



# Immersive experience of virtual reality technology application in theme parks

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## Abstract

With the development of technology and the advent of the leisure age, more and more high-tech applications are used in theme parks. In recent years, the application of virtual reality technology in the design and innovation of theme parks has fully met people's demand for experience. The article classifies and summarizes the current specific applications of virtual reality technology in theme parks, and puts forward some suggestions and prospects for the application of virtual reality technology in theme parks, in order to better realize the combination of virtual reality technology and theme parks.

**Keywords:** *Theme parks, Virtual reality, Immersive experience*

## 1. Introduction

As an important supplement to tourism resources and an important type of modern tourism products, theme parks are attracting more and more public attention with their unique cultural connotations, technological content and powerful entertainment functions. The most important thing in a theme park is the theme and content. However, even with creativity,

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without technical support and rich means of expression, it is difficult to attract the attention of tourists. Therefore, the development and innovation of theme parks are inseparable from the application of technology.

## **2. The Necessity of Application of Virtual Reality Technology in Theme Parks**

### **2.1 Promote the transformation and upgrading of traditional theme parks**

Traditional theme parks have a single expression method and low technological content. Taking amusement-type theme parks as an example, many amusement parks have too old-fashioned play items and lack creativity. Tourists lose interest after playing it again, and it is difficult to form a "second time play". Without attractive projects, the number of new tourists will not increase, and over time it has created a situation of losing more and less surplus. The application of virtual reality technology can promote the transformation and upgrading of traditional theme parks to become high-tech theme parks. A high-tech theme park refers to a theme park that uses high-tech means to integrate AR (Augmented Reality) and VR (Virtual Reality) technologies to present a specific theme content in a three-dimensional, four-dimensional or comprehensive form. Compared with the profit model of one-time consumption in traditional theme parks, high-tech theme parks can better exert their cultural heritage, increase the added value of products, and attract more tourists to form secondary consumption.

### **2.2 Meet the experience needs of tourists**

In the era of experience economy, what tourists pay most attention to is the experience of play. Simple human-computer interaction and old entertainment modes can no longer meet

the needs of some consumers. In this era of rapid technological advancement, the application of high-tech in theme parks can greatly enhance the amusement of theme parks. Theme parks including AR, VR and other technologies will bring visitors a more novel and exciting travel experience. In addition, visitors can also learn about high-tech content through play, learn the corresponding knowledge, and entertain through education, which is not possible in traditional theme parks.

### **2.3 Expanding channels for the application of virtual reality technology**

Virtual reality technology has experienced a cold winter of capital, and its popularity has also declined compared to the beginning. However, with the development of technology, its related hardware facilities are constantly updated and upgraded, and the application fields are becoming wider and wider. At present, the combination of virtual reality technology and the tourism industry is becoming more sophisticated. The immersive experience attracts countless tourists to come and play, and it also brings countless business opportunities. The application of VR technology in theme parks can broaden the application channels of virtual reality technology, promote the development of VR industries, and bring people a better entertainment experience while improving VR technology.

## **3. Application performance of virtual reality technology in theme parks**

Applying virtual reality technology to the development and construction of theme parks can not only broaden the application fields of virtual reality technology, but also optimize the operation mode of theme parks and assist related industries to complete the transformation and upgrading. At present, many theme parks have begun to use virtual reality technology to enrich their entertainment projects in order to bring more different feelings to tourists.

The application of virtual reality technology in theme parks mainly includes the following methods:

### **3.1 VR roller coaster**

VR roller coaster combines virtual reality technology and traditional roller coaster to achieve unexpected results. Visitors only need to wear VR glasses to ride the traditional roller coaster, and a splendid virtual theme scene will be presented in front of them, visitors are immersed in the dream and reality and enjoy this special pleasure. The more famous VR roller coaster project is "Galactica", the amusement project of Alton Towers, a British theme park. Visitors can experience a space journey by wearing special VR glasses: getting into a spaceship and being launched into unknown space, shuttled in various tunnels, adventure in various scenes, and finally realize the "Great feat" of navigating in the galaxy.

### **3.2 Virtual scene design**

Virtual scene design is the application of VR and AR technology to the design of real scenes, creating an atmosphere of combining virtual and real, and creating an imaginative and personalized scene environment. The biggest feature of this type of project is that players can experience the virtual scene superimposed on the real scene without wearing heavy helmets. Most projects use phantom imaging technologies such as holographic projection and naked eye 3D, coupled with stereo sound effects and lighting rendering, make visitors feel like they are in another world. The ship-mounted "Battle of The Sunken Treasure" project of the Disney theme park is a typical case of scene design using virtual reality technology. In the ship-mounted "Battle of Sinking Treasures", tourists board pirates' warships and embark on a journey to search for treasures, every scene in the project will use novel special effects and technologies, allowing visitors to experience the thrill of riding the wind and waves at sea. After experiencing

a series of ups and downs and thrilling dangers, the tourists finally ended the treasure hunt and at this time they have not yet left the world of pirates in the Caribbean...

### **3.3 VR cinema**

VR cinema is similar to the 4D movie that we usually understand. By influencing the audience's vision, hearing, smell, touch and other multiple senses, it brings the audience into a realistic movie scene and feels the thrills and excitement. The Universal Studios Hollywood project "Back to The Future" is a typical example, the audience is arranged in a "Spaceship" facing a huge display screen. At the beginning of the film, the scene on the display screen has also changed, which means that the spaceship has already flown into outer space. During the filming process, the audience will travel through the vast universe with the spacecraft, going on a thrilling journey to adventure places. In fact, they didn't move at all, all the illusions were caused by the vibration of the seat, the guidance of the sound, and the interactive scene of the display.

### **3.4 VR theme park**

VR theme parks are different from general theme parks. It does not combine VR technology with general amusement projects, but a theme park with VR technology as the core to design content. If the use of VR technology in amusement-type theme parks is to combine reality and the virtual world, then theme parks created purely using VR technology are to allow people to fully immerse themselves in the virtual world and experience the infinite mysteries. Take the VR theme park "THE VOID" in Utah, USA as an example. In the theme park, players will wear somatosensory equipment that can reproduce the impact, and constantly shuttle through various game scenes to experience the fun of virtual reality. Players can manually operate the virtual panel for control, and can also

use real props to play the game, such as lights, guns, swords, etc. In the VR theme park, the player is no longer an observer, but a participant, who can experience the joy of the game world in the real world.

#### **4. Suggestions on the Application of Virtual Reality Technology in Theme Parks**

The combination of virtual reality technology and theme parks is not only an exploration of the VR application field, but also a way to develop and perfect theme parks. The extensive use of virtual reality in theme parks must be based on the perfection of virtual reality technology itself, combined with excellent content and creativity, in order to achieve refreshing effects.

The application prospects of virtual reality technology are mainly reflected in the following three aspects:

##### **4.1 Immersive project experience**

An excellent amusement project can not only attract the attention of tourists, increase the admission rate, but also leave a deep impression on them, thereby forming a second play and increasing the income of the park. For designers, in addition to transforming existing projects through VR technology and adding VR elements to traditional projects, they can even break through the limitations of space and place, and combine virtual vision and real body sensation to design brand-new amusement projects, bring tourists a new immersive experience. This is the main aspect of the application of virtual reality technology.

##### **4.2 Environmental redesign**

The architectural landscape of the theme park should be designed around the theme of the park. The landscape modeling, architectural sketches, project facilities, etc. in the park must serve the theme, becoming a unique identifying

feature of the theme park, and color matching should also be considered visually. The harmony meets people's aesthetic needs. In addition to designing and arranging static buildings, other methods can also be used to stimulate the human body with multi-sensory organs to influence people's emotions. For example, in the Disney Park, lighting and sound effects are used to stimulate the visual and auditory nerves of visitors, rendering a magical atmosphere, and giving people the feeling of being in a fairy tale world.

#### **4.3 Highlight the theme culture**

The core of theme parks is cultural connotation. Theme parks that only focus on amusement experience but lack cultural heritage cannot develop in the long term. Traditional theme parks can only express the culture of the park through the layout of the environment and static product displays, and this information is difficult to receive and digest by tourists, and it cannot arouse tourists' enthusiasm for active learning. The application of virtual reality technology provides a new way for theme parks to display their own culture. VR, AR and other technologies make the display of products more abundant, and visitors can learn new knowledge and feel the essence of culture through interaction.

### **5. Result**

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#### **Acknowledgement**

The application of VR, AR and other technologies in theme parks has become an unstoppable trend. This is not only the expansion of virtual reality applications, but also the development needs of theme parks themselves. High-tech can not only bring convenience to people, but also bring a new



entertainment experience. It is indispensable for a theme park with distinctive features, excellent amusement projects and a landscape system suitable for tourists. Through the design of the surrounding environment, visitors are placed in a completely different atmosphere from usual, allowing them to forget the reality, immerse themselves in the virtual world in front of them, and release themselves in various interesting amusement projects, this is the most fundamental meaning of the theme park.

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