

The application prospect of AI-generated image technology in modern film creation

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Abstract: The rapid development of artificial intelligence technology has opened up new possibilities for film creation, and also triggered the overall anxiety of the film industry. This paper discusses the application prospect of AI generated image technology in modern film creation. At present, AI generated images are still insufficient in terms of expression and realism, and they are easy to fall into the trap of spectacle consumption, relying on dazzling visual scenery and lacking life themes, symbolic meanings and cultural references. To go beyond artificial intelligence, the new film style needs to carry emotional arousal and the search for the meaning of life, and construct visual images based on human causality, emotional logic and humanity. By analyzing the technical principles, advantages and limitations of AI-generated image technology, the paper points out that AI-generated image technology can significantly improve the efficiency of film production, reduce the cost, and provide more sources of inspiration for creators.

Key words: AI image generation; film creation; application prospect

1 Introduction

Since the 21st century, the rapid development of artificial intelligence (AI) technology has attracted wide attention and anxiety in the film industry. The emergence of generative multi-modal AI enables machines to generate high-quality and creative video content, providing new possibilities for film creation. However, while AI technology brings opportunities, it also raises concerns about the replacement of creativity and the loss of the uniqueness and artistry of films. In the face of the impact and challenges of artificial intelligence technology, the film industry needs to explore the creation of man-machine collaboration mode. While utilizing the advantages of AI-generated image technology, it should adhere to the people-oriented, pay attention to humanistic care and artistic pursuit, which is not only about the future development direction of film creation, but also related to the reshaping and reconstruction of the film spirit in the post technological era. In this context, this paper will further explore the AI generation image technology in modern film creation, analyze its advantages and limitations, put forward the man-machine collaborative path, provide reference and enlightenment for the sustainable development of "AI + film", and think about how to continue exploring new film styles, expressing emotions, and exploring the meaning of life in the era of artificial intelligence, thus constructing rich wisdom and temperature of film art, and opening up new imagination space for the era of science and technology.

2 Overview of the AI-generated image technology

AI image generation refers to the use of artificial intelligence technology, especially deep learning algorithm, to

automatically generate realistic and diverse images, videos and other visual content. The basic principle is to train a neural network model, learn a large amount of image data to master the characteristics, patterns and rules, and then generate the corresponding image content according to the input conditions (such as text description, sketch, style sample). This process usually involves generating adversarial model architecture such as network (GAN), variational autoencoder (VAE), as well as style migration, image translation, semantic synthesis and other technologies. The development of AI-generated image technology can date back to the late 20th century, but the real breakthrough was made with the introduction of GAN in 2014 and the rapid iterations in the following years. With the continuous optimization of algorithms, the improvement of computing power and the enrichment of training data, AI generated image technology is gradually mature, and can generate more and more high-quality, high-fidelity and strong diverse image content [1].

According to the different generation methods and application scenarios, AI generated images can be divided into the main types of several. One is to generate images based on text description, that is, using natural language description as input to generate matching image content, such as DALL-E, Midjourney, etc. The second is to generate images based on the sketch or layout, that is, according to the simple sketch or layout information provided by the user, to generate the corresponding realistic images, such as GauGAN, etc. The third is to generate new images based on the sample images, that is, using one or more images as the reference to generate images with similar styles and content but innovative images, such as StyleGAN. The fourth is video generation, that is, according to the text description, keyframes, semantic images, etc., to generate coherent and realistic video clips, such as Phenaki, CogVideo, etc. The remarkable features of AI image generation technology are: (1) strong controllability, which can flexibly generate content according to user needs; (2) high generation efficiency, which can realize real-time or near-real-time generation; (3) high-quality generation, which can generate high-resolution, high-fidelity images; (4) large creative space, which can generate imaginative content beyond the reality. These unique advantages make it have broad application prospect in the fields of film, gaming, design, and advertising.

3 Advantages and challenges of AI image generation in film creation

AI-generated image technology has shown many advantages in film creation. It can significantly improve the production efficiency. By automating the generation of image content, many time-consuming and laborious tasks can be shortened, such as automatically generating conceptual design drawings, quickly converting sketches into realistic conceptual art, and generating virtual scenes and digital assets in real time [2]. AI can also automatically complete tasks such as image picking, synthesis and rendering in the post-special effects production, significantly improving efficiency. AI-generated image technology can reduce the production cost. Automatic generation can reduce the dependence on professionals, reduce labor costs, and complete a lot of work in the virtual environment, saving the cost of live-action shooting, physical props production and other costs. This technology provides a broader imagination space for the creative expression of films, which can break the shackles of the physical world, generate a wild visual effect beyond the reality, inspire more diverse and novel creative inspiration by learning and integrating different styles and genres.

However, AI-generated image technology also faces some challenges in film creation. First, there are technical limitations. Current AI needs to improve the sense of authenticity, coherence, and semantic accuracy of generating details, and also has high requirements for hardware facilities and energy consumption. Second, the content generated by AI may tend to be homogenized, with a lack of uniqueness and artistry. The third is the copyright issue. The AI model learns a large number of existing works for training, and its generated content may be similar to some copyrighted works, causing infringement disputes [3]. However, legal issues such as the definition of the creation subject and ownership identification of AI-generated images are still unclear. Fourth, AI-generated images may have an impact on the traditional film creation

mode and practitioners, leading to changes in the roles of some positions, and practitioners face the pressure of transformation. Over-reliance on AI may also weaken the humanistic connotation and emotional expression of films.

4 Beyond AI: the exploration and spiritual reconstruction of the new film style

4.1 The reflection that AI-generated images are easy to fall into the trap of spectacle consumption

Although AI-generated image technology has brought unprecedented visual wonders to film creation, it is also easy to fall into the misunderstanding of excessive pursuit of sensory stimulation and visual novelty. Some films that rely too much on AI technology may only focus on the dazzling visual effects and bizarre images, while ignoring the logic of the plot, the three-dimensional sense of the characters and the depth of the theme. This one-sided pursuit of visual wonders can easily lead to films becoming superficial visual consumer product, unable to trigger emotional resonance and thinking in the audience. Therefore, film creators need to be alert to the spectacular consumption trap of AI-generated images. When using this technology, they should always adhere to the creation concept of content first and people-oriented, using technology to serve artistic expression, rather than the opposite.

4.2 Constructing visual images based on humanity and human causality and emotional logic

In the process of exploring the new film style, the creators should construct visual images based on the humanistic spirit and human emotional logic. This means that whether AI is used to generate images or for other technical means, it should be people-centered, humanized, emotionally driven, and causal, weaving a vivid, credible and sensitive film world. Technology is certainly important, but what is more important is the humanistic core and emotional orientation behind the technology. Only by combining advanced technology with humanistic spirit can we create film works and classic creations that really move people and inspire thinking. This requires film creators to constantly strengthen their cultural cultivation, improve their artistic accomplishment, and control technology with humanistic feelings and artistic wisdom, rather than being controlled by technology [4].

4.3 Combining national cultural symbols and elements with AI generated image technology to form a unique style of national films

The rise of AI generated image technology has also objectively accelerated the rectification of specific ethnic film style. Different countries and regions have different cultural traditions, aesthetic tastes and narrative styles. These local characteristics may be in conflict with the globalization and homogenization trend brought about by AI-generated images. In order to highlight the uniqueness and differences of ethnic films, filmmakers in some countries and regions began to consciously collect and sort out the cultural symbols, aesthetic elements and narrative motifs of their nationalities, and tried to integrate them with AI generated image technology to form a unique style of ethnic films. On the one hand, it helps to protect and inherit the national culture in the AI era, and on the other hand, it also makes the local films more competitive and internationally influential. For example, Chinese film creators can creatively integrate the myths and legends, poetical images, and ethical philosophy of Chinese civilization into the AI-generated images, create film works with unique Oriental aesthetic charm, and show the unique charm of Chinese culture to the world.

5 Human-machine collaboration: the fusion of AI-generated images and artificial creativity

5.1 Retain the dominant position of artificial creativity in artistic expression

In the process of human-machine collaboration, although AI generated images can provide a variety of creative materials and visual solutions, artificial creativity should still occupy a dominant position in the artistic expression. Film is a moving art full of emotions, and its core is to express human emotions and evoke spiritual resonance. This requires human creators to have the overall control and artistic processing of the theme, style and rhythm of the film based on their own life experience, cultural accomplishment, aesthetic taste and value judgment. No matter how amazing the material

generated by AI is, it is difficult to replace the leading role of artificial creativity in the deep artistic expression. Therefore, while using AI technology, the creators should always maintain the consciousness of the artistic subjectivity, and endow the image with profound connotation and emotional temperature through a unique aesthetic perspective and humanistic care. Only in this way can we create excellent films that do not lose humanity, depth and characteristics.

5.2 Avoid prejudice, stereotypes and discrimination in AI output

Although AI-generated images can provide a large amount of materials and solutions, their training data comes from the real world, which will inevitably contain some prejudices, stereotypes and discrimination. If the creator uses AI-generated content indiscriminately, it may inadvertently reinforce and spread some negative ideas. Therefore, in the process of man-machine collaboration, creators need to be vigilant and reflect on the output content of AI, and to identify and avoid the possible problems in time. For example, for AI-generated characters, attention should be paid to the presence of gender, race, age and other stereotypes. For the scenario provided by AI, creators need to identify whether there is bias or discrimination against specific groups and cultures. The creator should become a responsible "gatekeeper", and examine and revise the output content of AI from the perspective of humanistic care to ensure that the film conveys positive values and promotes the goodness of human nature and social justice.

5.3 Adhere to the pursuit of Chinese aesthetics and national charm, and reflect the theme of creation smoothly

In the process of using AI technology to generate image, national film creators should consciously adhere to the pursuit of Chinese aesthetics and the characteristics of national culture. We should be good at absorbing nutrients from the treasure house of Chinese civilization, innovatively combine traditional Chinese philosophy, poetics, painting and other elements with AI technology, and create film works that reflect Oriental wisdom and aesthetic ideals. At the same time, we should also pay attention to the overall sense of rhythm and artistic conception of the film, so that the presentation of the image can be full of poetry, full of charm, and give people spiritual comfort and spiritual nourishment. More importantly, the creator should neatly and skillfully design the position and presentation mode of AI generated elements in the film according to the theme of the film, so as to make them naturally fit with the emotional tone and value orientation of the film and complement each other, and avoid rigid attachment and one-sided pursuit of visual spectacle. Only by adhering to the Chinese aesthetic spirit and cultural character, can we highlight the unique charm of national films in the man-machine collaboration, tell Chinese stories well, spread Chinese voice, and contribute Oriental wisdom to the development of world films.

6 Conclusion

Film makers need to treat AI technology carefully and find a balance between man-machine collaboration. On the one hand, we should give full play to the advantages of AI technology in film creation, and make use of its automatic generation and massive data training capabilities to provide more materials and inspiration for the creation. On the other hand, we should adhere to the people-oriented approach, retain the dominant position of artificial creativity in artistic expression, and endow the image with profound connotation and emotional temperature through humanistic care and aesthetic guidance. At the same time, creators also need to be vigilant about the AI output content, avoid possible prejudices and stereotypes, and ensure that the film conveys positive values. For national film creators, it is more necessary to consciously adhere to the Chinese aesthetic pursuit and cultural characteristics in the process of using AI technology, integrate traditional aesthetic elements with scientific and technological innovation, and create film works highlighting the national spirit and Oriental wisdom.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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