

# Artificial Intelligence based Innovation Path of Tourism Industry: *Empowering Wudang Wushu*

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**Abstract:** With the continuous development of science and technology, artificial intelligence characterized by internet+, big data, intelligent analysis and other technologies is gradually producing technology-enabled effects on different industries including tourism industry, and bringing innovation of industry operation mode and new growth momentum. At present, some tourist attractions have made good attempts with the help of artificial intelligence and achieved some good results. Currently, the development of Wudang martial arts tourism industry is steadily rising, but there are also some problems such as traditional and old-fashioned operation ideas and poor visitor experience. The author believes that, through in-depth research and analysis, finding an innovative path for Wudang wushu (martial arts) tourism industry from the perspective of artificial intelligence and trying to propose specific programs and measures will help to promote the continuous development and prosperity of martial arts tourism industry in the region, and can also provide some theoretical references and materials for other similar tourism industries.

## 1 INTRODUCTION

Sports tourism is becoming one of the most dynamic sunrise industries in China, and in recent years, the government has introduced relevant policies to encourage, support and guide the industry. In the second half of 2021, the sports industry in Hubei Province, as a new growth point for economic development to further consolidate its position. The total scale of the province's sports industry exceeded 150 billion, and the added value of the sports industry was nearly 70 billion. The 14th Five-Year Plan for tourism in Hubei Province stated that Wudang Mountain as a whole will be built into a tourism brand with international influence.

The emergence of artificial intelligence has promoted the continuous upgrading of the new era of intelligence. As the tourism industry is a kind of personalized leisure and entertainment demand of the people, the traditional tourism of "walk and see" has gradually lost its attraction, and the integration of intelligence has started to become the main direction of upgrading tourism products and services. The author tries to analyze the pros and cons of Wudang Mountain tourism from the perspective of artificial intelligence, and proposes a better development path

based on artificial intelligence to promote the optimization of Wudang Mountain tourism, expecting to provide some constructive thoughts for the development of sport tourism in that region.

## 2 OVERVIEW ON TOURISM INDUSTRY OF WUDANG WUSHU

### 2.1 Advantages and Prospects

Above all, there is continuous release of favorable policies of artificial intelligence, Internet+ and tourism from national level. In 2019, the General Office of the State Council officially released the guiding opinions on promoting the development of all-area tourism (hereinafter referred to as the guiding opinions), emphasizing the need to "strengthen tourism services and improve the satisfaction index", and clearly pointing out the need to "promote service intelligence". 2020 In November, the State Council executive meeting to determine the measures to support the development of "Internet + tourism" to meet the needs of consumer upgrading, the tourism industry ushered in a new round of digitalization,

intelligent policy benefits. 2022 January, the State Council issued the "14th Five-Year Plan" Tourism Industry Development Plan". The Plan specifies that a number of smart tourism cities, tourist attractions, resorts, and tourist neighborhoods will be built, a number of innovative enterprises and key projects in smart tourism will be cultivated, digital experience products will be developed, new tourism services such as immersive interactive experiences, virtual displays, and smart tours will be developed, and the tourism scenario represented by "Internet+" will be promoted.

Construction (<https://baijiahao.baidu.com/s?id=1722521431988260964&wfr=spider&for=pc>).

Furthermore, immense investment are being taken by local government in Wudang Mountain scenic area. Shiyan City takes cultural tourism industry as the second pillar industry in the city to cultivate, the city's A-class tourism scenic spots reached 85. The city government has issued the "Implementation Opinions on the Integrated Development of Culture and Tourism Industry" and the "Incentives for Supporting the Development of Culture and Tourism Industry in Shiyan", etc. Every year, the city government allocates 13 million yuan of special funds to reward culture and tourism market players and brand creation, and takes advantage of the construction of a strong tourism province by the provincial government to include Wudang Mountain and other core scenic spots in the key support. In 2021, Shiyan was awarded the medal of "The Most Beautiful International Leisure Tourism City" at the awarding party of the "Eritis Award". At the opening of China (Wuhan) Cultural Tourism Expo at the Wuhan International Expo Center, Shiyan was ranked 19th on the list of the top 100 cities for recreation and tourism in China. At present, the cultural tourism projects in Shiyan City have entered a virtuous cycle of "reserve a batch,

start a batch, build a batch" (see the table below). More than 20 cultural tourism projects, such as Zixu Lake Carnival, Wudang Daming Peak and Wudang Ski Resort, have been completed and operated. A number of major cultural tourism projects, such as Joy World, have been fully launched. The city's cultural enterprises above the scale increased from 62 in 2017 to 148 today.

Moreover, there is rising Development Trend of Wudang Mountain Tourist Area. Wudang Mountain Tourist Area is a leading tourist industry in Shiyan City and a famous business card of tourism of Hubei Province (see table2). In September 2020, Wudang Mountain Scenic Area was approved as the first batch of forest recreation pilot units. In October 2021, in the project promotion meeting and signing activity of "Chushan Huiyan Wudang on Health", Wudang Mountain Tourism Special Economic Zone successfully signed four key projects, involving big tourism, big health, big culture and other fields, with a total investment of about 4.8 billion yuan (<https://baijiahao.baidu.com/sid=1713915882311392786&wfr=spider&for=pc>). In November, at the Hubei Culture and Tourism Key Project Investment Signing Conference, Shiyan cultural and tourism resources debuted in Wuhan, seven projects amounting to 3.26 billion yuan were signed, four of which were built around the tourism industry resources of Wudang Mountain. During the May Day holiday of 2021, Wudang Mountain scenic area received 82,700 visitors. On the National Day of November, Wudang Mountain Scenic Area received nearly 60,000 tourists on holidays.

Table 1: Shiyan City cultural tourism projects.

Progress of cultural tourism projects	Scale	Description
Reserved	23 projects	Entered the provincial major project planning project pool
	46 projects	Included in the provincial major projects scheduling
	57 projects	Entered the national support for new central budget projects
	11 projects	Included in the national cultural and tourism business consumption cluster support projects
In planning	243 projects	Planned for the 14th Five-Year Plan, with a total investment of over 100 billion yuan
Under construction	112 projects	Cultural tourism with over 10 billion yuan of completed investment
Completed	More than 20	In operation

Table 2: Increasing investment and projects of the Wudang Mountain Tourist Area.

Dates	Items	Amount of investment	Involved fields
November 2021	Signing projects	3.26 billion yuan	Four of which were built around the tourism industry resources of Wudang Mountain
October 2021	Signing projects	4.8 billion yuan	Big tourism, big health, big culture and other fields
September 2020	forest recreation pilot unit	TBD	Comprehensive tourism sectors

Lastly, Wudang Wushu Tourism Resources are expanding at a very fast pace. Wudang Mountain, also known as Taihe Mountain, is located in Shiyan City, which is a sacred place of Chinese Taoism and the birthplace of Wudang Wushu. Wudang Mountain Scenic Area mainly consists of Golden Peak Scenic Area, Zixiao Scenic Area, Wulong Scenic Area, Nanyan Scenic Area, Prince Slope Scenic Area and Laoying Scenic Area, etc. The existing area is 312 square kilometers, with 53 surviving ancient buildings, 27,000 square meters of construction area, 9 architectural sites and 5,035 pieces of various cultural relics. Wudang Mountain is very rich in tourism resources, with excellent ecological environment, deep cultural heritage and characteristics. The unique natural and humanistic resources such as Taoist palaces, music, etc. are very attractive, and the Wudang Wushu, which originated in the area, deeply attracts visitors from all over the world to come here to have a glimpse of Taoist martial arts. Wudang martial arts are deeply influenced by Taoist thought, advocating the cultivation of the mind and martial virtues, focusing on internal connotation and cultivation of the body. Wudang Kung Fu is a valuable heritage of Chinese culture and is also influential internationally. Today, Wudang Quan, Taiji Quan and Taiji Sword are well-known and loved by the public. Famous martial arts schools such as Wudang Mountain International Martial Arts Academy, Taiji Theater, Wudang Kungfu Performance Group, "China Wudang Culture and Martial Arts Festival", "Wudang Mountain Martial Arts Tournament", "Wudang Quan International Exchange Conference", "Wudang Quan Kung Fu Theory and Technique Seminar" and other martial arts events and seminars have also enriched the content of martial arts tourism.

## 2.2 Disadvantages and Challenges

Firstly, the management awareness and level is in urgent need for improvement. Relevant statistics show that, up to now, the network coverage rate of

government affairs of party and government organs has reached 100% in China at the central level, the coverage rate of e-government networks at the provincial and municipal levels has basically reached more than 80%, and the coverage rate of government affairs networks in districts and counties has also reached 50%, so the construction of "Internet + government services" has achieved initial results. Although the level of government intelligence has been continuously improved, the governance system of the government is still largely not out of the basic framework of the traditional system, artificial intelligence is still regarded as a technical tool, the understanding of its importance is no different from that of the Internet, big data and other technologies, the value of the preset positioning is to assist the instrumental role of people, the understanding of its still remains in the primary stage of "automation machine" in the primary stage (<https://www.fx361.com/page/2019/0920/5574035.shtml>). In Wudang Mountain tourism scenic area, tourism management mainly relies on the government-led, administrative force by the government to promote, the management of both the understanding of artificial intelligence-enabled tourism, or the intelligent technology into the actual tourism scene, are still very limited.

Secondly, there is inadequate innovation of martial arts tourism patterns. In recent years, Wudang Mountain has created a number of tourism patterns with martial arts as its ace card. For example, the large-scale kung fu show "Fantasy Wudang" has become a must-see for visitors to Wudang Mountain, which is a Wudang kung fu show lasting for more than an hour. Then there are the Wudang martial arts summer camps for young students from home and abroad, and the organization of foreign tourism groups to Wudang for martial arts health tourism activities. Although they have higher reputation and popularity, these martial arts tourism patterns are mainly based on several forms of training, health care and viewing performances, which are a more traditional form of martial arts tourism. At a stage

Table 3: Wushu performance buildings invested by different tourist areas.

Project name	Location	Scale
Taichi Theatre	Wudang Mountain	Covering an area of about 3.5 hectares, with a construction area of about 12,000 square meters, including a main performance hall and six other functional halls, which can accommodate an audience of about 1,200 people, with 280 parking spaces
Martial Arts Hall of Wushu Training Center	Shaolin Temple	There are more than 550 seats in the martial arts hall and more than 2,200 regular performances every year.
Impression Taichi Grand Space	Chenjiagou Village of Wenxian County	With a total investment of 690 million yuan and a height of 18.2m, the total construction area is 17,150 square meters, with an above-ground construction area of 9,150 square meters and an underground construction area of 8,000 square meters, and each performance can accommodate 1,199 audience members.
Shaolin Flying Monks Theatre	Shaolin Temple	The building has four basic functional zones with 614.8 m <sup>2</sup> . The interior of the theatre is organized in three floors and includes all the necessary premises and facilities for visitors and performers ( <a href="https://www.sohu.com/a/302652760_188910">https://www.sohu.com/a/302652760_188910</a> )

when tourism continues to develop in the direction of intelligence and wisdom, the forms of martial arts tourism are not yet rich enough and the innovations are not yet bold enough.

Thirdly, the competition in the same category is getting much more fierce (see table3). As mentioned above, the main form of martial arts tourism in Wudang Mountain is to watch performances and participate in training courses to practice primarily. The number of scenic spots that promote martial arts tourism in this mode is big nationwide, and Wudang Mountain faces extremely fierce competition. As an example, Henan Province, which is geographically close to Hubei, is a large province for martial arts tourism, and is making great efforts to build a martial arts tourism industry. For example, Songshan Shaolin Temple in Dengfeng City, take Shaolin martial arts as the brand, create Shaolin kung fu performance, Shaolin martial arts short-term training, and promote Shaolin martial arts tourism. The city of Jiaozuo, with Taiji strategy to create a whole area of tourism, promote Taiji events, performances, health, training, vigorously develop the martial arts tourism industry, and has achieved very proud results: To boost the martial Arts tourism industry there, the local government built a huge performance building called Impression Taichi Grand Space in Chenjiagou Village of Wenxian County where the renowned Chen style Taichi was originated. The building is empowered by multimedia digital technology, around the 360°rotating stage, highlighting the ultimate sensory experience and won the title of Bronze Award in World Architecture News Network in 2020 ([https://article.xuexi.cn/articles/index.html?art\\_id=1](https://article.xuexi.cn/articles/index.html?art_id=1)

1017956974277979545&sub\_source=10020\_1&source=10020&study\_style\_id=feeds\_default&item\_id=11017956974277979545). In the face of strong competition from many similar scenic spots, Wudang Mountain is still under great pressure and needs to find a breakthrough point to ensure competitive advantage.

### 3 THE ROLE OF ARTIFICIAL INTELLIGENCE TO PROMOTE THE TOURISM INDUSTRY

From the management point of view, there are various types of managing and servicing objects in the tourism industry such as tourists, tour guides, travel agencies and scenic spots, etc. Through artificial intelligence technology, awareness of big data and extraction of useful knowledge, it can improve the level of big data application and intelligent service capability of tourism management. A better satisfaction of a variety of physical, psychological and social needs of tourists and travelers, resulting in a meaningful and optimal experience, can make tourism more efficient. From a consumer perspective, AI-based travel has many benefits. Artificial intelligence technology can make travel easier and more convenient. Travelers no longer need to deal with a lot of extraneous information, whether they are planning a trip, traveling, or choosing a travel program; travel is more personalized and targeted through intelligent platforms that make it simple and

easy to enjoy relevant services. Artificial intelligence technology can also innovate the travel experience, allowing tourists to have a better sense of experience under a new model empowered by AI.

#### 4 INNOVATION PATH OF ARTIFICIAL INTELLIGENCE TECHNOLOGY EMPOWERING WUDANG WUSHU TOURISM INDUSTRY

##### 4.1 Artificial Intelligence Integrating Wushu Tourism Resources

Every year, a large number of tourists are attracted by Wudang martial arts to travel to Wudang Mountain. The main martial arts tourism resources in Wudang Mountain are undertaken and operated by different organizations, which are independent of each other and do not share information, and the channels for tourists to obtain these martial arts tourism resources

mainly come from their own manual inquiries or recommendations from travel agencies. If with the theme of Wudang Wushu, a comprehensive promotion platform is created and displayed electronically to introduce the information of Wushu tourism resources in the scenic spot in an all-round way, the exposure rate of Wushu tourism resources can be increased and the Wushu tourism industry can be better promoted. At the same time, a special app can be created in the online platform to introduce and display Wudang wushu tourism resources, so that tourists can easily inquire, understand, and make reservations and choices, providing convenient services for tourists.

There are a lot of wushu scenarios taking place in Wudangshan tourist area including stage show, experiential practice, cultural experience, etc. Hereby, the author proposes the following overall design scheme to integrate wushu tourism resources and deliver better services for tourists (figure1):

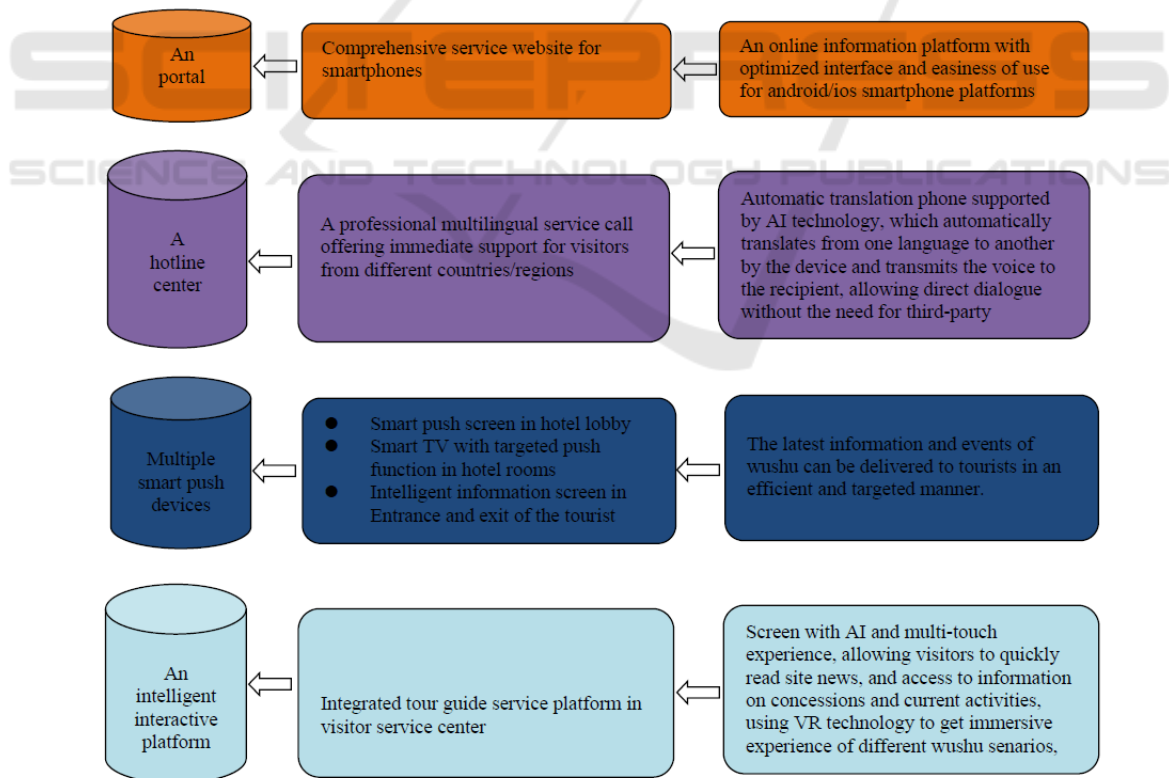


Figure 1: overall design scheme to integrate wushu tourism resources.

## 4.2 Artificial Intelligence Expanding Martial Arts Tourism Events

As mentioned before, Wudang martial arts tourism resources mainly focus on the categories of martial arts performance, martial arts health care and martial arts training courses, and in terms of tourism projects, they are not very different from other similar scenic spots. To vigorously enhance tourism attractiveness and competitiveness, it is necessary to create a new experience of martial arts tourism projects with the help of artificial intelligence. For example, by innovating the form of existing martial arts performances, new technologies such as multimedia technology, three-dimensional panoramic technology and light and shadow technology can be used on the stage to create a technology-led immersive martial arts performance program that will surround the audience with immersion. The strong participation brings the audience a multi-sensory viewing experience and enhances interactivity so that visitors not only find it nice to watch, but also fun to experience. The ability of the audience to participate in the performance scenes leads to a dramatic change in the viewing relationship of martial arts performing arts, which directly affects the audience's viewing behavior

(<https://baijiahao.baidu.com/s?id=1655031723029363411&wfr=spider&for=pc>). As the number of visitors to Wudang Mountain has been growing, it is also important to strengthen the penetration and promotion for other general tourists with the help of artificial intelligence technology. For example,

interactive robots for introducing martial arts resources are introduced in the lobby of each major hotel in the scenic area, implanting project information and providing multilingual support in advance. VR equipment can be equipped in guest rooms to give tourists the opportunity to conveniently experience Wudang martial arts culture and virtual martial arts tourism experience when they stay, expanding the potential participants of martial arts tourism.

## 4.3 Artificial Intelligence Optimizing Martial Arts Tourism Experience

For some existing martial arts tourism events, the sense of experience can be optimized by artificial intelligence technology. For example, some tourism projects launch various kinds of experience sessions and training courses of Wudang martial arts with technical guidance by martial arts instructors, who are usually professional martial arts talents. And the participants are martial arts tourists from all over the world, in the process of learning, language communication is the biggest problem. If the multi-lingual interaction is solved with the help of artificial intelligence technology, the communication is made tedious and delay-free. During the process of experiencing the practice, you can communicate instantly, which undoubtedly greatly increases the attractiveness and experience of the program (see table 4).

Table 4: Artificial intelligence application list.

scenarios	recommended technology	Quantity	Remarks
Tourist district scenario	Artificial intelligence interactive platform	Mutiple sets	To improve tourist experience
	VR smart glasses equipment	1 set	
Event scenario	Face recognition, self-service ticketing, and auto-controlled gate system	1 set	To optimize event process and experience
	AI cameras	Mutiple sets	
	AI real-time capture and video editing software	1 set	
People-to-people exchange scenario	AI assisted equipment of martial arts training	Mutiple sets	To assist in training and international communications
	AI instant translator	Mutiple sets	

## 5 CONCLUSION

Although AI is currently far from replacing human intelligence, it has permeated all aspects of the tourism industry. Therefore, the tourism field should objectively understand the impact of AI, raise awareness, and further theoretical sublimation of tourism experiences that are personally meaningful and beneficial to both society and the environment, which will guide the future development of AI (Ulrike GRETZEL, 2020). The Wudang Mountain martial arts tourism industry has both opportunities and challenges in its development. The author believes that with the help of AI technology, it is quite likely to propose a theoretical path to innovate the form and overall experience of martial arts tourism. AI can play as an important force to empower the Wudang wushu tourism industry as long as the local government, relevant organizations and touring companies take good advantage of this trending technology by formulating specific plans and adopt corresponding measures to better improve the various aspects of wushu tourism. As above mentioned, they can provide more convenient services for visitors through the introduction of AI software and hardware. What's more, a more user-friendly experience can be created on different scenarios like training session and martial arts culture exchange activities with AI technology. And for those martial arts events on the touring spots, innovation with AI technology can give tourists a new audio-visual experience. In conclusion, with proper and rational use of AI technology, we can definitely promote and boost the regional sports tourism industry.

Ulrike GRETZEL, AND Xiang Zheng." Tourism in the Age of Artificial Intelligence." *Journal of Tourism* 35.01 (2020): 1-3. doi: 10.19765/j.cnki.1002-5006.2020.01.001.

Wudang Mountain Tourism Special Economic Zone Promotes Integrated Development of Multiple Industries <https://baijiahao.baidu.com/sid=1713915882311392786&wfr=spider&for=pc>

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- Technology Makes Tourism More Convenient, Fun and Diverse <https://baijiahao.baidu.com/s?id=1655031723029363411&wfr=spider&for=pc>