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Review of Research on the Application of Digital Media Technology in the Context of Artificial Intelligence

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Abstract: Digital media technology has been widely used in social practice activities. With the improvement of big data storage and computing, artificial intelligence has been applied more widely in structured data computing, natural language processing, computer vision and so on. The application of digital media technology in the context of artificial intelligence can not only improve the design ability and work efficiency of designers, but also help designers create more characteristic and charming works. The article discusses the application of digital media technology under the background of artificial intelligence through the elaboration of digital media technology for the reference of related personnel.

Keywords: Artificial intelligence; Digital media technology; Applications

Introduction

With the rapid development of technology, Artificial Intelligence (AI) has crossed the boundary of science fiction and penetrated into people's daily life. And as a new form of technology, digital media technology has become the best stage for AI to play its magic. With the development of AI, digital media technology is facing many new challenges while having the prospect of wide application. Future research should focus on technological innovation, standardisation and management improvement to promote the healthy development of this industry.

1. Overview of digital media technology

The diversity of forms and characteristics of digital media technology is its most prominent feature, which covers a wide range of applications from static images to moving images, from two-dimensional plane to three-dimensional space, and from physical media to virtual reality. Its forms include digital painting, digital photography, computer graphics, interactive technology, web technology, virtual reality technology, augmented reality technology, dynamic sculpture and so on. Each form of expression reflects the innovation and imagination of digital media technology.

Interactivity is the most core feature of multimedia technology, which breaks through the traditional process of presenting in a static form in the past, allowing users to participate in the technical experience as participants. For example, technicians can use sensors and motion capture technology to make the user's body movements change, thus generating an immersive feeling. Such interaction not only enhances the cognitive depth of the technological work, but also enhances the user's sense of belonging to participation.

Emotional expression is another important feature. Artificial intelligence enables technicians to generate content with emotional overtones, for example, by analysing a large number of images and text through deep learning to generate images or music with a particular mood. This technique allows technical works to convey more complex and emotional emotions that resonate with users or even challenge their emotional feelings.

Personalisation is another important feature of digital media technology. Using methods such as big data and machine learning to achieve personalisation based on user behaviour, preferences, history and other characteristics, it brings a unique technology experience to users. For example, a content recommendation system based on users' browsing history can provide users with technology-related products that offer more experiences.

In addition, ecologisation is a trend in the development of digital media technology. Under the deepening of the concept of sustainable development, digital technology also pays more and more attention to environmental, social and cultural issues, and promotes the development of green life and multiculturalism by means of technology. At the same time, the use of virtual reality technology can provide an immersive environmental education experience for a wide range of technicians and enhance the environmental awareness of users.

2. The application of artificial intelligence technology in digital media technology

2.1 Interactive technology works based on artificial intelligence technology

Interactive technology is the cutting-edge field of digital media technology application, which not only breaks through the traditional static display, but also integrates a variety of technologies such as deep learning, computer vision, machine learning and so on, to enhance user participation. These works are usually based on sensors, motion capture and sound recognition, and through the user's behaviour and reaction, they directly drive the change of technical performance, thus achieving a deep interaction between the technology and the audience.

In addition, technicians use computer vision to create technological devices that can sense the environment. For example, technician Daniel Rozin's series of interactive mechanical devices-"Reflection", uses mirrors and mechanical constructions to transform the user's shadow into a variety of moving images that change in response to the user's movements and attitudes, creating dynamic, immersive technological space, enhancing the dialogue between the technology, the user and the environment. In addition, artificial intelligence plays an important role in the work of augmented reality. Virtual technological works that merge with the real world can be viewed through mobile phones or AR glasses and adjust instantly with the user's position and movements.

Artificial intelligence plays an equally important role in emotional expression. By analyzing large amounts of textual, visual and musical material, technicians can train models to produce technical works that reflect specific emotions. For example, in one experiment, technicians used deep learning techniques to analyse a large number of poems, and then used music to express the emotions of the poems. These works resonate with users, making the communication between technology and emotion sharper and deeper.

2.2 The combination of artificial intelligence technology and virtual reality technology

With the continuous development of digital media technology, Virtual Reality (VR), a groundbreaking practice, has been combined with Artificial Intelligence to generate amazing innovations. Virtual reality technology utilizes helmets, controllers or other interactive devices to create an explorable three-dimensional virtual world that gives the user a sense of immersion. The addition of artificial intelligence not only adds visual appeal to the virtual world, but also brings new content creation, emotional resonance, and interactive experiences.

Artificial Intelligence applied to virtual reality has greatly enhanced the ability to generate virtual reality content. Using deep learning and generative inverse network (GAN) technology, models can be trained to generate an infinite variety of virtual scenes and characters with a high degree of realism. For example, in one AI-based virtual reality application, users can enter a simple description such as 'dream forest', and the system will use deep learning techniques to generate a colourful forest scene.

Emotional expression plays an important role in technology, and virtual reality technology can make use of artificial intelligence technology to achieve a deeper communication of emotions. For example, technicians can use emotion recognition algorithms to analyse the user's facial expressions, speech and physiological responses, and then adjust the atmosphere and content of the virtual situation to achieve empathy.

In terms of interactive experiences, AI technology makes virtual reality more resilient and personal. Using machine learning techniques, productions are able to understand and remember the behavioural patterns of their audience, thus providing better content for future personal experiences. For example, AI-based virtual reality narrative experiences are able to generate different behavioural orientations based on the audience's decisions and reactions, providing a personalised experience.

The promotion of 5G technology has opened up the integration of artificial intelligence and virtual reality technology. The high transmission rate and low latency ensure the real-time and smoothness of the work of virtual reality technology; the low latency feedback mechanism makes the interaction more realistic. With the popularization of 5G technology, virtual reality technology is more and more widely used in many fields such as education, healthcare, and society, becoming a more socially valuable form of technology. However, the application of artificial intelligence to virtual reality technology also faces some challenges. How to maintain the originality and depth of the technology while advancing it, and avoid over-reliance on algorithms and loss of human warmth, are issues that technicians and researchers need to explore in depth.

3. Conclusion

In summary, the impact of artificial intelligence on digital media technology exists not only in the process of production, production and distribution of digital media technology, but also in the transformation of the original way of technology, which promotes the innovation of technology. Although the two belong to different levels, the nature of the two is inextricably linked. No matter how high, how powerful and how widely used the technologies of the future may be, their ultimate goal is to better serve humanity. As users and facilitators of technology, we should adhere to the morality and responsibility of human beings, highlight the subjective position of human beings in technology, and make reasonable applications of it, so as to meet the needs of the development of the times and give full play to the functions that artificial intelligence should have.

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