Application and Research of Computer VR Technology in Digital Media System Design

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Abstract: This paper first analyzes the definition of computer VR technology and the transmission of information data, and then expounds how to use VR technology to establish a complete digital media design system; Finally, deeply analyzes the application of VR technology in the design of digital media system, including the detailed discussion and planning of user interaction, information dissemination mode and information reception mode. According to the current situation of digital media development in China, the computer VR technology is introduced to improve the operation process of digital media, so that the digital media design system can be improved.

1. Introduction:
With the rapid development of all-media era, VR technology, Internet of Things, big data and other network technologies have developed rapidly and are widely used in various industries. Especially, the application of VR technology in related fields can not only satisfy the user's experience, but also increase the user's interactivity. The forms of data information in digital media system are diversified. The application of VR technology in digital media system can display data information in diversified forms and make digital media design system more complete. Although VR technology is widely used in digital media system at present, how to establish a complete digital media design system by applying VR technology is still one of the aspects that staff should pay attention to.

2. The definition of computer VR technology and the transmission of information data

2.1 Connotation of VR technology
The rapid development of network technologies such as artificial intelligence, robot technology and sensing technology has laid the foundation for the emergence of VR technology, which has become a "virtual reality technology". It is not a real environment, but a virtual environment expressed by three-dimensional positioning and tracking, tactile and olfactory sensing technology and three-dimensional real-time graphic display. Things existing in the real environment are displayed by VR technology and a virtual space is formed by three-dimensional technology. Users can improve their experience in the virtual environment through VR technology. VR technology combines a variety of technologies, such as sensor, 3D modeling technology and computer application technology. In addition, VR technology has a wide range of applications. The use of tactile sensing technology and three-dimensional modeling technology can promote the progress of virtual games carried out by many enterprises at present, and the use of computer application technology can promote the application of VR technology in databases, media and network technologies. The emergence of VR technology has brought convenience to people's life and lifestyle. Figure 1 is a chart showing the market scale of VR technology in recent years. It can be seen from the chart that VR technology is
generally on the rise in the market in recent years.

Figure 1 The market scale of VR technology in recent years

2.2 Transmission of information data
VR technology needs to rely on the transmission of information data when establishing the connection between virtual environment and users, which is a way of communication between users and machines. Accurate transmission of information data can improve the interaction between users and machines. VR technology also completes the transmission of information data through the above-mentioned technologies, and uses database and other technologies to establish a virtual environment, and then the machine completes the corresponding operation by recognizing the user's voice and action. Finally, the machine outputs the information through the output and displays it in front of the user, so that the user can get different information feelings by "touching, listening and watching" things in the virtual environment. Figure 2 is a virtual environment constructed by the transmission of information data.

Figure 2 A virtual environment constructed by the transmission of information data
3. Construct a complete digital media system design through VR technology

3.1 Pay attention to the combination of real environment and virtual environment
In order to build a complete digital media system design, it is necessary to establish a complete information transmission path and pay attention to the combination of actual environment and virtual environment. The construction of VR technology environment is not only to show the elements such as video, audio and images to users, but more importantly, to pay attention to the preparation of virtual environment construction, that is, to investigate the needs of users in the real environment and realize the combination of reality and virtual technology, so as to increase the user's experience and make the elements such as images and numbers have meanings in the real environment, which is not limited to the generated simulation world. In addition, the mode of combining actual environment with virtual environment is used to attract users, and computer technology is used to collect and integrate the experiences of different users and combine them with VR factors such as images and videos, so as to improve the human-computer interaction process in the design of digital media system. Virtual environment technology needs more technical support from construction to completion, such as sensor, database, mobile media and other network technologies. Therefore, the improvement and innovation of sensors will integrate intelligent technology with real data and promote the development of VR technology in digital media system design.

3.2 Perfecting the "ecosystem" in digital media
Big data, Internet of Things, artificial intelligence and other technologies are the crystallization of the rapid development of the network age, and the emergence of network technology will also lead people into the digital age. Looking at the development of China's science and technology this year, it is characterized by ecology. Therefore, if VR technology is to be widely used in the design of digital media system, it should pay attention to the establishment of ecological science and technology. VR technology can be established through images, words, videos and other elements, and continuously improved according to the needs of users. Unifying virtual environment with information media in digital media system is the core of digital media system ecosystem. All kinds of communication media are connected in digital media system, and the innovation of media can even make the technology in digital media system reform and innovate. Collect user information, classify and transmit the information by using programs, and then combine it with network technologies such as sensor technology and computer technology to improve the ecosystem of digital media system design and promote the application and development of VR technology in it.

4. Application of VR technology in digital media system design

4.1 Perfecting the interactivity of users in the design of digital media system
Digital media system is a kind of information carrier, which is a process of acquiring, analyzing, processing and transmitting data by using binary system. Communication network, audio, video, text and graphics and pictures are the media forms included in digital media system. The application of computer VR technology in digital media system design can not only improve the diversity of design, but also improve the integration between them. User experience is one of the most important goals in the design of digital media system. Compared with traditional media, digital media is praised by users because it pays more attention to user experience, which is also the difference between them. VR technology can express the information and data received by user groups in the simplest and fastest way through SQL language and code in computer technology, so as to improve user experience, ensure user participation and receive information and data. For example, Social VR is a game developed using VR technology. When users experience this game, they only need to wear relevant VR glasses and touch handles designed by developers, and players can be on the virtual beach and play games, interact, participate in dance parties and other activities with other players. In addition, what is more exciting about this game is that it allows users to experience the free fall that cannot be experienced in
the real environment. In the game, when users fly over the top of the mountain, they will start to fall freely. As the height becomes lower and lower, the user's heartbeat will also accelerate, but in reality, the user's feet are still standing. This game greatly improves the user's experience and improves the interactivity in the design of digital media system.

![Figure 3 Social VR](image)

4.2 Enrich the design of digital media system
VR technology, also known as virtual reality technology, is realized as immersion, which plays an important role in the design of digital media system. Computer technology is used to collect, analyze and process the information of different needs of users, and finally 3D modeling technology is used to simulate and generate the collected information data, so as to ensure that users can participate in it, thus making the communication mode using VR technology higher than the traditional communication mode. VR technology combines three-dimensional modeling technology and tactile and olfactory sensing technology, etc. The established virtual environment can make users experience the parts that can't be experienced in the real environment, and bring the immersion of experience to users, thus making the dissemination of information and data more lasting. Users are often affected by the real environment in the process of experience. In order to ensure users' higher experience, the design of digital media system should pay attention to the continuous improvement of virtual environment, which can be improved from audio, video and graphics, so that users can receive information data intuitively. The immersive experience provided by VR technology enriches the design of digital media system.

4.3 Realize the transmission of a large amount of information
With the continuous development of network technology and social progress, China is developing faster and faster, and the information society is coming. The dissemination of information and data plays an important role in the development of network technology and the design of digital media system. VR technology combines sensor technology, computer hardware technology and robot technology, and can realize the transmission of a large amount of information in the design of digital media system. Source, transmitter, channel, receiver and sink are the whole process of information transmission. No matter which part has problems in the process of information transmission, it will affect the presentation of the final information. Sensing equipment, biological perception and simulation environment are the important contents of VR technology. By listening, watching and touching, a large amount of information can be transmitted in the design of digital media system, and users can have a brand-new experience. In addition, because of the rapid pace of life in modern society,
people have a sense of self-protection in the real environment, and the phenomenon of human indifference in society, so that users can not maintain a relaxed and pleasant atmosphere when receiving information, so that the design of digital media system has been hindered in the process of information transmission. Different from the traditional way of information transmission, the VR uses virtual environment to let users receive information in a happy and relaxed atmosphere, which reduces the efficiency of information transmission in the design of digital media system because of the indifference of human feelings and the high awareness of self-protection.

5. Concluding remarks
The appearance of computer VR technology has changed people's life style and the presentation of digital media. With the rapid development of the times, people's life rhythm is generally faster, and the information age is coming. In the information age, every information is more or less related to people. VR technology is applied in the design of digital media system, and the combination of virtual and real technology can increase the user experience.

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