A Case Study on "A Dream Journey through a Panorama of Rivers and Mountains - the Imperial Palace Immersive Art Exhibition" from the Perspective of Cultural Heritage Inheritance

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Abstract: This paper takes "A Dream Journey through a Panorama of Rivers and Mountains - the Imperial Palace Immersive Art Exhibition" as a case for in-depth research in the perspective of cultural heritage inheritance, explores the immersive interactive audiovisual feast of oriental aesthetics, multi sensory comprehensive experience, and technical analysis, in order to provide useful references for the research of immersive art exhibitions.

Keywords: A Case Study; A Thousand Li of Rivers and Mountains; The Imperial Palace Immersive Art Exhibition; Cultural Heritage Inheritance

We need to strengthen the exploration and elucidation of the excellent traditional Chinese culture, so that the most basic cultural genes of the Chinese nation can adapt to contemporary culture and coordinate with modern society, and promote the cultural spirit that transcends time and space, transcends national borders, is full of eternal charm, and has contemporary value.[1] Cultural heritage institutions, such as museums, libraries, archives, and historical societies, are increasingly using digital heritage initiatives and social media platforms to connect and interact with their heritage communities.[2] The protection of digital cultural heritage is not only a technical requirement in the modern digital era, but also a practical requirement in the process of cultural heritage protection.[3] In recent years, with the development of new technologies such as digital projection and motion capture, new media interactive art based on traditional Chinese painting has gradually emerged in major exhibitions. This interactive art generally takes a Chinese painting, especially a masterpiece, as the creation theme, to display the dynamic scene of Chinese painting, and interact with the audience. This paper mainly discusses the case study on "A Dream Journey through a Panorama of Rivers and Mountains - the Imperial Palace Immersive Art Exhibition" from the perspective of cultural heritage inheritance, to providing useful reference for research in this field.

1. Exhibition Background

In August 2021, the "A Dream Journey through a Panorama of Rivers and Mountains - the Imperial Palace Immersive Art Exhibition" opened in Lijia Smart Park, Chongqing. The exhibition set up eight exhibition areas, with the theme of "A Thousand Li of Rivers and Mountains" collected in the Palace Museum. It gathered 16 creative exhibitions, including immersion interaction, space landscaping, and art installations. The projection area is over 1000 square meters, and the exhibition hall space is over 2000 square meters. The traditional Chinese painting of "A Thousand Li of Rivers and Mountains" is a blue and green landscape painting created by Ximeng Wang of the Northern Song Dynasty. It is one of the ten famous paintings handed down from generation to generation in China. It depicts the landscape in the Chinese south. There are many green mountains, steep multiple waterfalls, vast lakes and rivers, as well as waterside pavilions, thatched huts, fishing fairs and other scenes. The layout of the painting is tight, the brushwork is exquisite, the color is gorgeous, the dynamics of the characters are natural and real, and the scene description is exquisite.

2. Immersive interactive audiovisual feast of oriental aesthetics

2.1 "Long Scroll of Prosperity"- dynamic digital long volume

The dynamic digital long scroll of Chinese painting is a new media art work with new era characteristics created by combining the characteristics of the long scroll of Chinese painting with the digital dynamic effect using emerging scientific and technological means. The dynamic digital long scroll generally gathers the key content of the famous Chinese painting long scroll as the blueprint, expresses the content and situation painted by the painter in a more vivid way, and creates the painting content as a realistic dynamic scene.

The "Long Scroll of Prosperity" is the core item of this exhibition. It retains the main content of "A Thousand Li of Rivers and Mountains", shows the beautiful and changeable scenery of a thousand miles of rivers and mountains, such as sunrise, sunny day, morning rain, and quiet night. There are mountains with dense fog at night, the dynamic of waterfalls, and slightly shaken forests, The dynamic scenes, such as several white cranes passing by quickly, flocks of birds flapping their wings lightly, and more than ten boats driving in the flowing river, express the thousand mile scenery and artistic conception in the painter's mind with fresh images. The vivid and three-dimensional work makes the audience feel that they are traveling in the paintings.

2.2 "Danqing Theater" - immersive space for panoramic experience

The Cave panoramic space can be said to be the most representative immersive system in the multi sensory experience, and is widely used in various public spaces and museum displays. It is an augmented reality system that combines 3D computer graphics technology with high pixel stereo projection technology to create multi-dimensional high-precision stereo effects in a square space. Combined with the blessing of surround background sound and sensor technology, it is integrated into an immersive interactive space.

The main item of "Danqing Theater" is "Traveling in Rivers and Mountains". It is a three-dimensional particle deconstruction of the most representative green landscape in the original painting works, and creates a scroll space composed of innumerable colored particles by using the light particle form. The blue mountains seemed to stand in the virtual projection space and emerge in front of us like a dream. Wandering in the speckled river of particles, the landscape of particles is just like the starlight in the exhibition hall, from which the viewer can experience the romance of walking in the Milky Way, and feel the integration of traditional culture and new technology in the flow of blue, cyan and gold.

2.3 "Painting Space" - immersive interactive space of calligraphy and painting

The immersive experience of "Painting Space" is based on the augmented reality interactive space technology supported by the Cave panoramic system technology. The combination of visual and tactile experiences gives the audience a more diversified sense of participation and a more immersive effect. The main item is "Picturesque Rivers and Mountains", and it reproduces Ximeng Wang's learning experience in the painting academy of the Northern Song Dynasty. The audience can touch the Chinese characters, bubbles and other elements on the wall with their hands, which will produce the corresponding dreamlike interactive scenery, making people feel like swimming in the sea with fish. This real-time interactive experience can make viewers more willing to personally participate in immersive spaces.

3. Multi sensory comprehensive experience integrating vision, hearing and touch

The multi sensory comprehensive experience of new media art works transcends the traditional audio-visual pattern and can bring people various sensory experiences. Strengthening visual experience and increasing surround sound laying are common technical means for new media art works. The appearance of interactive links will enhance the authenticity of communication between people and art works, such as "Long Scroll of Prosperity". When the audience approaches, they can trigger the appearance of special effect elements such as maple leaves and petals. The audience can scan the QR code on the opposite wall with mobile phones, so they can fly kites in the work; In "Painting and Dyeing Thousand Mountains", they can experience the feeling of painting with their hands or brushes on the touch screen.

4. Technical analysis

4.1 Combining digital projection, virtual image and interactive capture

In the new media interactive art, digital projection is a very important part. Most new media art works will combine digital projection with digital screen, and incorporate virtual images and interactive technologies to enhance the realism of works. This exhibition uses digital projection that can cover a large area of space, and combines motion capture system with digital projection real-time rendering technology to enable the audience to interact with the dynamic content on the screen or projection. Some exhibition halls combine virtual images with digital projection, and add motion capture technology, which can achieve a very real and immersive

comprehensive experience.

4.2 Real time layered rendering technology

Real time layered rendering technology is a more advanced rendering technology that combines real-time rendering technology and layered rendering technology, and it will bring more realistic dynamic visual effects. Real time rendering is the technical basis for the interactivity of works. It can quickly generate images after feeling the gesture or touch of the audience. In the "Painting Space", the content change of the picture caused by touching and shaking is achieved through real-time rendering technology. The layered rendering technology is to divide the green landscape in the painting into three layers: front, middle and back, and render them separately. The front highlights the flexibility of the small scenery. The middle layer represents the main body of the painting, namely the mountains of green mountains and waters. The back layer represents the perspective, representing the ethereal scene behind the main content. After the multi-layer scenes overlap, a strong sense of space can be formed.

4.3 Time conversion system

In "The Long Scroll of Prosperity", the audience can appreciate the multiple landscapes at different time points in the constant change of pictures. By changing the color of the scene, it can reflecting a richer sense of the situation. In terms of time, the dynamic digital long scroll can be divided into several situations, such as sunrise, sunny day, morning rain, dusk, and still night, among which there are rain scenes, which together with the time changes bring a more vibrant picture feeling. Among them, the sunny day is the turquoise in the original painting, the main tone at dusk is orange yellow, the night is blue purple, and the morning rain is light green, with a faint sense of fog. It uses the time transformation system to extend the expression based on the original painting, so that the presentation effect of the dynamic digital long scroll is more rich, and the audience has a deeper understanding of the content of the original painting.

5. Conclusion

This article focuses on the new media interactive art based on traditional Chinese painting. In the case study of the "A Dream Journey through a Panorama of Rivers and Mountains - the Imperial Palace Immersive Art Exhibition", an in-depth analysis of the case is conducted from three aspects: the immersive interactive audio-visual feast of Eastern aesthetics is studied, a multi-sensory comprehensive experience that integrates visual, auditory, and tactile senses, and technical analysis.

The continuous integration of art and science and technology will drive the development of both industries. With the continuous digitization of cultural heritage, its gradually moving towards public life. For the inheritance of cultural heritage, digital method plays a significant role. We should also see that new media interactive art works created based on traditional Chinese painting should be further studied in terms of philosophical thinking and cultural spirit. To achieve innovative expression of the original work, new works still require continuous exploration and practice.

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