Application of Virtual Reality Technology in Chinese Ancient Art Works

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Abstract. Virtual reality technology is produced under the background of the continuous development of computer and artificial intelligence technology, and the application field of virtual reality technology is more and more extensive. The application of virtual reality technology to the appreciation of ancient Chinese art works can not only make the appreciation of ancient Chinese art works more convenient and intuitive, but also stimulate the national pride of Chinese people, inherit the excellent culture of the ancient Chinese nation, and make the excellent art works go to the world. On the basis of summarizing the meaning and characteristics of virtual reality technology, this paper discusses several application technologies of virtual reality technology in the appreciation field of ancient art works.

Keywords: Virtual Reality, Artificial Intelligence, Ancient Art Works

1. Introduction
Virtual reality is the development of computer technology is highly crystalline and is reflected in the various fields in the application process, including not only graphics, image processing, pattern recognition, network technology, parallel processing technology, artificial intelligence and other high-performance computing technology, but also involves mathematics, physics, communications, and even related to aesthetics, arts and sociology.

2. What is Virtual Reality
Virtual reality or virtual environment is generated by a computer having spot feeling environment, it is a new interactive system.

Virtual reality technology is essentially a highly realistic simulation of human vision in real life. Hearing, Action and other acts of interactive technology.

Traditional information processing environment has been a "people adapt computer," while today's goal or idea is to gradually make "computer adaptation" and people called for the adoption of sight, hearing, touch, smell, and body, gesture or password, to participate in the information environmental treated to thereby obtain an immersive experience. This information processing system is no longer...
Virtual reality technology is a key technology to support this multi-dimensional information space.

3. Virtual Reality Features

3.1 Immersion
An artificial computer generated virtual environment, this virtual environment is a three-dimensional digital models constructed by computer graphics, programmed into a computer to produce realistic "virtual environment", allowing users to generate an immersive virtual environment visually the feeling, which is a sense of virtual reality technology immersion (Immersion) or spot a sense of participation.

3.2 Interaction
Model and the traditional three-dimensional animation and virtual reality are usually generated by CAD systems is not the same, it is not a static world, but an open, interactive, virtual reality environment can influence by controlling and monitoring devices or users Effects, which is the second feature VR, i.e. interaction (Interaction).

3.3 Imagination
Virtual reality is not just a demonstration of media, but also a design tool. It reflects the visual form designer ideas, such as when the front cover of an ancient art work, the first thing you do is for the painting, beautiful idea to do detailed, in order to make quantitative, you need to many design drawings, of course, these drawings only insiders understand, virtual reality can put this idea into a visible virtual objects and environments, so that in the past only with traditional sand table design patterns upgrade to digital-per-view income that is perfection, greatly improving the quality and efficiency of the design and planning. This is the third category of VR has features that imagination (Imagination) [1].

4. The Application of Virtual Reality in the Appreciation of Qingming River
The painting on the river during the Qingming Festival was first painted by Zhang Zeduan, a painter of the Northern Song Dynasty. However, the most beautiful and detailed version was drawn in the first year of Qianlong by five painters of the Qing palace painting academy. This version is known as the Riverside Scene at Qingming Festival.

"Riverside Scene at Qingming Festival" is collected in the National Palace Museum in Taipei. In order to show this precious painting to more people, HTC vive studio team has produced a VR version of "Qingming Riverside painting VR" by using virtual reality technology and taking the Qingyuan edition as a reference [2].

When Chinese famous paintings are "revived" in VR, from 2D plane to an ancient world where interesting interaction can be carried out, I believe you will be deeply shocked and amazed by this magnificent work.

In the quiet and pleasant scenery of the countryside, you can enter the world in the quiet and bright night. Looking at the distant capital city and the mountains shrouded by night, I feel in a trance, just like dreaming back to the peaceful and prosperous times of Qing Dynasty, and exploring the mystery and mystery of the painting with others.

After you click start, Qianlong, a collection of light spots, humorously introduces to you the picture of the riverside at Qingming Festival. At this point, you can stop in the virtual reality world and slowly enjoy the 11.5-meter-long painting scroll of more than 4000 people, or close your eyes to listen to the explanation of each part of the scroll, so that the subsequent experience will be more handy.

In order to make the experiencer better interact with the characters and events in "Riverside Scene at Qingming Festival" and deepen the experience impression. The production team specially joined
three small games, hoping to bring the experiencer into the painting and become a part of the bustling downtown through the way of "teaching in fun" and combining with virtual reality technology [3].

"Riverside Scene at Qingming Festival" has been displayed and experienced for two months in Taipei National Palace Museum. It made its debut in China at the 2018 Nanchang world VR industry conference, and won the unanimous praise of leaders and practitioners from all walks of life. At the meeting, many parents with children queued up to experience, hoping to better understand the rise and fall of ancient Chinese culture and history through VR technology.

5. The Way to Realize Virtual Reality Technology

5.1 Environment Modeling
The purpose of the virtual environment is to obtain the dimensional data of the actual three-dimensional environment of the Riverside Scene at Qingming Festival, and according to the needs of the application, use the obtained three-dimensional data to establish the corresponding actual simulation scene environment, or to establish the people's fictitious three-dimensional scene.

5.2 Stereoscopic Display
With the method of digital painting, the scene in "Riverside Scene at Qingming Festival" is redrawn, just like watching a stereoscopic movie. The digital image can be moved in the later animation production, which can give people a dynamic visual impact. Compared with the static display mode, it has more freshness. The various characters in the Qingming Riverside map leap out, which can arouse the audience's resonance [4].

5.3 Interactive Technology
The human-computer interaction in virtual reality technology is currently in the mode of keyboard and mouse. In the near future, 3D interaction technology, speech recognition and speech input technology will become important human-computer interaction means by using complex sensor equipment such as digital helmet and digital glove. Adding sound to the picture can make the picture live, make the picture more realistic, and shorten the distance between the audience and the picture story. In the picture of the riverside at Qingming Festival, there are endless stream of people on the street, businessmen riding on camels, the sound of running water in the river under the bridge, and the sound of sailors shouting; in the night in the picture, there are busy vendors and the sound of guessing fists from the taverns, and so on. There is no picture that can not feel the sound [5].

5.4 System Integration Technology
Because virtual reality system contains a large number of perceptual information and models, the integration technology of the system is the most important, including information synchronization technology, model calibration technology, data conversion technology, identification and synthesis technology and so on [6].

There are three main scenes in the picture of the river at Qingming Festival: the scenery outside the city, the scene of the river boats and the street view inside the city. The suburban scenery outside the city describes the vitality of early spring, the crowd on both sides of the Bianhe river is bustling, and the buildings on both sides of the street stand up and people come and go. The story of each character in each scene moves with the three-dimensional screen. With the integration of 3D projection, the whole picture is coherent and does not look wrinkled. It looks like a panoramic long photo, which is full of connotation and interest [7].
Conclusions
The development of VR virtual reality technology hastens the rise of bright new media technology, which greatly changes the way the audience appreciate art, especially ancient art works. The audience not only want to see the static works hanging on the wall, but also like the omni-directional movement of vision, hearing and touch. The use of VR technology for digital conversion, the emergence of immersive exhibition breaks the traditional "white box" space mode of Art Museum, and changes the single face of not hanging pictures on the wall. It is the marriage of technology and art [8].

The Chinese traditional cultural works represented by "Riverside Scene at Qingming Festival" is a kind of non renewable cultural heritage with high historical and cultural value. The digital display of Riverside Scene at Qingming Festival Tu is not only the protection of its specific cultural value, but also an effective way to establish self-confidence of Chinese traditional culture in the current international environment of cultural soft power competition [9]. "Riverside Scene at Qingming Festival" is a world-famous painting, which embodies the superb painting skills of our country, and is an important artistic symbol of our country. The style and features of the market culture in the Song Dynasty represented the strength of our country in the Northern Song Dynasty. It is undoubtedly of revolutionary and positive significance to show China's cultural and artistic resources in an open and developing manner and to carry forward the "beauty of self-confidence" in traditional Chinese culture [10].

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