Research on the Application of Holographic Projection Technology in Display Design

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Abstract: Holographic projection technology is a product of information, intelligence, and digital age. It ushered in new design concepts and techniques for display design, creating brand－new visual experience for people through realistic forms and visual experience, and continuously improving the effectiveness of information transmission. This article focuses on the issues related to the application of holographic projection technology in display design.

Keywords: Holographic Projection Technology; Display Design; Application; Research

With the rapid development of science and technology, holographic projection technology has gradually entered the lives of the people. This technology combines computer technology and projection technology to display virtual images in three－dimensional and lifelike fashion in front of the public, and is widely used in the fields of culture, entertainment, and computers. At this stage, the exhibition hall display has begun to transform from a traditional static display to a dynamic interactive display. The use of holographic projection technology has innovated design space and display channels for display design, and has continuously improved the quality and level of display design. Talk about some thoughts on the application of holographic projection technology in display design.

1. Overview of holographic projection technology

1.1 Connotation of holographic projection technology

The so－called holographic projection technology is a technology that uses the principles of interference and diffraction to reproduce the real three－dimensional image of an object. With the rapid development of science and technology, the holographic projection technology has achieved rapid development. Holography, etc., the application of holographic projection technology has improved the quality and level of development in all walks of life.

The holographic projection technology originated in the United States, and aims to carry images through a powerful airflow wall, and objects are projected on the airflow wall, and because of the use of interactive technology, the interactive function of the projected image is given. People can see the image on the screen with the naked eye, and the image has a stereoscopic and three－dimensionality that people cannot imagine. This shows that the importance of air projection and interactive technology is particularly prominent.

1.2 Basic principles

Holographic projection technology, also known as virtual imaging technology, is a technology that records and reproduces real three－dimensional images of objects through the principles of interference and diffraction. In essence, it is the reverse display of holographic photography technology, which is mainly a photography technology that records all the information such as the amplitude and phase of the light wave reflected or projected by the subject. The human eye can only see the interference fringes in the photosensitive film taken by

holographic photography, but based on laser irradiation, the three－dimensional image of the object can be seen, so the audience can see it at any angle without using auxiliary tools such as 3D glasses. Floating virtual three－dimensional image.

1.3 Advantages of holographic projection technology in the exhibition space

First, technicality. This advantage is mainly embodied in the photographic technology of holographic projection that mainly captures all the information in the reflected light waves of the object being photographed. The light reflected by the object can be created by recording film to form a three－dimensional illusion. This principle can be applied tovarious fluctuations, and then create a more exciting and prominent visual experience for people.

Second, interactivity. Compared with other new media technologies, holographic projection technology is cool and technologically strong, which can greatly stimulate people's senses, and to a large extent increase the attractiveness and activity of the exhibition space, allowing audiences to participate in the technical interaction of the exhibition hall at any time. Raise the audience's thirst for knowledge, as a result, people begin to subtly accept and approve the exhibition information. Compared with other new media technologies, holographic projection technology achieves the best combination of reality and virtual mirrors, showing people more natural images, movements, states, subversive displays, reorganizing behavior sequences and other special effects, thus breaking through logic and restrictions. The use of holographic projection technology breaks through people's stereotypes and habitual thinking in the real environment. It can not only form a three－dimensional aerial illusion, but also allow the audience and the illusion to form interactive behaviors, creating immersive feelings for people, and experiencing personally. Get a good feeling in.

Third, high efficiency. Using holographic projection technology, people can optimize various exhibits and display effects in a limited display space. People can intuitively, concretely, and experience the display content at a zero distance, reduce viewing time and improve exhibition efficiency, to a large extent. The spread rate of the content displayed in the exhibition hall has been increased, so that the audience can understand the content of the display in the shortest time, the connotation and value of the content of the field display, and continuously improve the efficiency of the display.

2. The specific application of holographic projection technology in display design

Domestic exhibition design has a development history of more than 20 years. At present, exhibition space has broken through the limitations of traditional time and space, and is no longer limited to highly functional spaces such as museums, shopping malls, and exhibition centers. The exhibition design uses different forms and scales to penetrate into. Go to the venue where the dissemination of information is the goal. The development and application of holographic projection technology ushered in a new development situation for display design. Under the new situation, we should stick to keeping pace with the times, in－depth study of holographic projection technology, and play a role in the following many display scenarios:

2.1 The field of culture and education

With the rapid development of cultural education, in order to better educate the audience, culture must be reproduced and spread. As a historical and social phenomenon, culture is the product of social and historical development, but at the same time it is free of ideology outside of material. It is something that people cannot generalize through words and pictures. The application of holographic projection technology can break through the limitations of traditional display time and space, and show the history and culture to the public intuitively and three－dimensionally through real－time, dynamic and story－like virtual images, creating an immersive experience for the public, so as to bettercomprehend the connotation of history and culture, truly entertaining and entertaining, improve the efficiency and level of mass education, and then truly implement the concept of comprehensive quality education.

2.2 Stage performance field

In recent years, holographic projection technology has been widely used in stage performances in my country, and has a lot of successful experience. Ten years ago, Sega Japan successfully carried out a virtual idol concert through holographic projection technology for the first time, and the response was very strong, and its

influence continues to this day. Large－scale performances in my country are also gradually using holographic projection technology. The characters in the real scene and the virtual images form an interaction, which promotes the scene atmosphere to reach a climax again and again. CCTV has actively used virtual stadiums and stars in its World Cup live broadcasts in recent years to produce vivid, vivid images that are interesting and educational. Traditional Wumart design requires a lot of equipment support, and these devices occupy a large space and the overall efficiency is low. Holographic projection technology does not require high space for these Wumart devices, and can easily and quickly switch between different effects.

2.3 Technical experience field

If technology is to be disseminated to the masses, it mostly relies on display. The audience in the exhibition space in the technical experience field includes both producers and professional technicians, but most of them are still ordinary people. Therefore, the display method of the exhibition space should be easy to understand and intuitive. Image, and the audience can be in it and feel it personally. Virtual driving mainly uses holographic projection technology to simulate different driving atmospheres and environments in the indoor space, constructing a mature immersive and interactive experience space, and creating a more realistic and specific driving experience for the audience.

2.4 Commercial sales

As we all know, commercial space display design involves a wide range of fields and various forms, and is optimizing the aesthetics of product display to successfully sell products. As a real－time and dynamic display method, holographic projection technology is interactive and manipulable, which has brought consumers closer to the product to a large extent. Consumers can experience all the functional parameters of the product at close range. It not only greatly improves the added value of products, but also stimulates consumers' interest and enthusiasm for purchasing, which directly forms consumption behavior and creates more economic benefits for businesses. For example, Audi has adopted holographic projection technology in new car launches in recent years. The image of the new car, which combines virtual and real, gallops freely in the virtual scene. The vigorous engine sound greatly stimulates the auditory nerves of the audience and creates an immersive experience for the audience. Advertising blockbuster. Holographic projection technology is used to bring unique dynamics to a broad audience, and the effect of combining virtual, virtual and real, which stimulates people' s consumer behavior.

3. Conclusion

In summary, with the development of economy and advancement in technology, people's material living standards have been continuously improved, and at the same time, the spiritual pursuit has been greatly enhanced. There are more and more audiences for exhibitions in venues. The display design is essentially effective for space. Holographic projection technology is actually to display a plane image in a three－dimensional space, and its application in display design has broad development prospects. At present, we should correctly recognize the connotation and characteristics of holographic projection technology, conduct in－depth research on its application modes and effects in the fields of culture and education, stage performance, technical experience, and commercial sales, and constantly break through the existing technical bottlenecks, so that itcan be used in all walks of life. Give full play to the value in the development of various industries, and promote the better development of holographic projection technology through display design, and lay a solid foundation for the development of my country's art industry.

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