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AIGC Application Scenarios, Influence and Countermeasures in Film and Television Production

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Abstract

The rise of AIGC has a profound impact on the development of film and television production. The application of artificial intelligence technology to produce content in film and television production is changing the traditional production process and mode, and gradually reshaping the production process. This paper analyzes application scenarios of AIGC and its influence on film and television production, and puts forward some countermeasures to this new generation mode from the aspects of adapting to the new production paradigm, strengthening talent training, and utilizing AIGC legally.

Keywords

AIGC; Film and Television Production; Countermeasures; Man-machine Collaboration

1. AIGC Development Background

The study of artificial intelligence began in the 1950s when the scientist Alan Turing proposed the famous Turing test, and it has been studied for nearly 80 years. AIGC (Artificial Intelligence Generated Content) has developed rapidly since 2022.

The White Paper on Artificial Intelligence Generated Content (2022) published by China Academy of Information and Communications Technology and JD Explore Academy defines AIGC as “a category of content classified from the perspective of content producers, a mode of content production, or a collection of technologies for automated content generation.” Following PGC (Professional Generated Content) and UGC (User Generated Content), AIGC is a new production mode that utilizes artificial intelligence technology to automatically generate content. Thanks to the development of pre-trained large models, AIGC uses massive databases and corpus resources to synthesize data through simulation and generation algorithms, thereby improving the efficiency and quality of content production (China Academy of Information and Communications Technology & JD Explore Academy,2022). At present, it has been applied in many industries such as film and television media, e-commerce, entertainment, education, finance, medical care, and industry. However, film and television production, as its vertical field, has been greatly affected. AIGC technology has been involved in almost every aspect of the film and television production process from planning, collecting and editing, writing, post-production to publishing. Currently, it has achieved remarkable results in the fields of text generation and image generation. Among them, ChatGPT, Google Bert, Stable Diffusion and Midjourney

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V5 models have been widely used in text generation and image generation, which are two relatively mature models applied to the film industry, especially in the creation, production and promotion of the film industry chain. It can play a significant “cost reduction and efficiency” effect (Cao&Yu,2023)The application scenarios of AIGC in film and television production are mainly text generation, image generation, audio generation, video generation ,content review and release.

2. Main Application Scenarios of AIGC in Film and Television Production

2.1 AIGC + Text

Text generation is one of the earliest implementations of AIGC technologies, and the most representative one is ChatGPT developed by OpenAI in the United States in November 2022. ChatGPT has attracted global attention and discussion with its powerful content generation capability. In addition to ChatGPT, Wenxin Yiyan developed by Baidu is also widely used in China. In film and television production, AIGC text generation is mainly applied in manuscript writing, planning and screenwriting. It can quickly and automatically generate a large amount of text content, saving the time and the labor cost of text creation, dialogue writing and publicity copywriting. The production team can get creative inspiration and reference faster, speeding up the film production process. It also plays a positive role in creating ideas, providing reference and personalized recommendation, and enhancing the creative expression of visual effect.

2.2 AIGC + Image

At present, driven by the continuous improvement of deep learning model and open source model, AI drawing tools based on content generation such as Midjourney, Stable Diffusion, Firefly and Wenxin Yige have developed rapidly, and can complete intelligent drawing and shooting script generation in film and television production. The image-generating function of AI drawing can also complete the corresponding animation. Compared to manual drawing or photography, AIGC image generation can produce a large number of images quickly. For designers and creators, it can be utilized to generate unique and imaginative images, and provide a broader creative space.

2.3 AIGC + Video

The application scenarios of AIGC technology in film and television production are mainly video generation and video editing. The use of AIGC technology to realize video generation is relatively represented by Pika Labs, Runway, VideoPoet and MotionAgent, which are involved in text-generated videos, picture-generated videos and other cross-modal content generation. The video generation is still in development, but the stability and the consistency of generated videos have been improved. RunwayGen2 has also introduced the Motion Brush function, which allows static images to produce dynamic effects. The tools, such as AutoPod, Opus Clip and Tencent Zhiying, can realize automatic video editing. These tools can capture and analyze the material, and complete rough cuts.

In addition to video generation and editing, AIGC can also be applied in digital human generation, studio scene production, 3D scene generation, AI face changing and so on. For example, “Xin Xiaowei”, which officially made her debut on the eve of the opening of the National Two Sessions in 2020, is the world’s first 3D version of AI synthesized anchor based on Xinhua News Agency reporter Zhao Wanwei as the prototype and

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launched by Xinhua News Agency in cooperation with Sogou Company. From the actual effect, it realized 3D digital human generation with high fidelity. In August 2023, Youku launched "Under the Inhuman" with digital actors, making it the first live-action film and television drama to realize the participation of digital human through AI technology in China. The role player of Er Zhuang in the drama is Li Li, a super-realistic digital person generated by the self-developed AI technology of Alibaba Digital Media & Entertainment Group's technology team. The difference between Li Li and traditional CG characters is that she has the characteristics of real people and has completed pre-acting training to avoid reliance on motion-capture technology. At the same time, the research and development production team uses AI technology to reduce the cost of modeling, and the time spent on digital human participation is also less than that of CG characters completed with traditional special effects, so it realizes cost reduction and efficiency improvement, and also brings a new direction of production and development for the film and television production.

2.4 AIGC + Audio

The application scenarios of AIGC technology in film and television production are mainly for voice synthesis, song generation and intelligent dubbing soundtracks. For example, such tools as Jianying can use the text to directly generate intelligent dubbing, and select the voice according to production needs. At the same time, it can directly generate the text and subtitles for the voice. Tools such as AIVA can generate soundtracks or compose intelligently.

2.5 AIGC + Content Review and Publishing

The application of AIGC technology in the content review process can help complete the review of film and television content by identifying, marking, analyzing and monitoring the text, images, audios and videos, and deleting and filtering sensitive words and illegal content. In the case of multi-platform publishing, AI relies on big data to capture and generate an intelligent user profile combined with customized recommendations, and to complete intelligent distribution and accurate pushing.

3. The Influence of AIGC on Film and Television Production

3.1 Efficiency Improvement and Cost Savings

The integration of AIGC into the film and television production process can significantly improve efficiency, reduce the cost of equipment and software, so that creators are able to complete planning, manuscript writing, audio and video production and subtitle generation faster, greatly shortening the production cycle. In particular, the use of AI tools has simplified the post-production work that is not too difficult to produce, but time-consuming and cumbersome. Take AutoPod, an automatic multi-camera editing tool, as an example. It is designed with reference to the common editing practices and experience of video editors, and can complete video editing like manual editing to achieve similar professional results. Using AI tools to complete rough cutting, professional staff need to complete more modifications and adjustments, which will greatly improve the efficiency of editing work and release more production capacity. The impact is more obvious, especially in the production of some large-scale variety shows, film and television dramas with complex production process, long completion cycle and large investment of manpower and material resources. For example, in the production of mass short videos of Mango TV "Ride The Wind 2023", the staff used the Mango Supermedia self-developed AIGC to generate hundreds of thousands of short video content. The Mango TV flow

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of attracting customers saves one-third of the costs. AIGC empowers film and television production, helping more creators complete the tedious and repetitive work, so that they can devote more energy to creativity and innovation.

3.2 Creative Space Expansion

On the one hand, AIGC provides creators with more creativity and possibilities in the content production. With the continuous training and reinforcement of big data in large models, the AIGC model may bring more innovative dimensions, creative space and freedom of creation, stimulate and superimpose creative cognition from different perspectives, and generate imaginative art, characteristic styles, new combinations and unknown combinations of colors, melodies and shapes in partially random and fully random ways under specific training conditions (Zhan et al.,2023). In August 2022, AI-illustrated "Space Opera House" won the first prize in the "Digital Art/Digitally retouched Photos" category of the Emerging Digital Artist Competition held in Colorado, USA. The contestant was not a professional painter. In this way, the creative space will be greatly expanded and extended. On the other hand, the quality of the content produced by AIGC still varies, and it is easy to produce homogenized content, and the generated works cannot replace human beings in terms of value orientation, emotional expression and personalized creativity.

3.3 Gradual Formation of a New Paradigm of Content Production

AIGC has penetrated into all aspects of the film and television production process, gradually changing the traditional process and forming a new paradigm of content production. Its performance is as follows: first, the formation of man-machine collaboration mode. In the preliminary planning process, AI can collect massive information and capture hot spots, analyze and generate relevant content, and generate topics through man-machine collaboration. In the post-production process, the use of AI intelligent tools can assist the completion of creation. In the final publishing process, intelligent media asset management and services, and multi-platform intelligent distribution combined with thousands of customized recommendations can efficiently complete content distribution, and improve conversion efficiency and user satisfaction. Second, cross-modal generation. Different sources of information can be regarded as independent modes, such as texts, images, audios and videos. Different from traditional film and television content production modes, AIGC content production modes are clearly characterized by cross-modal content generation, such as text-generated images, text-generated videos, and image-generated videos. Compared with the traditional creation mode, this provides more production modes and possibilities, and the content and form of created works will be more diversified, personalized and intelligent.

3.4 The Change of Content Creation Subjects

In the past, film and television production required professionals to have specialized knowledge, skills and experience, as well as the ability to use professional software such as Photoshop, Premiere, After Effects, Audition and Cinema4D. With the emergence and development of AIGC tools, automation and intelligent operation are simple and easy to use. Production users do not need to master professional knowledge and skills, but can produce content through language or mastering elements such as "cue words", which means that the boundary of the profession is gradually dissolving while the number of non-professional users is increasing and the quality of their works is improving. The development of AIGC technology and tools will promote the change of content creation subjects from professionals to popular users, and form a new creation ecology of

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user creation, user ownership and user co-construction.

3.5 Ethical Code Disputes

The production model of AIGC requires a large amount of data. In the continuous process of deep learning, the use of big data involves the source of data, and the works generated and disseminated are often accompanied by copyright ownership disputes. They are prone to intellectual property rights, privacy violations and other problems. For example, the controversy, triggered by "AI Stefanie Sun" that utilized AIGC to imitate the singer Stefanie Sun to sing songs, is about whether there is infringement of the song itself and the singer herself. AI algorithms have a "black box". If non-professional users can not understand the operation mode and working principle of the algorithm well, it will lead to problems about the transparency and interpretability of the AI model, cause users to distrust and worry about AI technology and its application, and may also bring about relevant problems such as algorithmic security, algorithmic discrimination and algorithmic responsibility. AI may create false but logically correct content, which deepens users' doubts about the accuracy of the content generated by AIGC, and it is also more difficult to distinguish between true and false content. At the same time, it is difficult to trace the source, so it is necessary to be alert to the risks of AIGC dissemination and the occurrence of criminal acts in order to prevent the production and publication of malicious, false and undesirable works.

4. Countermeasures for the Influence of AIGC

4.1 Man-machine Collaborative Creation to Adapt to the New Paradigm of Production

In the deep integration of AIGC technology with the whole process of film and television production, it is necessary to deal with the relationship between people and AI. AI provides strong technical support, and content production is faster and more convenient, but the core power still comes from people, and the interaction between people and the outside world is achieved by people's perception of the world and their feedback. The value orientation, right and wrong judgment, emotional expression, and social functions in film and television works are those that AI cannot replace the creators themselves to present. AI is integrated into the film and television media industry, reshaping the production process. Man-machine collaborative creation is an inevitable trend of development. Creators should adapt to the new paradigm of AIGC that is embedded in the entire production chain. AI is an assistant rather than a rival, and its efficient productivity and intelligent ways can assist creators to complete more personalized and creative film and television works. At the same time, creators should actively embrace AI, examine self-value, enhance professional and technical skills, and improve innovation and creativity in order to build the irreplaceability of self.

4.2 Improvement of Technical Maturity and Cultivation of Film and Television Talents with "Intelligence Ability"

At present, AIGC has a profound impact on the film and television production industry, but its application is still in the development stage. Such technologies as text generation and image generation are relatively mature, and video generation is still under development and its degree of refinement is not enough to be competent for more elaborate and detailed requirements in film and television production. The future direction of development should still focus on the maturity of technology and the standardization of application. Its tech-

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nology maturity mainly lies in the realization of high controllability and quality of generated content, and the efficient controllability and high-quality response can maximize production efficiency and value, and achieve real business empowerment (Zhao et al.,2023). At the same time, in order to adapt to the new AIGC technology, it is necessary to cultivate inter-disciplinary film and television talents who can master AI knowledge and have “Intelligence Ability”. Talent cultivation can be carried out from several aspects: first, film and television media colleges and universities are deeply involved in cultivating inter-disciplinary talents of related majors. Second, the film and television media industry cultivates talents through the improvement of process chain and the accumulation of practice. The third is the integration of industry and education. Through the combination of universities, film and television production agencies, media organizations, research institutions, technology providers and other diversified bodies, the complementary functions and resource advantages are formed, the knowledge integration of different disciplines is completed, the combination of theory and practice is realized, the docking and coupling of technology are achieved, and the ecosystem of AGC application is built through the integration of industry and education to cultivate professional talents with artificial intelligence literacy.

4.3 Compliance with Relevant Regulations and Standardized Application of AIGC

On August 15, 2023, “the Interim Measures for the Management of Generative Artificial Intelligence Services ”came into effect.The release of “the Interim Measures for the Management of Generative Artificial Intelligence Services” is of great significance, clarifying the relevant regulations and requirements that need to be complied with in the application of AIGC. Only the relevant law and regulation protection and the standardized and reasonable application of AIGC can ensure the sustainable and stable development of AIGC, and also allow users to take the laws and regulations as the criterion, adhere to the bottom line of laws and regulations, form laws and regulations and self-restraint in the use of AIGC related technology and data, and make the generated content safe, authentic, trustworthy, controllable, healthy and respectful of privacy, be in line with core socialist values and disseminate advanced socialist culture.

5. Conclusion

The integration of AIGC into film and television production has changed film and television production in terms of technology and production modes, and has also brought challenges and opportunities to the film and television production industry. By grasping the advantages brought by AIGC, advancing with the times, maintaining integrity and innovation on the basis of consolidating the existing experience, and doing well in risk prevention, the film and television production industry should conform to the new development trend and give full play to its own value and social function.

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Reference

[1] China Academy of Information and Communications Technology & JD Explore Academy. (2022,Sep-

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https://doi.org/10.37420/j.adr.2024.006

tember 2). The White Paper on Artificial Intelligence Generated Content (AIGC) (2022).Retrieved from http://www.caict.ac.cn/kxyj/qwfb/ bps/202209/P020220902534520798735.pdf.

[2] Cao Lei&Yu Jianhong. (2023). Innovative application of AIGC technology in digital film creation and production platform. Journal of Beijing Film Academy (11),80-91.

[3] Zhan Xi-ni, Li Bai-yang & Sun Jianjun. (2023). Scenarios Application and Development Opportunities of AIGC under the Integration of Mathematics and Intelligence. Knowledge of Library and Information (01), 75-85+55. DOI: 10.366/j.dik.2023.01.073.20010000203

[4] Zhao Zizhong, Guo Xiaorong, Lu Haibo, Peng Jian & Feng Hongsheng. (2023). Deep integration: AIGC leads the intelligent transformation of media. Radio and television network (11), 9-18. doi: 10.16045/ j.cnki.catvtec.2023.11.019.

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