Application Research of Virtual Reality Technology in Film and TV Creation

Liyuan Guo

School of Media, Xi'an Peihua University, Xi'an, Shaanxi, 710000, China

Keywords: Application Research, Virtual Reality Technology, Film and TV Creation

Abstract: Virtual Technology Brings Great Film and Television Programs to People, and It Also Brings Great Convenience to the Working Mode of Film and Television Technicians. with the Continuous Application of Virtual Reality in Film and Television, the Miracle Brought to the Audience in the Visual Field Will Be More the More You Come. Therefore, the Article Will Explain the Main Application of Virtual Technology in Film and Television and the Future Development Prospects, Helping People to Understand More about This Field.

1. Introduction

In 2016, it was called “VR (Virtual Reality) first year” by the scientific community and the media. It was a year of virtual reality blowout. This is the first time since the 1960s, with the rapid development of computer technology. The rapid development and popularization of virtual reality technology, the new expression form and audience experience brought to the animation, the author pays attention to the influence of the virtual reality of this new wave of technology. The nature of technology itself has made a choice of art form. Undoubtedly, animation is the most closely related discipline in all art categories. The technology creates the expression of animation in a way that suits itself, and constantly evokes a new experience of animation experience. From traditional hand-drawn animation forms to animation and computer technology, motion capture, self-media, and mobile internet, the development of animation has always been inseparable from the continuous addition of new technologies. Virtual reality technology has now penetrated into every aspect of our lives. The trilogy of science fiction “Three-body” written by writer Liu Cixin has greatly enhanced our imagination of future technology. Of course, the current virtual reality technology There are still gaps. But the idea of putting people in computers, and now in our real life, virtual reality technology can help us do it. Just like the first steam engine invented by James Watt, the first car invented by Karl Benz, the first aircraft invented by the Wright brothers, virtual reality changes the life of human beings in a new way, the future of virtual reality.

Technology changes life, and every step forward in technology will bring more convenient and richer experiences to people's lives. As a major component of mass consumer consumption, the film and television industry is also trying to bring more extreme enjoyment and enjoyment to the audience through technological change, and bring more spiritual and cultural life to the people. As a result, virtual reality technology emerged as a result of the continuous development and development of technology, and was widely used in the field of film and television. The adoption of virtual reality technology in film and television works not only changes the way of expression and presentation of film and television works, but also brings great changes to the working methods of related technical workers in the film and television industry. The wide application of virtual reality technology in the field of film and television promotes the development of virtual reality technology towards a broader field of technology, and also opens up a new world of film and television creation.

2. Overview of Virtual Reality Technology

As an emerging technology, virtual reality technology is the product of the era of computer hardware and software technology. Currently, the representation of virtual reality technology mainly refers to computer three-dimensional animation technology. The technology mainly simulates the visual, auditory and tactile aspects of the real environment, creating a super-realistic

  DOI: 10.25236/ICHCAD.2019.129

scene that rivals the realistic situation, allowing users to have an immersive real experience, thus achieving a direct relationship between the user and the environment. Dialogue brings an extraordinary viewing experience to the user. This has changed the viewing habits of users to a certain extent, and has become a high-tech expression that is sought after and loved by film and television enthusiasts. The birth of virtual reality technology was first applied to the US military field. Today, the application of virtual reality technology in the field of film and television has made amazing achievements.

Virtual reality technology is a multidisciplinary and integrated interdisciplinary subject, which has received extensive attention from science and technology workers in the field of film and television in China. The application of virtual reality technology marks the new development direction of China's film and television industry in the current and future period. The main characteristics of virtual reality technology are three aspects: interactivity, immersion and conception. It is a new and independent art category based on its uniqueness. The uniqueness of virtual reality technology is that it not only can construct the things and situations in people's minds, but also stimulate people to explore the potential of the unknown world. It can also realize the interactive communication between virtual space environment and human beings through three-dimensional technology, so that people can construct in their minds. The castle in the sky has become a tangible and magical picture with the power of virtual reality technology. Virtual reality technology provides people with a space constructed by digital signals and works in this space. Moreover, through digital technology, human beings have realized the ability to transcend existing perceptions, thus extending the degree of human organ perception experience and broadening the cognitive horizon of human beings. On the other hand, human exploration of the unknown world will promote the advancement of science and technology, thereby counteracting virtual reality technology and moving it to a more advanced technology field. The application of virtual reality technology in the field of film and television technology has promoted the development of China's film production technology level, and all kinds of film and television works have blossomed, which greatly enriched people's choice of viewing. The popularization and application of a series of film production techniques, such as computer three-dimensional animation technology, will promote China's film and television industry into a new era of diversification and digital development, and promote the production of more high-quality film and television works in the field of film and television technology for the healthy development of the film and television industry.

Virtual reality technology usually has the following technical features in the process of use, and with the support of the following features, virtual reality technology shows more advantages. First, interactivity. In a virtual environment, the relevant operator can effectively manipulate anything in the virtual environment, and the results produced by the manipulation can also be clearly perceived by the controller, which is called an interactive feature. Second, the sense of immersion. This content can also be called a sense of presence, which usually means that the users themselves are integrated into the virtual environment as the protagonist and have a real feeling. Third, multi-perception. In addition to giving people a normal sense of sight, virtual reality technology can also provide people with more perceptual effects through the perception of smell, hearing and touch, and through the intrusive features of the virtual environment.

Software and hardware support is the foundation of virtual reality technology. With the support of diverse software and hardware, virtual reality technology presents a more perfect state. In terms of software, in addition to general software support, virtual reality technology requires additional tools for generating virtual environments, such as virtual world toolbox, Vega, Maya, etc., in actual situations. The environment has many advantages, such as: First, it can accept information transmitted by various high-performance sensors (such as helmet tracking information). Second, it is capable of generating stereoscopic graphics that are easy for people to observe and modify. Third, various data and related graphics processing software can be called and form an Internet integrated environment. On the hardware side, virtual reality technology usually requires the following support: First, high-performance computers. The realization of virtual reality technology must realize the processing of complex images with the support of high-performance computers, shorten the visual

delay, and provide more realistic film and television animation for the audience. Second, tracking the positioning system. The tracking and positioning system effectively tracks the position of the participant's head, changes in motion, etc., and realizes information transmission of each limb movement through sensors, thereby further promoting information exchange between the computer and the virtual world. Third, the tactile feedback device. The use of haptic feedback devices enables participants to receive tactile stimuli in addition to receiving virtual world visual and audible signals.

3. The Application of Virtual Reality Technology in Film and Television Technology

In the works created by virtual reality technology, users can participate in the film and television works, and truly become a part of it. Because virtual reality technology can provide special equipment and equipment, so that the audience is like a virtual world. People can control the operation of their environment to achieve special scene effects. At present, China's virtual reality technology is mainly used in film and television technology to experience movies, virtual studios, virtual characters and 3D computer special effects, and plays an important role in all aspects.

3.1 Application of Virtual Reality Technology in 4d Film Technology

The application of virtual reality technology in film and television was realized as early as 1963. At the time, Morton Heilig, a famous American film photographer, developed a state-of-the-art monolithic viewing device similar to current 4D movies. This stereoscopic film device is equipped with a variety of sensing functions, and its seat can be shaken and shaken according to the plot setting of the movie. Compared with the traditional movie viewing mode, it brings multiple sensory stimuli to the audience. It not only can enjoy the movie from the visual and auditory senses, but also can feel the change of the movie plot from the sense of smell and body, and has a strong sense of real experience. The development of virtual reality technology has become more and more mature, allowing users to fully mobilize various senses into the movie to experience, just like in the real world to feel the virtual world. The sense of presence brought by this multi-sensory experience makes the audience feel familiar and natural to the environment and situation in the virtual world, and this kind of intimacy is generated by the high simulation experience brought by virtual reality technology. Let the audience feel like being in the real material world.

3.2 Application of Virtual Reality Technology in Virtual Studio Production

The production principle of the virtual studio is to seamlessly synthesize the virtual scene generated by the computer virtual technology and the real scene picture captured by the camera through digital technology, thereby obtaining a visual image combining the virtual reality with the shocking effect. The creation of virtual studios made it possible to achieve program effects that were not possible in real-life studios. Its advantage lies in not only being limited by physical space, but also introducing a large number of virtual special environments and props, thereby greatly improving the quality and quality of the program, and making the content of the TV program more rich and vivid. The virtual studio also changed the way film and television creators work. The replacement of virtual scenes is more convenient and random, which greatly shortens the program production cycle, improves the utilization rate of the studio, and enables the creative staff to obtain more creative space. In order to produce a large number of excellent TV programs for the audience, the virtual studio technology will have more room for growth and progress in the future, and its future development prospects must be very broad.

3.3 Application of Virtual Reality Technology in Virtual Characters and Three Computer Special Effects Production

The application of virtual reality technology in film and television technology also includes the creation of virtual characters and the application of 3D computer special effects. Currently, virtual characters have higher requirements for the level of virtual reality technology. At present, the application level of virtual reality technology in China's film and television technology in virtual reality simulation needs to be improved. Film and television work technicians should fully exploit

the advantages of virtual reality technology, constantly innovate and improve technology, and let the virtual character function better serve the creation of film and television works. The adoption of 3D computer special effects greatly enriched the scene picture content of film and television works. The use of virtual reality technology has got rid of the constraints of time and space. Any scene that cannot be captured in the field can be realized through virtual reality technology. For example, film and television works require a large number of modern urban scenes to enhance the picture effect as a background, and the desired effect can be easily achieved through virtual reality technology. For example, the scenes in many fantasy works can also be realized by means of virtual reality technology. The convenience and efficiency of 3D computer special effects bring great convenience to the staff, and the perfect combination of virtual reality technology and creative art promotes the birth of more, better and better quality film and television works.

4. Conclusion

In the face of challenges, virtual technology continues to improve, but only expands the interface capabilities of computers. At first, it involves people's perception system, muscle system, and computer integration. There is no participant how to transmit information through practice. The storage and processing in the brain becomes an important process for people to understand the understanding of the objective world. Only when it really begins to involve and find solutions, the gap between people and information processing system requirements can be overcome.

In summary, the wide application of virtual reality technology in modern film and television, such as virtual studio technology, simulation role, etc., promotes the film and television industry to continue to develop into new fields. We believe that in the near future, the continuous innovation and reform of virtual reality technology will bring more rich sensory experience to the audience and lead the film and television creation into a new era.

References

[1] Mao Lei, Li Mengjie. The technical realization of the combination of three-dimensional character and real shot environment--Taking the three-dimensional software basic course as an example [J]. Art Education Research, 2015(20).112

[2] Cui Dongming. On Virtual Studio Technology and 3D Scene Design[J].Cable TV Technology,2004,11(22):53-55.

[3] Ding Ning. Application of Virtual Reality Technology in Experimental Teaching of “TV Program Production” Course [J]. Computer Fan, 2017 (11).75

[4] Pan Zhi. Prospects for the Application of Virtual Reality Technology in Film and Television--The Practice and Prospect of Virtual Reality R&D in Xinhua Net [J]. Media, 2017(14): 57-59.

[5] Huang Ruozhen. The Influence of Virtual Reality Technology on the Art of Film and Television in the Digitalization Period--The Breakthrough and Prospect of the New Interactive Immersive Experience [J]. Art Science and Technology, 2017(1): 147.