# The Application of Virtual Reality Technology in the Tourism Industry with Local Characteristics in Machong

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**Abstract**

At present, China's local special tourism is from sightseeing tourism to experience, health, Leisure and holiday tourism over. Machong is rich in local tourism resources, but it has not yet turned into an industrial advantage. Based on how to transform the resource advantage into the industry advantage, and then into the Regional Competitive Advantage, this paper discusses the feasibility of merging VR and tourism industry by analysing the value of VR to the local characteristic tourism, the paper puts forward the way of promoting the high-quality development of tourism industry with local characteristics in Machong.

***Keywords:*** *virtual reality, local characteristics, tourism industry.*

## 1. INTRODUCTION

In recent years, the development of technologies such as 5G, big data, cloud computing, Internet of things, artificial intelligence and so on has changed People's consumption habits and travel patterns. The digital economy is profoundly changing people's lives, work and industrial transformation and upgrading. Digital Technology has breathed new life into traditional industries such as tourism. The new crown pneumonia epidemic has brought impacts and opportunities for change to the traditional tourism industry. Many scenic spots have developed cloud tourism business. But it is difficult to develop online tourism products, it is an urgent problem to build the online tourism that promotes the scenic spot brand and the local characteristic value.

## 2. VR AND THE TOURISM INDUSTRY

### 2.1. VR in the IT wave

Virtual reality (VR) refers to the virtual environment generated by information technology, in which the user wears a head-mounted controller and uses an action platform with the senses of sight, hearing, and touch to interact with the data to create a near real world experience. VR is represented by pictures and videos, and the VR interaction based on game engine which includes Unity 3D and Unreal Engine4, and also base on the Web page VR platform such as fresh fruit VR platform, square circle VR platform, 360vr platform and so on. The game engine type VR interaction is more complex, the Web VR platform provides services such as Panorama content publishing and hot spot interactive effects, Panorama video interactive, space navigation function, VR content display interactive, Internet Integrated Marketing, integrated platform promotion and so on. 3Ds Max, Zbrush, C4d, Maya, SpeedTree are the basic VR modelling software, with the help of the Unity 3D and Unreal Engine4 engines to provide a lot of materials and scenes, which can realize integrated project development [1].

With the help of the device and the network, the consumer can realizes the VR interactive and immersive experience, the system feeds back the results of the user's operation in the virtual space to the experiencer, and the experiencer can operate or observe the virtual environment accurately, to create a multi-dimensional experience from sight to sound. With the rapid development of virtual reality technology, VR has been applied to all kinds of tourism projects, and will have a far-reaching impact on tourism development in the future.

## 2.2. VR and integrated development of tourism industry

VR experience improves the information transparency of both the supply and demand sides of the tourism market, enhances the sensory degree of the tourism products, and increases the choice space of the consumers. VR Experience has broad market prospects in the tourism industry. Scenic spots can collect panoramic images and videos with the help of panoramic cameras. Visitors can use smartphones or VR glasses to experience the scene immersivity at any time,. VR can be widely used in the promotion of tourism brands and routes by the way of virtual tour to understand the layout of scenic spots. Sharing the travel experience is very important to the travel industry, and VR travel experience sharing can have an impact on the travel intention and route planning of potential customers. In May 2019, China Unicom and Tencent jointly released *the 2019 China Smart Travel 5G application White Paper*, which pointed out that 2020 to 2023 is the high-speed development stage of the 5G network application market, and 5G technology will boost the development of cultural tourism industry. Proposing 5G as a new infrastructure for smart tourism will play a key role in improving the ability of tourism management, enriching the means of tourism marketing, improving the level of tourism service, enhancing the travel experience of tourists, promoting the activation of cultural relics and cultural heritage[2].

The integration of tourism industry and VR has become a reality, more and more scenic spots offer all-round intelligent services to tourists with VR. Travel website VR projects can help visitors understand the details of each attraction and the quality of souvenirs, make it easy for visitors to make their own value-for-money travel plans and facilitate them to online booking and purchase of tickets, it can also bring more convenience to the visitor during the tour.

Some scenic spots in China have experimented with VR experiences and cloud tourism. The Jiuzhaigou Valley scenic area has launched a VR online experience. Visitors can experience the beauty of the scenic area in 360 degree 3D by using VR helmet and mobile phone APPS, and push travel experience links to self-media such as Wechat, QQ, which allows potential customers to experience the project online and cost-effectively. It can help them plan their travel routes at the same time. The author investigates the local information technology companies in Guangdong, such as roaming technology, Guteng animation and Cloud Atlas animation. Many companies have started to seek the interface between VR and the tourism market. There is a huge potential demand for VR and AR in the tourism industry with Nanyue characteristics, there is a big gap for high-level VR talents. At present, Guangzhou Xinhua University and other universities have set up digital media

technology major, mainly involving virtual reality interaction design, human-computer interaction, VR modelling, VR applications and other core skills courses.

## 3. GENERAL SITUATION OF TOURISM INDUSTRY WITH LOCAL CHARACTERISTICS IN MACHONG TOURISM AREA

### 3.1. MaChong Tourism district

Machong is located in the West of Dongguan, just across the river from Guangzhou, where with rich tourism resources, but many areas have not yet formed industrial advantages, Nanyue's local tourism industry development space is huge. In the next few years, Machong will vigorously develop its economy with water features in accordance with the plan of 'five districts, nine gardens, six vertical and four horizontal', and turn Machong into a special area suitable for industrial, commercial, residential and tourism, and a beautiful water town to realize the rise of 'green'.

### 3.2. The development of tourism industry in MaChong Tourism district

The overall economic effect of Machong Tourism district does not match the popularity of the tourism industry. The number of tourists and the growth rate of the tourism industry are relatively slow. Tourists generally only arrange a one-day trip to visit the Machong tourism district, most tourists only choose to Huayang Lake Wetland Park for the first step of the day, and than go to the food street near the lake for dinner to end the day trip. The Short Board of the development of tourism industry with local characteristics in Machong tourism area is as follows

### 3.2.1. The promotion effect of scenic spots is not good

At present, many provinces and cities have combined the ecology with the red brand to develop tourism. Jinggang Mountains took the Red Anti-Japanese war as the carrier to realize the double harvest of social benefit and economic benefit; Lankao County has become a model for cultural industries to drive local economies, and tourism in many old revolutionary areas has kept pace with the Times. The way of Tourism and publicity in the Machong tourist area is relatively single. There is no comprehensive planning for the characteristics of Ecology, history and culture, and the customs of Nanyue. The lack of innovation in the existing projects results in the inability to meet the cultural and psychological needs of tourists of all ages, in particular, there is a lack of specific customization for

young consumers, including forms of advertising to tap into passenger demand, and a lack of integration of new media and technologies such as VR.

### 3.2.2. The resource advantage has not been transformed into the industry advantage

There is a general lack of the characteristic brand with regional mark in the tourism area of Machong, which can not realize the derivative effect and driving effect of the Machong scenic spot. Scenic spots are rich in tourism resources, which have not yet been completely transformed into industries. There are industries but no industrial chains. They are mainly based on looks, and have a single form, which can not meet the diversified and individualized needs of tourists, the single product and service restricts the number of customers and travel time, and does not form the whole industrial chain of travel, entertainment, accommodation, eating, drinking and purchasing, which affects the overall income of the tourism industry, but the number and the time have further restricted the industrial chain's consummation and the promotion, has formed the vicious circle. Among the six elements of tourism economy, the main consumption of tourists in Machong scenic spots is transportation, and the consumption of accommodation, catering, entertainment. But the consumption of shopping is almost zero.

### 3.2.3. The quality of tourism products and experience needs to be improved

The tourism products of scenic spots have a single variety and few experience products, which cannot meet the demand of mainstream tourism in China. Lack of supporting facilities, lack of high-quality food and beverage accommodation and other hardware facilities, which forced a large number of tourists to rush to visit the scenic spot, and cause them stay short and make low consumption. High-quality tourism resources did not drive the development of local tourism industry chain. In the process of souvenir selection, impulsive purchase occupies a dominant position, so how to stimulate tourists'desire to purchase is also an important factor in the development of tourism products. Machong scenic area souvenirs lack creativity and product development is not based on practicality and artistry, which cannot reflect the simple and elegant spirit of Nanyue.

## 4. THE IMPORTANCE OF APPLYING VR TO THE DEVELOPMENT OF LOCAL TOURISM INDUSTRY IN MACHONG

### 4.1. The importance of Vr to the development of tourism with local characteristics in Machong

With the improvement of living standard, Chinese residents'tourism demand is increasing. Tourists pay more attention to the experience and the quality of tour. Before departure, they learn the information of tourism destination mainly through media, especially from the APPs. The emergence of "VR + tourism"products provides a novel channel for tourists to experience tourism projects before they arrive at their destinations. VR Can create a unique "Postmodern reality", let the visitor from the sense organ achieve a kind of "With infinite space-time and all things in the world co-existence experience"[4] .

Machong tourism area is rich in tourism resources, but the passageway advantages are not obvious. With the aid of VR, the tourism industry with local characteristics of Machong tourism area can be easily introduced, so that potential tourists can have a better understanding of Machong, it will help promote the tourism industry with local characteristics in Machong. At the same time, with the help of the VR experience project, tourist can realize the situation resonance,. VR can make the experiencer feel the baptism of Nanyue culture and make the tourists get the spiritual nourishment in the scenic spot, which can give full play to the advantages of cultural tourism resources with special features. Machong can accept more Continuing education training, developing ON-LINE VR research projects to improve the efficiency and breadth of south Guangdong Research. Combine Nanyue Cultural Study Tours with training and teaching in various institutions to bring Nanyue culture and spirit to the classroom through VR immersive study.

### 4.2. Strategies of applying VR to promote the development of tourism industry with local characteristics in Machong

### 4.2.1. Increase VR application

Develop high-quality VR tourism projects around the "south Guangdong spirit". Research and develop high-quality network resources related to the characteristics of southern Guangdong, let the local characteristic tourism industry integrate into the social networking of tourists with the help of the Internet, and let VR improve the credibility and experience of scenic spot publicity. Tourists can plan their itinerary in advance according to the recommended route of cloud tourism in the scenic spot, and visit the virtual scenic spot freely with the help of cloud tourism. Guided by the government and led by enterprises, invest in the design of VR experience project in Machong scenic spot. For example, in the "scenic area information" module of the "smart majong" app, add the display of majong VR project, use VR to experience the transportation, souvenirs and characteristic projects of the scenic area online, provide online reservation purchase of scenic area tickets, and experience some

cultural exhibition projects of majong tourism area online for free, so that tourists can realize emotional resonance on the network.

### 4.2.2. Develop online VR

The virtual scene is displayed through panoramic pictures, and the single-point camera charging service is implemented, which can be applied to Huayang Lake Wetland Park in priority to provide online VR experience services. Through this technology, the scenic spot can create a special virtual exhibition hall, through professional equipment editing, import virtual performances, and special effects such as sound and light to achieve an interactive observation experience around the exhibits. Promote the VR tourism sharing project of Huayang Lake Wetland Park and the "Millstone Ancestral Hall" scenic spot to expand and optimize the tourist experience. Machong mainly promotes leisure and summer vacation in summer and cultural tourism in winter. Combining Macong Southern Guangdong's research and training, VR experience development training, serving the party building work of enterprises and units, and enriching travel options for the masses. Through the free experience and promotion of online VR immersive tourism projects, tourists can experience different combinations of tourism routes in advance to meet the different needs of tourists.*3.2.3. VR display of tourist souvenirs*

Research and develop VR souvenir online viewing project, unify Ci to spread and promote brand products, integrate the brand into tourist souvenirs, and strive to create souvenirs, works of art, daily necessities, etc. with the theme of "southern Guangdong culture". With the help of VR, tourists can understand the quality and characteristics of souvenirs before traveling. The sales of tourist souvenirs take research as a breakthrough, do a good job in the promotion of online and offline souvenirs, connect with organizations with training needs, and issue characteristic learning trophies and souvenirs after learning. Facing more and more diversified target customers, increase the sales of souvenirs through the online VR souvenir display and purchase channel, and select high-quality tourist souvenirs from online products to put them in the scenic spot. needle

Develop commemorative brochures and other products for the elderly consumer groups to meet the psychological needs of the elderly through the cultural memory of southern Guangdong; For young consumer groups, research and develop fashion cultural tourism products, and mainly promote some daily electronic products, supporting products and decorations, such as mobile phone cases, computer bags, key chains and other fashion products, which can not only arouse the interest of young people, but also bring convenience to them.

### 4.2.3. Construction of VR experience Pavilion

Build a VR experience Pavilion in Machong scenic area, use a multi-channel virtual 3D projection display system, cooperate with the ground interactive projection, simulate the somatosensory falling platform, so that participants can get an immersive virtual simulation experience. For the VR display of exhibits, naked eye 3D holographic projection technology can be used, and the interaction with exhibits can be realized by scanning QR code with a smartphone, Virtual interaction can also be realized with the help of intelligent VR helmet. The experience Pavilion can not only improve the quality and interest of tourism, but also provide a large number of network resources that can be shared and displayed for cloud tourism.

## 5. CONCLUSIONS

At present, China's local special tourism is from sightseeing tourism to experience, health, Leisure and holiday tourism over. Machong is rich in local tourism resources, but it has not yet turned into an industrial advantage. Based on how to transform the resource advantage into the industry advantage, and then into the Regional Competitive Advantage, this paper discusses the feasibility of merging VR and tourism industry by analyzing the value of Vr to the local characteristic tourism, the paper puts forward the way of promoting the high-quality development of tourism industry with local characteristics in Machong.

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