

Research on The Innovative Development of Digital Media Art in The Era of Artificial Intelligence

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Abstract: From desktop design to virtual imaging, digital media art has jumped beyond the "screen" and undergone tremendous changes in the past few decades. Its application fields have also shifted from the initial graphic design and film and television special effects to display design, military, geography and other fields. Digital media art brings novel audio-visual experiences and provides convenience in life. Human activities are closely connected with digital media. Digital media art relies on digital media technology to artistically display creativity, which has a profound impact and is crucial to the development and growth of cultural and creative industries. In order to explore the characteristics and future development of digital media art, this article uses interdisciplinary research methods, comparative research methods, literature research methods, etc. to understand the relationship between digital media technology and artificial intelligence, from the perspectives of technology, communication, and art. Let's observe the current performance of digital media art as it becomes more and more intelligent, find out the problems and solutions hidden under the wave of intelligence, and explore the innovative development strategies of digital media art.

Keywords: Artificial Intelligence; Digital Media Art; Innovative Development.

1. Introduction

With the rapid development of intelligent media technologies such as artificial intelligence, VR/AR, Internet of Things, and big data, the era of artificial intelligence has quietly arrived. Among my country's scientific and technological achievements, the field of artificial intelligence has developed relatively rapidly, and the level of scientific research output in the AI sub-field has improved [1]. The proportion of high-level scientific researchers ranks second in the world, and patent applications rank first in the world. In the past ten years, artificial intelligence technology has moved from laboratories to industrial applications in our country. This is not only an overall promotion of international industrial competition and upgrading, but also the actual national conditions of our country's economic and social requirements for scientific and technological progress [2]. As human society has fully entered the era of artificial intelligence, various intelligent technologies are applied in the field of media art, and the power of science and technology brings opportunities for the transformation and upgrading of the media art industry. As an emerging profession, digital media art emerged with the digital age. The rapid change of science and technology has prompted the rapid growth of the digital media art industry. The birth of new technologies has also changed the research field of digital media art disciplines [3]. Artificial intelligence the digital media industry under the new trend will definitely put forward new demands for digital media art talents.

Digital media art uses artificial intelligence, big data, cloud computing and other digital technologies to analyze user habits, and then designs or produces personalized and humanized products that meet user needs and cater to user preferences, so that creative industry clusters and traditional culture can be driven by high-end technology. It has achieved perfect integration and promoted the modern development of the media creative industry. The digital media industry is expanding more and more, and the use of digital media

technology will become a required course for many positions [4]. Through the research of this topic, we focus on clarifying the connotation and characteristics of the new demand for digital media art talents under the new development of the digital media industry, thereby providing new perspectives and new thinking for the training and reform of digital media art talents in major colleges and universities, and more importantly, The study on the differences between my country's industrial structure adjustment and talent demand provides a new reference sample.

2. Digital Media Industry in the Era of Artificial Intelligence

2.1. Artificial Intelligence and Digital Media Technology

The essence of artificial intelligence is a computer science technology. Its principle is to capture and use big data for deep learning by building an infrastructure layer, an algorithm layer and a technology layer, and conforming to the storage, computing and control modes, thereby imitating human beings. Physical ability and intelligence help humans solve problems better. At present, research on artificial intelligence is led by deep learning, and continues to make efforts in the fields of algorithm improvement, big data and high-performance computing to achieve a qualitative leap [5]. Strictly speaking, the current stage of "artificial intelligence" research is the development of "local intelligence" for some problems in various fields. Most of the artificial intelligence mentioned actually refers to "machine learning". A simple understanding is that computers have the ability to learn independently without explicit programming. Digital media is acquired, stored, processed and disseminated through computers in the form of bits. It has an inseparable and close connection with computers and the Internet. Therefore, digital media technology is the digital technology involved in the application process of digital media. From the perspective of information transmission, digital media technology is the

software and hardware technology involved in realizing digital media in the aspects of representation, recording, processing, storage, transmission, display, and management [6]. As a new stage product of computer science and technology, artificial intelligence brings intelligent features that are deeply embedded in digital media technology.

2.2. Digital Media Technology

Core layer technology mainly includes media transmission technology, information processing technology and resource management technology. The working principle of digital media transmission technology is to create a buffer in the computer, and pre-download small pieces of data for buffering before the video and audio files are played. Therefore, when the network bandwidth is insufficient (called "stuck" in network terms), the player program will call This small piece of data is played back seamlessly to avoid interruptions and ensure the smoothness of file playback. Streaming media transmission technology is closely related to the development of mobile communication technology [7]. The research direction of digital media information processing technology is also moving towards enhancing the speed of digital audio processing and accelerating the efficiency of digital image processing. Resource management technology mainly establishes digital media databases to effectively solve the storage, retrieval, and management of resources.

Relevant layer technology mainly includes information acquisition and output technology and media storage technology. Information acquisition technology is the acquisition of information such as sounds and images, and also involves modern sensing technologies including human-computer interaction. Digital media information will be output after being processed by digital technology, and the output information will be converted into messages that people can understand. Information output technology includes a variety of technologies, the most well-known of which are three-dimensional display technology and sound systems, as well as hard copy functions.

Expansion layer technology mainly includes virtual reality technology, computer graphics and animation technology. Virtual reality technology integrates artificial intelligence, sensor measurement, image processing, speech processing, human-computer interaction, biosensory recognition, computer graphics, network technology and other multi-disciplinary technologies, and usually presents immersion, interaction, imagination, intelligence, etc. Distinctive features.

3. Digital Media Art in the Era of Artificial Intelligence

3.1. Human-Computer Interaction Art

To some extent, human-computer interaction art can be seen as a new extension of Process Art and Participatory Art in the context of digital intelligence. Human-Machine Interaction Art is one of the new art forms of digital media art. The audience can communicate and interact with the works through the five senses, and be immersed in the situational communication activities of "people (objects) - objects (people)". The art of human-computer interaction pays more attention to the design of behavior [8]. Creating new user experience is the most effective way to plan and describe the behavior of things. Human-computer interaction art is one of the more common art forms in modern large-scale art

exhibitions. Interactive installation art is a part of human-computer interaction art. It brings closer the relationship between humans and machines, allowing the public to adapt to the changes brought about by the intelligent era in their lives, accept the social changes brought about by machines, and pay attention to the impact of machines on nature. Transformation, the art of human-computer interaction is not just a simple physical interaction, but also a communication and thinking of spirit and consciousness.

3.2. 3D Printing Art

One of the most common art forms of 3D printed art is digital sculpture. In addition to digital sculptures, 3D printing art also includes wearable 3D printing clothing, 3D printing interactive devices, 3D printing street graffiti, 3D printing ceramics, 3D printing jewelry, 3D printing historical artworks and other art forms. The emergence of 3D printing technology has given new vitality to artistic creation [9]. The interpretation and reconstruction of artistic creation through new digital manufacturing methods are enough to cause the public to think deeply about new materials, new equipment, and new applications in the digital intelligent era, making the public choose Accept the empowerment and challenges of new digital technologies on art with a curious, open and inclusive attitude.

3.3. Virtual Reality Art

Virtual reality art relies on virtual reality technology, and the basic characteristics of its art are also different. Immersion is one of the basic artistic characteristics of virtual reality art. The audience uses interactive devices and virtual space to have a perceptual experience, and the degree of integration is as if they are in a real situation. Interactivity is one of the significant artistic features of virtual reality art [10]. The audience can connect with the virtual space through digital sensing technology and conduct human-computer interaction to experience the virtual environment and operate virtual items, and obtain corresponding perceptions. feedback. Artificial intelligence provides a new development direction for virtual reality art. The addition of intelligent features can promote the interactive experience of virtual reality art, deepen the simulated perception of the immersive world, and broaden the creator's understanding of the boundaries of the fantasy world.

4. Digital Media Art Innovation and Development Strategy

4.1. Provide Digital Media Art Industry Support

The relationship between the media industry and the cultural and creative industries is very close. The two sides have close correlation and intersectionality. Basically, the media industry can be classified into the category of cultural and creative industries. Digital media art and cultural and creative industries are not separated from each other in the development process, but complement each other. Digital media art promotes the development of cultural and creative industries, and digital media art provides technical support to cultural and creative industries. Overall, the "content industry", "creative industry" and "copyright industry" currently described in most countries in the world actually fall into the same research category as my country's "cultural and creative industry". Although the development of media

industries in various countries has different paths, they all share a common development logic. The vast majority of developed countries attach great importance to cultural industries and have promoted the development of cultural industries to the level of national development strategies. Cultural export, including media output through the Internet, mobile phones, platforms, etc.; organizing cultural exchange activities. It is not difficult to find that foreign festivals have appeared more and more frequently in the circle of friends in recent years, and many foreign cities will choose some Chinese cities. Become a "sister city" and frequently hold exchange activities; directly export cultural products and services. In the growth process of the media industry in many developed countries, government support is a crucial factor. Especially in the early stages of the growth of the media industry, national policies and local government support are powerful growth factors.

4.2. Cultivate Digital Media Art Talents

The development of the digital media art industry is inseparable from creative talents. Creative talents are also complex talents who need to be familiar with knowledge in many fields, such as art, design, psychology, marketing, materials and other fields. Creative talents also need to have the ability to innovate, including artistic innovation, technological innovation, product research and development, resource pooling capabilities, etc. These abilities are the core competitiveness of the cultural and creative industry. Even in times of crisis, they should have the ability to resist risks and the ability to help businesses regenerate. Students in design departments in many universities, and even some teachers, have low innovative and creative abilities and lack curiosity and imagination. This is also related to the convenient environment of information explosion, which has resulted in a considerable number of students' designs being imitated by others. Use the results for your own use. Colleges and universities must not only impart professional knowledge to students, but also teach students how to innovate and master learning methods that adapt to different environments. In the digital age, the level of innovation ability has become an important factor in measuring the level of knowledge. In the context of the era of artificial intelligence, the importance of the digital media art discipline is self-evident. We must pay attention to students' innovative and creative qualities and ability cultivation; industry, academia and research are closely integrated, and we have a mature school-enterprise cooperation mechanism; we must pay attention to interdisciplinary cultivation and this major. Basic ability training. Choose to learn from and learn from the reasonable and excellent foreign digital media education experiences in foreign digital media art education, take their essence, integrate them into your own, and combine your own advantages and characteristics to carry out digital media art education. Only then can you find out what is suitable for domestic universities. Talent training model based on school running conditions.

4.3. Establish a Safeguard System and Mechanism

To improve the level of creation, production, and technology, we can strengthen the application of technologies such as artificial intelligence and big data, especially in digital culture, and use advanced technology to promote industrial innovation and form a longer industry chain. Strengthen

communication, service levels, and equipment levels, increase technological research and development efforts related to digital art presentation, improve digital and intelligent application methods for exhibitions in museums, art halls, and other scenes, and increase the industrialization and application of cultural relics protection equipment. Support efforts and build a quality management system.

5. Conclusion

Digital media art in the era of artificial intelligence is obviously completely different from the media art of the past. Many new art forms have been born in the context of digital intelligence, such as digital animation, VR games, multi-dimensional movies, 3D printing, social short videos, Digital special effects, etc. Digital media art is rooted in digital technology. Its essence is a set of long data information. The reproducibility of data also lowers the threshold for art creators. Creating artworks is no longer the sole responsibility of artists and designers, ordinary people can easily create their own works of art through smart software. The media attributes of digital media art are destined to carry the mission of cultural communication. The media industry and the cultural and creative industries are closely connected. Digital media art not only promotes the development of the cultural and creative industries, but also provides technical support to the cultural and creative industries. On the contrary, the cultural and creative industries the development of digital media art will inevitably drive the advancement of digital media art. The relationship between the two is mutually reinforcing and necessary. Digital media art is becoming increasingly close to public life and is moving towards intelligence, convenience, and people-friendly aspects. As an increasingly important part of the cultural industry, countries around the world have invariably increased their support for the digital media art industry. With such intensity, digital media art has entered an unprecedented period of rapid development.

References

- [1] Dhaliwal G. This time is different': physician knowledge in the age of artificial intelligence. *BMJ quality safety*, 2024.
- [2] Campo D M. Everything Can Be an Author: Rethinking Agency in the Age of Artificial Intelligence. *Architectural Design*,2024,94(3):20-29.
- [3] Kamyabi A, Iyamu I, Saini M, et al. Advocating for population health: The role of public health practitioners in the age of artificial intelligence. *Canadian journal of public health = Revue canadienne de sante publique*,2024.
- [4] Sukkar W A, Fareed W M, Yahia W M, et al. Artificial Intelligence Islamic Architecture (AIIA): What Is Islamic Architecture in the Age of Artificial Intelligence?. *Buildings*, 2024, 14(3).
- [5] Yang Y, Zhang L. Development of Digital Media Art from a Semiotic Perspective. *Frontiers in Art Research*,2023,5(17).
- [6] Zheng H. Research on the Application of Digital Media Art in Visual Communication Design Teaching. *The Educational Review, USA*,2023,7(7).
- [7] Wu Y. The Application Status and Suggestions of Traditional Chinese Art Elements in Digital Media Art Design --Taking Chinese Paper-Cut Art as an Example. *Frontiers in Art Research*,2022,4.0(12.0).

- [8] Weina Y, Yuhui L. Performance Characteristics of Digital Media Art Design Relying on Computer Technology. *Mobile Information Systems*,2022.
- [9] Fu T, Guo L. Several Strategies for Cultivating Innovative Application Talents in Private Colleges and Universities—Taking Digital Media Art Professional Courses as An Example. *Journal of Social Science and Humanities*,2021,3(10).
- [10] Yunxuan W. Application of Artificial Intelligence within Virtual Reality for Production of Digital Media Art. *Computational Intelligence and Neuroscience*, 2022.