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The Application of Intelligent Technologies in the Creation of Historical Documentary Films

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Abstract: In the context of intelligent media, communication ushers in an unprecedented transformation. As an important way of cultural communication, documentary production is exploring the deep integration with emerging technologies. As an important part of documentary creation, historical documentary films are constantly integrated with intelligent technology in reality creation due to their special attributes. The research scope of this paper is under the national "new quality productivity" development strategy to explore the application and potential of intelligent technology in the content shaping of historical documentary films. It is mainly reflected in the selection of massive historical literature materials through artificial intelligence algorithms, the full integration of classified valuable information, and the provision of creative materials and basis for film creation; Post editing and special effect processing through intelligent technology to enhance the film's expressiveness; Restore historical moments and shape spatial scenes through intelligent technologies such as AR, VR virtualization and face recognition; Accurate calculation between works and audiences is achieved through data analysis, and communication channels are expanded. The coupling development of intelligent technology and historical documentary creation promotes its content innovation, stimulates its creative potential, and realizes the digitalization and intelligent content shaping of historical documentary. Through this article, I hope to provide new ideas for the intelligent development of historical documentary creation.

Keywords: Intelligent Technology, Historical Documentary, Creative Application, Development Potential.

1. Introduction

With the development of intelligent technology, the scope of its application is constantly expanding. Intelligent technology has played a great role in the creation of historical documentaries, from the idea to the content production, from the integration of historical documents to the later intelligent editing have played a great role. This paper focuses on the application of intelligent technology in historical documentaries, summarizes and analyzes its application, value and innovative development direction through literature analysis method, case study method and content analysis method.

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2. The application and potential of intelligent technology in the creation of historical documentary films

2.1. Overview of domestic and international research on intelligent technology and documentary creation

2.1.1. Review of foreign studies

Foreign research on AI technology involved in documentary creation, such as the teaching practice of the University of Southern California and Columbia University in the United States, uses AI technology to analyze narrative structures, and uses algorithms to help students understand the subtleties of story telling. In the creation of historical documentary films in some British universities, AI was used to conduct in-depth data mining and systematic sorting. Deeply study the intervention of artificial intelligence (AI) technology, including the new forms of virtual reality (VR) and augmented reality (AR) documentaries, and enable the audience to enjoy immersive sensory immersion. Internationally, the core of research is how AI technology can enhance the narrative strategy, visual expression and editing efficiency of documentaries. As studied by Smith and Jones, AI has been applied in documentary film production of historical archives.

2.1.2. Review of national studies

In the domestic academic circles, research on documentary film production in the intelligent media environment has seen several achievements. The trend of research content on intelligent technology and documentary creation as well as the research relationship network of related topics in HowNet are shown in Figure 1 Trends in the literature theme "Intelligent Technologies and Documentary Creation", Figure 2 Distribution of literature citation network of "Intelligent Technology and Documentary Film Creation" and Figure 3 Overall trends in the literature on "smart technologies and documentary filmmaking". Some researchers began to focus on the innovative practice of AI in the film and television industry. For example, in the Application and Exploration of AI Technology in the Creation of Historical Documentary [1], Professor Liang Xing took the works such as I came from the Han Dynasty as an example to deeply explore the evolution track and role of AI technology in the creation of historical documentaries, and contributed practical development ideas. [1] Hu Ziyi pointed out in the 2023 Application of CG Technology in the Creation of Historical Documentary that AI technology shows great cultural value in building an 'imaginary community' in the process of maintaining historical coherence, filling historical gaps and constructing historical memory, and at the same time, he deeply analyzed the artistic and technical criteria of CG technology in the production of historical documentaries.

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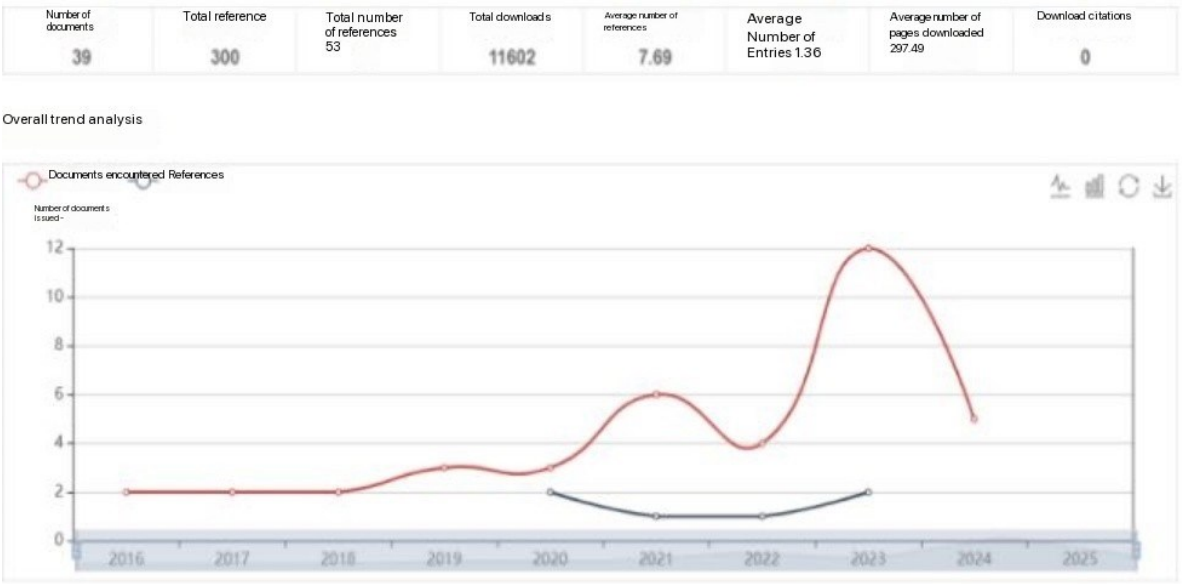

Figure 1: Trends in the literature theme "Intelligent Technologies and Documentary Creation".

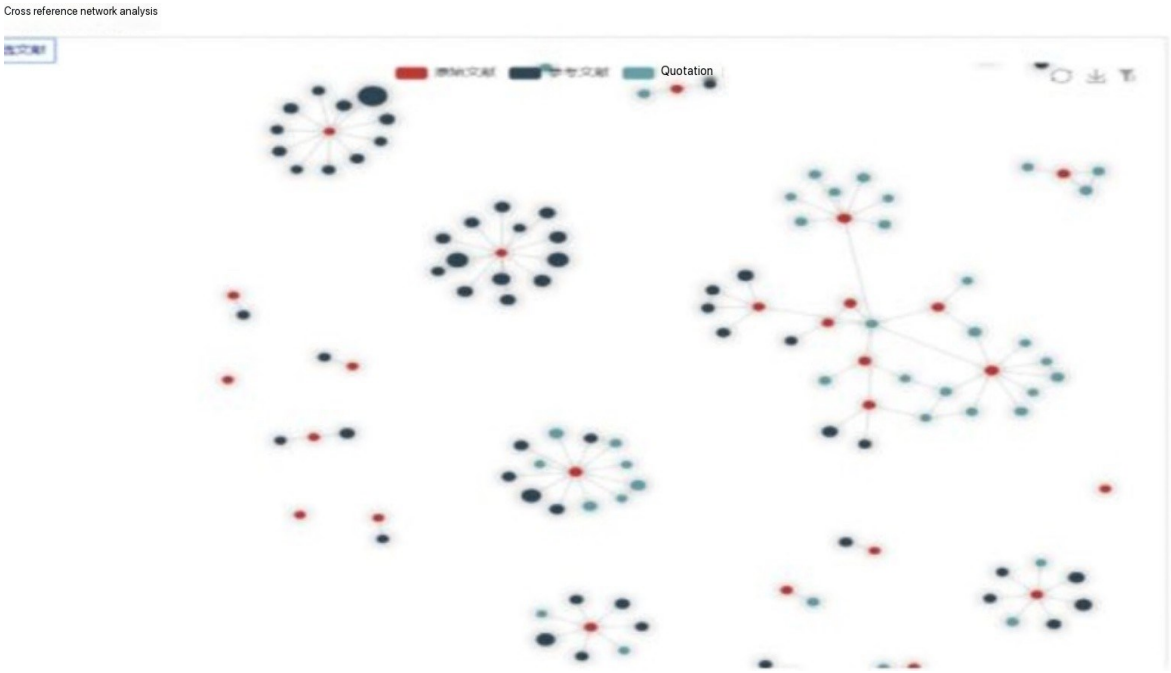

Figure 2: Distribution of literature citation network of "Intelligent Technology and Documentary Film Creation".

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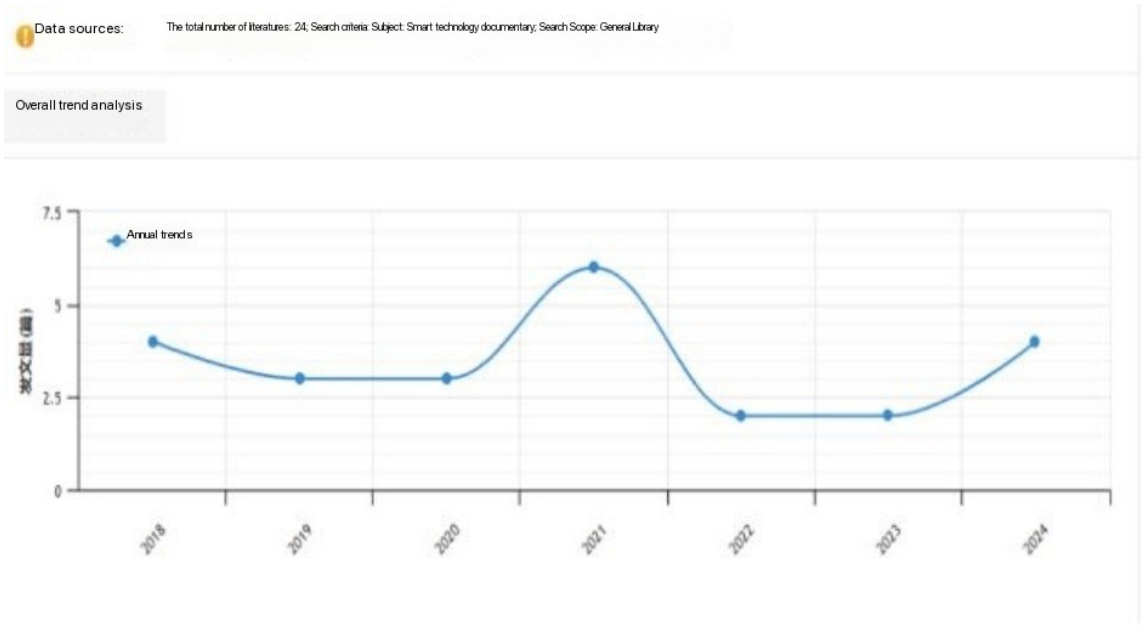

Figure 3: Overall trends in the literature on "smart technologies and documentary filmmaking".

2.2. The significance and value of intelligent technology in the creation of historical documentaries

Since the rapid development of intelligent technology, the relationship between the injection of intelligent technology and the authenticity of documentaries has become the focus of many researchers. Historical documentaries, because of its material in the long river of history has passed away, so in the past creation of historical documentaries, many of them adopted the form of scene reproduction, scene interpretation. Through the role of characters to restore the historical situation. There is a distance between the sense of immersion and the real record, and history can not be truly recorded again. The development of intelligent technology is expected to further enhance the sense of visual immersion, shape the virtual space, reproduce historical characters through face recognition, and build historical space through scene construction. In the creation of historical documentaries, the application of intelligent technology can effectively enhance the audience's viewing experience. Through intelligent technology, historical events and documents can be presented more accurately, making the content of the documentary more vivid and interesting. As a new assistant of auxiliary content creation, AI plays an important role in improving creation efficiency and content quality. [2]

The bottleneck in the creation of historical documentary films stems from the inability to record and shoot what has happened. The historical documentary films in the past were presented through cultural relics, historical data, interviews with researchers, actors' performances, and scene reproduction, and there were many shortcomings in the details of important scenes or events and characters. The AR and VR technologies in the intelligent technology can build scenes and put the audience's perception and experience into the historical environment. This design can give viewers a sense of being in it, and can deepen the audience's understanding and cognition of the specific history. Through intelligent technology, the rhythm of post editing can be changed, so as to improve the visual experience of the documentary and make the whole work more vivid and attractive. The data analysis results of artificial intelligence technology can be applied to content production. Through platform data capture and analysis, the audience can be accurately depicted. According to the analysis results, the content production can be accurately planned to achieve clear priorities and detailed display of key points. For example, the close combination of story production and platform audience in Netflix. At present, Netflix's operating revenue is $13 million, while HBO's operating revenue is $54.8

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million. Netflix's revenue share has accounted for 23% of HBO's overall revenue. From the data display, we can see the value of the intelligent plan feedback content such as the application platform data analysis in the production. Therefore, in the intelligent production of historical documentary films, producers can also develop personalized presentation schemes according to the audience's preferences, so as to provide a higher viewing experience for the audience. According to the audience's browsing situation and personal viewing habits presented by the data, relevant historical documentary films are recommended through artificial intelligence algorithms to achieve accurate positioning, make the best use of everything, and maximize the communication effect. Improve the audience's audio-visual viewing experience.

The application of intelligent technology in historical documentaries is not only reflected in improving the production efficiency and quality of documentaries, but also expanding the way of expression. Through the intervention of intelligent technology, a more vivid and intuitive presentation can be realized, which can be seen in the reproduction of historical events through virtual reality technology or the creation of a more fascinating storyline through intelligent scriptwriting technology. These innovative ways of expression reached through technology can make the audience feel and understand historical events in a more immersive way, and enhance the interactivity and immersion of the movie-going experience.

3. Application of Intelligent Technology in Documentary Films on Historical Documents

3.1. The Role of Intelligent Technology in the Creation of Documentary Films on Historical Documents

The integration of intelligent technology and the creation of historical documentaries is very important in terms of the important role of intelligent technology in data processing, data capture and integration.

With the development of intelligent media technology, it provides greater creative space for the creation of historical documentary films. The powerful data capture, storage, integration and analysis functions of intelligent technology can help creators quickly integrate text, pictures and video information. Help repair pictures and restore details. Intelligent technology, supported by big data and based on new media platform, can realize rapid data integration. In the future, its keyword crawler technology can be further used to improve the data processing and analysis of keyword history, so as to form a close combination of complete historical context and detailed events. This kind of data processing is scientific and reliable, which makes up for the disadvantage of incomplete and imperfect historical data. Authenticity is a concern about the combination of intelligent technology and documentary recording in the past. The combination of historical documentary and intelligent technology is based on reality, and the means is not real real-time recording. Real words, pictures and historical videos are the most faithful pursuit of reality under the combination of intelligent technology and intelligent technology. Therefore, this highlights its applicability and value in the development of historical documentary creation and intelligent technology. In addition, VR is used for the parameter reference of script writing and shooting. For example, the film Eye for an Eye: A S é ance in Virtual Reality was shot by Seine Abs, the VR consultant, Devin Emi1, the digital director, and Elias Petridis, the director. [3] The VR lens script writing method is adopted, and the parameter design of some shooting equipment at present also uses intelligent technology to design its different modes, It greatly facilitates the documentary shooting process. Intelligent technology plays an irreplaceable role in the data processing of historical documentary films. It not only greatly improves the work efficiency and accuracy of data processing, but also provides more innovative directions for creation. With the continuous development and application of intelligent computer technology and its simulation technology, 3D graphics technology, sensing and display technology,

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servo technology, etc., it is believed that intelligent technology will play an increasingly important role in the creation of future historical documentary films. Digital technology allows filmmakers to present information and clues in data visualization ways, enhancing the expressive power of documentaries and giving viewers more ways to watch them.[4]

In addition, intelligent technology can also play a more advantageous role in editing and post production of historical documentary creation. Editing and post packaging production has always been the key process in the documentary creation process. The development of intelligent technology has realized the automation of the process of material automatic or setting screening, clip rough cutting, special effects application and other processes in the production process, greatly improving the production efficiency and quality. At present, intelligent AI software such as SORA, which is applied abroad and used for film creation, can play a role in the scene presentation and character story development of historical documentary creation. It is believed that with the continuous upgrading of technology, more and more intelligent editing software will be developed and applied to the production of historical documentary, and then the creation level will be further improved. Although the current software is faced with challenges such as technology upgrading and human-computer interaction, there are some problems such as poor performance in production, discrepancy between unit duration and presentation and instructions. The documentary of human history is one of the important means to present the national, city or individual characters. [5] In the future, with the continuous progress of artificial intelligence technology, intelligent editing and post production will also continue to develop, which will bring more possibilities and innovations to the creation of historical documentary films.

3.2. Intelligent technology to assist the creation of historical documentaries embodies

3.2.1. Application of Image Recognition Techniques in Documentary Films on Historical Documents

By capturing, identifying, sorting and analyzing historical pictures, the historical scene and occurrence at a certain moment can be reconstructed, so that the audience can more truly feel the vicissitudes and changes of history. From the imitation of the reproducing narrative means of the traditional historical documentary, to the stylized narration of the multi-form such as three-dimensional animation, two-dimensional animation and stop-motion animation, and finally to the animation image as the media main body of the historical documentary, tell the story of history with a new identity. [6]Thousands of works stood out in the "See You Again" Kathmandu Panorama Nepal Historic Site Restoration Action, which won the Effie Award. 90% of the ancient square buildings and religious temples in Kathmandu collapsed and were destroyed in the great earthquake. Their restoration works are the digital restoration of ancient buildings in Nepal. Through 42108 photos uploaded by netizens at home and abroad, digital processing through intelligent technology has achieved effective integration, and also played a huge role in process value, industry value and global influence. It is an excellent embodiment of intelligent technology driven innovation. This case provides a favorable reference for intelligent technology to promote the creation of historical documentary. Intelligent technology can not only play an important role in the restoration of historical documents, but also make all-round efforts in data sorting, image recognition and platform interaction, which can enable content creation and promote communication.

In addition, image recognition technology can also carry out facial recognition and feature extraction of historical characters, making the characters in the documentary presentation more realistic and vivid, and can also be applied to the image restoration and enhancement in historical documentary films. The problems such as blurred pictures and unclear sounds in the original historical materials should be repaired to improve the picture quality, and the sound should be

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reduced or imitated according to the characteristics of the characters, so as to improve the overall viewing. Image recognition technology is of great significance and wide application value in the creation of historical documentary films. With the continuous progress of intelligent technology, I believe that the application scope and effect of image recognition technology in the creation of historical documentary will be more abundant and outstanding. At present, in the creation of historical documentary films, intelligent image recognition is used to repair and identify historical pictures, photos, paintings and other historical materials, show and restore historical scenes and character stories, reconstruct cultural relics, historic sites and buildings, or use AR VR technology is used to reshape the space and create virtual scenes and reproduce the scenes, so that visitors can feel the occurrence of history. Nonfiction storytelling shapes our understanding of the real world.[7] Through the combination of intelligent technology and sound, light and electricity, people can feel the scenes and situations described in the history in the past.AR focuses on the connection between virtual and reality, blending virtual information (objects, pictures, video, sound, etc.) into the real environment to enrich the real world for a more powerful augmented reality experience. [8] Through intelligent technology, historical documentary films are produced to form a large screen surrounding. This three-dimensional, lifelike and immersive display is a better way to understand Chinese history for different groups, especially the generation of Z-generation network growth and foreign groups. Based on the above cases and studies, the author practices this aspect in the documentary creation class of colleges and universities where he teaches. In the documentary creation class of historical documents, the students are guided to use intelligent technology to create in the region, namely, Liaohe culture and city publicity. The students use the existing software to create "Smart Shenyang" to be shortlisted for the Golden Calf Award. In the process of creation, I found that there are still many technical barriers, which will also become the part to be conquered in the future. In the future, the seamless connection between content planning and technology will be realized through cooperation and research and development, and the representation of Liaohe culture will be realized, contributing to the further research and development of local history and culture.

Image recognition technology can also be used to analyze and process photographs and color images in historical documents to realize the visual reproduction of the historical period and present more real and vivid historical scenes for the audience. Intelligent image recognition technology in the application of historical documentaries has seen results, which makes up for the shortcomings in the creation of historical documentaries in the past, but also brings more possibilities for its creation, so that the film is richer, more vivid, more varied forms, expanding the display is not only embodied in the documentary itself, but also to open up the space of dissemination from the two-dimensional to the three-dimensional to the three-dimensional spatial scenes. Its development is not only the creation of documentary itself, but also brings more new possibilities, expanding to more fields and industries. On the basis of the dissemination of the documentary itself, it brings new possibilities for the development of historical documentaries and cultural tourism, as well as the promotion of the city. It is believed that with the continuous progress and improvement of technology, intelligent image recognition technology will play a more important role in the future creation of historical documentaries, and will bring more possibilities.

3.2.2. Speech Recognition Technology Application of Intelligent Technology in Documentary Films on Historical Documents

With the development of intelligent technology, the use of artificial intelligence synthesis technology to achieve voice dubbing has emerged in many fields, such as map navigation voice, audio reading, etc., which are widely used in daily life. The emergence of a large documentary "Innovative China" broadcast on CCTV documentary channel in 2018 is more prominent in the field of documentary creation. The commentary part of the film used AI voice dubbing, which became a documentary

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about whether the world used AI to simulate voice dubbing at that time. The score of the film Douban is 9.3 points, and the platform broadcast volume is 31 million, which can be said to be highly praised after the broadcast. This technology was completed by the top AI voice production team in the country. The whole process includes the collection of data voices, the establishment of sound library, the determination of text manuscripts, and later editing and synthesis by the team. From the perspective of the whole documentary experience, the AI artificial dubbing part of the film is natural and harmonious, forming close cooperation with the video. The success of this film is the successful integration of intelligent speech recognition technology and documentary creation. At present, in addition to voice dubbing, dictation of historical data into text form, AI speech recognition is also reflected in all aspects of post production speech recognition that automatically forms subtitles, thus greatly improving efficiency. [9]In the past post editing, except for the editing of the feature film, the formation and proofreading of subtitles often consumed a lot of time. However, intelligent voice technology has solved this problem. This technology has been widely used in different types of video production. Because of its own characteristics, historical documentary films still have a lot of application space in speech recognition. In addition to voice dubbing and caption recognition, in the future, we can explore the formation of sound effects such as ambient sounds based on historical data and background, so as to match accurate sounds for historical scenes, including personalized language for characters' historical background. In this way, the intuitiveness of the documentary can be improved, so that the audience can accurately accept the historical information, like going back to different times, making the historical figures more vivid, and providing more possibilities and innovations for the reproduction of history. The historical documents and audio-visual production products are constantly closely combined to provide a more three-dimensional experience for the audience.

In short, intelligent speech recognition technology provides more new paths for the creation and development of historical documentaries. In the future, technology development and content creation will be driven in both directions. The development of technology promotes the innovation of historical documentaries, while the demand for content can also provide more directions for the development of technology.

3.2.3. Application of Intelligent Technology for Data Analysis in the Creation of Documentary Films on Historical Documents

According to UNESCO data, one language disappears every two weeks worldwide. Taking the author's ethnic Manchu as an example, only one in every 100 million Chinese can master this language. Hello, AI, the first 8K documentary in China, will be broadcast on Youku platform in 2019. Therefore, in the application of text analysis technology, creators need to be cautious, combine the advantages of AI and AI, and carry out effective text analysis to achieve better results. So as to present a richer and deeper historical and cultural connotation for the audience.

In the data analysis technology, visitors' browsing and clicking preferences can be captured by means of crawling, so as to conduct data analysis and help producers understand which history the audience has a sequel to "I use AI to build cultural relics and artificial intelligence to revive a thousand years of history", which recorded the story of a researcher who saved history by voice, The film shows the world the role and significance of AI in saving endangered languages. Through recording, storing and fetching, a recording mode is formed for specific voice, intonation, syllable and timbre, which is unified into the database to provide language for documentary production. The data analysis of intelligent technology in the creation of historical documentaries is also reflected in the deep mining of historical data, finding its relevance, analyzing the correlation between characters and historical events, and providing better narrative services for the construction of the overall story

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context, how to display the complete event, reflect the character and better narrative. Increase the historical depth of content through information interaction. Provide help for better telling history.

It is worth noting that there are still some challenges and obstacles to text analysis technology in the creation of historical documentaries, such as the uneven quality of the text of historical documents, the difficulty of translating and interpreting ancient documents, etc. All these problems will have an impact on the accuracy and reliability of the text analysis, which will help us to understand the demand and guide the creation of the film. Through data analysis technology, accurate audience positioning and personalized content recommendation can be achieved to improve the audience's viewing experience and enhance the influence and attractiveness of the work. [10] The application of data analysis technology brings new ideas and possibilities for the creation of historical documentaries, which helps to explore the potential of the work and attract more viewers.

4. Functions and Characteristics of Intelligent Technology Applications in the Creation of Historical Documentary Films

4.1. Intelligent Technology as a Creative Aid in Documentary Films on Historical Documents

According to the statistics of Yien, in 2022, the documentary will be produced for more than 90000 hours and broadcast for more than 800000 hours, with 1040 new videos on typical video platforms; According to the statistics of "China Audiovisual Big Data" (CVB), 64000 hours of documentaries will be broadcast by CCTV and local satellite channels in 2022, and the market popularity and reputation will increase. (Source: Xinmin Evening News) The assistance of intelligent technology in the creation of historical documentary films is reflected in the aspects of conception, content construction, post production, audience feedback, etc. In terms of conception, intelligent technology can analyze the theme of creative conception through the collection and collation of historical documents. Provide data basis from the beginning of creation. In terms of content construction, intelligent technology can enrich the content performance of documentaries through image recognition and voice recognition technology, help to shape suitable characters, mine details of historical events, and deeply mine information to enrich the expression of content. At the same time, the continuous development of intelligent editing technology directly provides convenience for video production. At the same time, different styles of design provide more editing rhythm and direction for later editing, and provide more expression for creation. Improve the expressiveness and appreciation of historical documentary creation in terms of speed and quality. Through the development of intelligent technology, we can timely harvest the click feedback information of the video platform, provide creative strategies for future creation, and provide services for accurate benchmarking and watching users and future accurate push.

4.2. Innovative Features of Intelligent Technology in Documentary Films on Historical Documents

At present, the functions of intelligent technology in historical documents are embodied in the sorting and integration of content and text, identification technology and the creation of virtual space. First, from plane to solid. With the development of technology, we will further dig on this basis. Fully integrate existing applications. From the portraits of historical figures to the details of the environment, it has been constantly improved. From two-dimensional to three-dimensional display to the creation of three-dimensional virtual space, VR technology is applied to bring all audiences audio-visual experience and cognitive style. Secondly, from watching to immersing. To create a space historical scene, you can imitate the game settings, so that the audience can choose roles to enter the historical scene and participate in the interaction with historical events. The historical documentary itself has different viewing and experience paths, and the audience can choose the main

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line. So as to enhance experience, deepen understanding and interest, and achieve better communication. Interactive design, such as touch screen, voice control, gesture, and motion recognition, is added to the viewing and space immersion experience, which makes the audience more immersed in the world of historical documentary films and increases the fun and sense of participation in viewing. Through continuous innovation and improvement of interactive experience design, it can bring new possibilities and opportunities for the production and dissemination of historical documentary films. Data + Artificial intelligence will also make the documentary market more detailed and break through the professional production limitations of film studios, television stations, and other entities.[11]

5. Exploiting the Potential and Prospects of Intelligent Technology in the Creation of Historical Documentary Films

5.1. Aspects of Historical Restoration and Spatial Shaping

Intelligent technology in historical documentaries is mainly applied to information extraction and integration, material collection, which has a large potential space in historical restoration and space shaping, and the collected materials can be organized according to different keywords to automatically generate videos. Currently more mature software can generate matching clips according to the file description, but the precision and accuracy need to be improved. Here we need to establish a larger database, improve the recognition function and vertical links. The degree of reproduction is further improved. Establish a more flexible and realistic character construction and space to improve the degree of historical reproduction. Solve the situation of stiff movement and expression of characters. For example, for the restoration of Kathmandu, we can combine online and offline activities to collect and reserve rich and sufficient data, and utilize intelligent technology to restore photos and images, and store them in the library. According to the set code, we can generate characters with distinctive personalities that are in line with the reality of the historical data like game characters, and generate video content according to the content of the data and the story line. In this way, in the face of a large number of faded history, intelligent technology will provide a broader creative space and market for the creation of historical documentaries. For example, the author is concerned about the recovery of Liaohe culture, combining intelligent technology with historical documents and historical relics, and will be committed to the creation of related historical documentaries. In the past, there are many drawbacks that can not be reproduced in the creation, with the help of intelligent technology will be improved. Especially in the character characterization, historical space will play an important role in the creation.

5.2. Aspects of emotional resonance and depth of experience

The exploration of intelligent technology in historical documentaries has important practical significance and application value, and it is a development trend that cannot be ignored in the field of documentary production. In addition to the technology to promote the convenience of content production and quality improvement, we can consider the technology to enhance the emotional resonance between the work and the audience, so as to enhance the depth of experience. This relies on the data analysis of intelligent technology in historical documentaries. In addition to hotspot analysis, emotional analysis can be further carried out from the field of big data. The aim is to identify and analyze the emotions of text, audio and video materials through artificial intelligence technology, and to reveal the emotional characteristics and emotional direction contained therein. To help creators better grasp the emotional clues contained in the historical materials, so as to better present the historical events and the inner world of the characters, increase the emotional resonance of the audience and the depth of understanding of history, and form an emotionally contagious story

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development to the audience, which is expected to inject new vitality and contagious force into the creation of historical documentaries.

6. Conclusion

Intelligent technology through virtual reality can improve the audience's sense of view and make historical documentaries more attractive. Through virtual presentation, people can travel to different time and space, and through interactive experience, they can feel the reality of history as if they were there. The development of intelligent technology improves the innovation possibilities for historical documentaries. With the help of intelligent technology, historical and cultural documentaries can move from the existing video creation to the creation of scene video, virtual video space and scene, and form an industry starting from this. The scope of application includes the reproduction of historical relics, the promotion of history and culture, the promotion of culture and tourism, and the promotion of urban development. It is believed that with the further development of intelligent technology, the creation of historical documentaries will continue to improve its richness and depth of content, ease of creation and accuracy. Intelligent technology not only provides tools for the creation of historical documentaries, but also provides more directions and ideas for the creation of texts and contents. Along with the development of intelligent technology in the future, the creation of historical documentaries will continue to innovate and improve.

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