

# Research on Cross-media Art Design Based on Artificial Intelligence Digital Service Platform

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**Abstract.** In order to explore the research of cross-media art design, a cross-media art design research based on artificial intelligence digital service platform was put forward. Firstly, this paper analyzes the relationship between cross-media art design and artificial intelligence, and tries to find the balance point between them. Secondly, based on the information technology of cross-media art, this paper analyzes the development mode and development trend of cross-media digital culture. Finally, with the help of case analysis, it is shown that with the help of artificial intelligence digital service, artistic creative thinking can generate very specific works of art, such as painting works generated by deep learning algorithm, music composition by artificial intelligence, and poetry creation by artificial intelligence, which are all created by computer as a creative tool under the impetus of artificial intelligence digital service. It is a combination of human creativity and human writing design code.

**Keywords:** artificial intelligence, digital services, cross-media art.

## 1 Introduction

Technology is science and technology that comes together with computers. With the help of a special device, images, symbols, sounds, images and other data are converted into binary numbers and recognized by the computer, so that it can be has its own operation, storage, transmission and other activities. Digital technology covers a wide range of applications, mainly in science and technology. This paper will discuss digital technology and consider the use of digital technology in digital media art practice from the perspective of performance and its impact on digital media art. practice in frontal areas such as cognitive skills, image recognition, and audio recognition. natural language processing, mechanical engineering, robotics. Digital media art practice is a new field of art research and design that integrates modern science and technology with traditional art. With the deep learning and development of science, technology and technology technology, more and more technology experts will gather in the practice of digital media art practice. Thanks to the continuous and innovative development of technology, technology can help people to teach certain jobs and will replace people in certain types of work. The creative process of digital media art practice can be applied to the use of technology, and the development of technology can work for the best media [1-2]. As shown in Figure 1:



**Figure. 1.** Cross-media art digital service

This study combines artificial intelligence with digital service platforms, bringing technological innovation to the field of cross media art and design. By utilizing artificial intelligence algorithms and technologies, a large amount of cross media data can be analyzed, processed, and generated, thereby achieving automation and enhancement of artistic creation. This technological innovation provides artists with new creative tools and methods, promoting the development of cross media art design. Combining cross media art design with artificial intelligence digital service platforms provides artists with a broader creative space and practical platform. With the support of digital service platforms, artists can easily access and manage various cross media materials for multimedia mixing and interactive art creation. At the same time, with the assistance and enhancement functions of artificial intelligence, artists can better express their creative ideas and create more innovative and artistic works[3-4].

## 2 Different ways of showing new media art

Traditional art has always expressed the familiar aesthetics and values, but now it has changed, and new media art has impacted people's cognition with brand-new display forms. Traditional art pays more attention to the expression of its own emotions to attract resonance, while new media makes the audience feel shocked, interactive and strongly involved. Up to now, the charm of new media art lies in that it can not only make the audience feel the creative thinking of creative artists, but also have new exhibition forms, which are shocking. New media art, with its more diverse shapes, has exceeded many people's imagination, giving people a new understanding of artistic aesthetics. As shown in Table 1:

**Table 1.** Cross-media and Digital Services of Art

artist	medium	artificial intelligence
works of art	spread	digital service

### **3 Cross-media development trend**

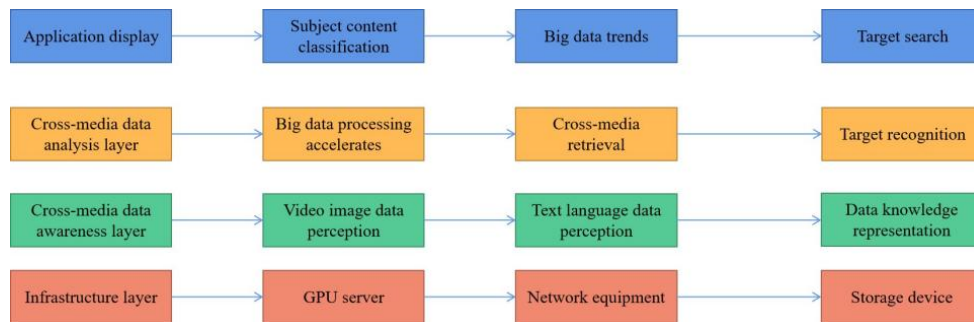
We find that any new art form is accompanied by the discovery and use of new media. Different media tools show different artistic forms and bring different sensory feelings to people. Nowadays, with the rapid development of new media art, we can also predict that multimedia integration will be the inevitable trend of art development and the most intuitive way of art display[5].

However, it is impossible to simply classify new media art at present. Today's new media art has subverted the traditional art form and gradually evolved in the direction of integration and common development of various media. In the future, the forms of art must be integrated and developed. Looking back, the new media art has created more possibilities, but it is only its form and creative coat that has brought about changes. However, the art itself, the creator's values and ideas have never changed. Many people are worried that the new media will bring about the so-called pan-popularization, which is actually worrying. We should look at the problem from a more developed perspective. The development of the times will inevitably lead to the development of art forms. The origin of what we call traditional art is to constantly optimize its own media from the evolution of historical civilization and evolve into the form we see today. Therefore, it is better for us to think about how to make better use of new media art under the background of such a big environment and era, and create works that conform to the public aesthetics and contain our own unique artistic ideas[6-7].

#### **3.1 Technology wood system design**

Traditional multimedia processing technology is no longer able to cope with the rampant spread of terrorism, fraud, false news and politically harmful content through text, video and images. In order to cope with the massive multimedia data generated in practical applications, a cross-media technology system is urgently needed to sense, process and apply different media data with the same characteristics, and be applied to the fields of public opinion analysis, news tracking, intelligence acquisition, early warning and forecasting, and distance education.

By integrating technologies such as text and image perception and analysis, cross-media data knowledge representation, cross-media intelligent description and retrieval, and cross-media knowledge mining and reasoning, the technical system has the capability of cross-media knowledge feature labeling and association display, and multiple intuitive visualization of intelligent analysis results. The core lies in the design of cross-media intelligent perception and analysis platform, 5 as shown in Figure 2. The platform is designed from the aspect of architecture and divided into four layers from bottom to top: infrastructure layer, cross-media data perception layer, cross-media data analysis layer and application display layer. The platform is designed from the function of the network space media perception subsystem, physical space media perception subsystem, cross-media integrated intelligent analysis subsystem and cross-media unified display subsystem four sub-systems.



**Figure. 2.** Design of cross-media intellisense and analysis platform

Network space media perception subsystem: realize the acquisition and perception of network space, especially Internet new media data, including multi-channel establishment and data crawling for different information sources (such as websites, apps, wechat, Weibo, etc.), as well as the utilization of network, storage, computing and other hardware resources, and complete the data knowledge characterization.

(2) Physical space media perception subsystem: to achieve the acquisition and perception of physical space, especially video surveillance system data, including surveillance video, access control alarm, vehicle positioning and other infrastructure data access, as well as video feature extraction, video structuring, trajectory generation and other data preprocessing tasks.

(3) Cross-media integrated intelligent analysis subsystem: realize knowledge graph construction and intelligent analysis and reasoning of cross-media data in cyberspace and physical space, including multi-model view image recognition engine, video fingerprint database, domain knowledge base, similarity calculation, scene association analysis and video stream analysis.

(4) Cross-media unified display subsystem: directly facing users to achieve various applications of cross-media data, including situation presentation, content classification, subject tracking, target search, video decoding large-screen display and human-computer interaction interface.

## 4 Cross-media art design of artificial intelligence digital services

### 4.1 Case analysis

Artificial intelligence digital services play an important role in image creation. With the help of artificial intelligence, the creativity of artists can create unique artworks, such as artworks created by deep learning, music created by intelligence, poetry created by intelligence using computers as creative tools. in the impulse of our human subjective consciousness. It is a combination of human creativity and human code design.

Clothing design by artificial intelligence. In August 2021, Amazon announced an artificial intelligence algorithm for fashion design, which can automatically generate fashion styles by analyzing a bunch of pictures and then apply it to new fashion design projects. Amazon's AI

system will also conduct big data mining, analyze new clothing styles appearing on social media, so as to predict future development trends, and then actively create unique and tailor-made fashion products for users[8-10].As shown in Table 2:

**Table 2.** Embodiment of Artificial Intelligence Digital Service in Art

Artificial intelligence digital service	Art	Superiority
	Make a poster	Robustness
	Material selection	Accurate and convenient
	Architectural design scheme	Short time period

By automatically generating clothing styles and combining Big data analysis, this algorithm can help designers and users find new fashion trends and provide users with personalized and customized fashion products. The introduction of this technology may change traditional clothing design and production methods, bringing users more choices and personalized fashion experiences. Verified the potential and innovation of Amazon's artificial intelligence algorithm in the field of clothing design.

## 5 Conclusion

Artificial intelligence figures have a significant impact on the cross-media art design industry, such as more convenient and low-cost art learning, all of which benefit from artificial intelligence, and the auxiliary tools led by artificial intelligence make artists' creative efficiency higher. The forms of artistic expression can be varied and can evolve with technological innovation, but the essence of art is indelible. After all, artistic design works, whether created or appreciated, are based on people's subjective initiative, creative thinking and association. No matter how artificial intelligence develops itself in the field of artistic creation, it can't get around its origin: artificial intelligence is defined by human beings.

**Acknowledgments.** Investigation, Protection and Research on Shaanxi Ancient Architectural Colored Paintings, Shaanxi Provincial Social Science Foundation Project, PROJECT NO: 2015J018.

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