is a challenge that needs to be addressed. This challenge is not only at the level of computer technology, but also requires multi-disciplinary research and discussion such as sociology, economics, literature and philosophy of results. Innovation should be "repairing the old" on the basis of upholding the right, rather than completely subverting and changing.

Whether it can balance inheritance and innovation, the audience's acceptance and recognition is the key reference index. As a traditional art form, opera has a fixed audience and aesthetic concept. The application of AI technology may trigger problems of audience acceptance and identity. Older audiences may worry that the application of AI technology will change the style and performance they are familiar with, leading to a loss of interest in the works. Therefore, how to balance innovation and audience acceptance, so that the application of AI technology is recognized by the vast audience, still needs attention and thinking.

There is also the problem of future talent training for the dissemination of Chinese opera videos through AI. The members of the Runzhijia team that released the all-AI drama "Pipa Story · Description" are basically composed of three majors: computer science, composition and video animation technology. There is no AI opera professional talent, or even AI professional talent, for the simple reason that these two majors are in the cultivation stage, and there are almost no real graduates. At present, most of the research directions of AI personnel are in the field of AI image recognition, which has nothing to do with AI drama. Can the talent shortage be solved in a few years? The author is not optimistic about this. Frankly speaking, the main reason is that the cost performance of learning AI drama is too low, and it is difficult to attract enough young people to devote themselves to it. Although the current domestic undergraduate education has not set up AI drama professional

direction, but we can imagine the basic conditions required for applying for this major: opera must be able to understand opera, which means at least four years to study Chinese opera. Cultural performance at least reach the university entrance score line level, and mathematics performance requirements are relatively high. To achieve these conditions, the investment of money and time is definitely more than other majors. However, in terms of remuneration, the salary level of domestic AI opera positions is not higher than that of other AI positions, and sometimes it is lower than the average salary level due to the popularity of AI opera. For this kind of profession with high input and low output, perhaps only a strong love for opera will apply. However, the existence of AI opera is difficult to support only a few enthusiastic young people, not to mention the improvement and development of professional level? From this point of view, the training of AI drama professionals will be difficult to get out of the dilemma of talent shortage.

Finally, there are ethical challenges to AI distributing Chinese opera videos. For example, when audiences fall in love with virtual opera actors, leading to robot stars replacing famous traditional opera actors, the application of AI technology in performance may lead to the problem of man-machine replacement. If AI technology can completely simulate and replace human performance, it may lead to problems such as reduced income and unemployment of opera actors. For example, in the past, Mei Lanfang, a traditional Chinese opera star, was wildly pursued by many fans because she played the role of concubine. If the AI virtual robot opera characters also produce roles like Mei Lanfang in the future, whether the audience's fan behavior toward AI robots is reasonable is related to social fairness and human development. This phenomenon can be referred to the appearance of Japanese animation Future Hatsune image, because the virtual image of future Hatsune conforms to many elements of high-quality women. At the same time, future Hatsune has achieved real-time video and voice communication and interaction with real humans by virtue of AI technology, and some unmarried young men have treated future Hatsune as the wife of reality. In the future, AI drama video virtual characters may produce star robots like future Hatsune.

Then there are the ethical challenges of data privacy and security. AI technology requires big data for training and learning, and the establishment of large databases may contain private information of individual actors and unauthorized copyright information. For example, the face-changing technique in Sichuan opera is a unique skill kept secret by opera actors. If AI wants to generate videos of face-changing performances in Sichuan opera, the face-changing technique in the big database will be read without authorization. How to protect data privacy and security in the future, and how to ensure that AI systems do not abuse personal data, is also an important ethical challenge.

Conclusion

Every new technology will cause concern, just as for the post-90s teenagers, their parents worry about being addicted to Internet chatting, for the post-00s teenagers, their parents worry about being addicted to games, and for the post-10th teenagers, their parents worry about being addicted to videos. Although they are essentially panics in the face of new media, letting nature take its course does not mean that parents can sit idly by. Similarly, in the face of the new technology of AI drama video, letting nature take its course is definitely not the solution to the problem. Opera never "lag", but take the initiative to embrace new technology, the old Chinese opera actor Peiyu Wang once said: "The first drama film" Dingjun Mountain ", to the early 2000 opera like audio and video project, to the current meta-universe

"Dragon Phoenix Cheng Xiang". Although the old artists continue to abandon the world, AI artificial intelligence to adapt and close to the new era, technology enabling opera can solve the legacy of opera and 'the race against time', better extend the vitality of opera art ". Compared with other art categories, opera's love for new technologies and new tools may be described as "unwavering". The development history of Chinese opera tells us that inheritance and innovation progress together, and the use of new technologies and new tools often breeds the birth of new opera ideas and styles. As a representative of cutting-edge technology in the 21st century, AI technology has far exceeded the limitation of specific regions and places and has become more extensive. Scientific and technological means play a very important role in the education, inheritance, performance, promotion, and other aspects of opera, and are involved in every node of the inheritance and development of opera. In the future, we hope to see more new technologies applied to traditional opera and more traditional culture and promote the innovative dissemination of traditional culture to the public, to narrow the distance between it and the contemporary young people.

Of course, technology is not something to be trusted or relied upon. For culture and art, what plays a decisive factor and possesses irreplaceable charm are the living people. For practitioners, instead of waiting for the "favor" empowered by science and technology or immersed in the complaints and anxiety of being replaced by new technology, it is better to take the initiative, and perhaps we can find a common case of harmonious coexistence and mutual achievement.

This research studies into the future form of AI spreading Chinese opera video offers substantial theoretical and contextual contributions by leveraging technological advancements to preserve and disseminate cultural heritage, particularly among younger generations, both domestically and internationally. This initiative facilitates cross-cultural communication, fosters mutual appreciation, and generates valuable data-driven insights into audience preferences and engagement metrics. However, it also prompts critical discussions on ethical and societal implications, including the role of AI algorithms in shaping cultural consumption and the need to address bias and manipulation in content recommendation systems. Ultimately, this research not only enriches our understanding of AI's potential in cultural promotion but also contributes to broader conversations about technology's impact on society and the preservation of cultural diversity.

References

Cui, B., & Huang, Z. (2024). Emergence of AI: New species, New Paradigm and New order of international communication ecology. *Publications Wide Angle, (03), 21-27.* doi:10.16491/j.cnki.cn45-1216/g2.2024.03.003.

Guo, Y. (2021). A short video platform huangmei opera communication studies (Master's thesis, Anqing Normal University). Retrieved from https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202201&filename=1021728795.nh

Hu, Q., & Tian, Z. (2024). Empowering and Negative: The impact of ChatGPT generative AI on the spread of Mainstream ideology and its countermeasures. *Southeast Communication, (02), 7-9.* doi:10.13556/j.carolcarrollnkiDNCB.Cn35-1274/j.2024.02.006.

Lin, J. (2024). The influence and application analysis of AI mapping technology on new media communication. *Communication and Copyright, (06), 46-48.* doi:10.16852/j.cnki.45-1390/g2.2024.06.029.

Lin, T. (2021). National intangible cultural transmission is changed in a short video platform research (Master's thesis, Xi'an Engineering University). Retrieved from https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202202&filename=1022441613.nh

Luo, J., & Si, S. (2024). Research on the communication effect of Traditional Opera Tiktok -- Based on NVivo analysis of five kinds of traditional dramas. *Media Today, (03), 13-16.* doi:CNKI:SUN:BKZY.0.2024-03-004.

Peng, Y., Xiang, C., & Cheng, Y. (2023). Cultural Travel Festival begins. *Xiangyang Daily, 008.*

Qiu, L., & Liu, J. (2023). Research on secondary communication of scientific journals from the perspective of AI large-scale language model introduction. *Technology and Publishing, (12), 61-68.* doi:10.16510/j.carolcarrollnkikjycb.20231220.005.

Research material. (2023). Interaction ritual drama short video transmission chain perspective trill platform research (Master's thesis, Huaibei Normal University). Retrieved from https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFDTEMP&filename=1023843077.nh

Zhou, H., Kuang, Y., & Song, X. (2024). Analysis on Communication strategies of AI-enabled Interactive Narrative in the era of intelligent media. *Media, (02), 50-52.* doi:CNKI:SUN:CMEI.0.2024-02-014.