

# Analysis of the implementation of ChatGPT in Shenzhen tourism

**Haoxiang Zhang**

Faculty of Data Science, City University of Macau, Macau, China

18128862133@163.com

**Abstract.** ChatGPT is currently a highly popular subject of discussion. In recent years, there has been a significant advancement in artificial intelligence technology, leading to revolutionary breakthroughs. As a result, AI has gained the capability to successfully pass the Turing test. ChatGPT has revolutionized the inflexible and formal manner in which voice assistants used to communicate, approaching the level of human cognitive capabilities. The worldwide tourism industry has been greatly affected by the COVID-19 epidemic in 2020, resulting in a substantial decline in both tourist arrivals and revenue for China's tourism sector. In 2021, with the normalization of epidemic prevention and control and prompt policy adjustments, the Chinese tourism industry is gradually transitioning into the recovery phase. Many tourist sites are starting to incorporate advanced technology to improve their visibility. Furthermore, there is a consistent increase in demand within the domestic tourism sector, and the Chinese government is actively facilitating the advancement of the tourism industry. This essay will examine the influence of ChatGPT on the growth of the tourism sector in Shenzhen. This research analysis aims to investigate the potential of ChatGPT in fostering long-term growth and creating novel prospects for the tourism industry in the future.

**Keywords:** smart city, smart tourism, artificial intelligence, big data analysis.

## 1. Introduction

Shenzhen, as an economic special zone in China, has experienced tremendous development since the initiation of the reform and opening up era. Shenzhen has been a significant contributor to China's artificial intelligence business because of the progress in artificial intelligence technology and the introduction of ChatGPT in recent years. Artificial intelligence has been extensively implemented and has demonstrated significant potential in the tourism sector in Shenzhen. Studies have discovered that ChatGPT, functioning as a "digital secretary" for passengers, has a notable impact on the decision-making process at different points throughout travel. Professor Huang Yejian's research team at Sun Yat-sen University's School of Tourism has determined that ChatGPT can improve tourists' decision-making skills throughout the various stages of travel planning including pre-trip, during the trip, and post-trip [1]. By adapting to the dynamic interests and needs of travelers through technological advancements, ChatGPT has the potential to significantly transform the tourism industry. This study employs a blend of text analysis and case studies, focusing on Shenzhen as a case study, to examine the potential impact of ChatGPT on the future growth and digitalization of the tourism industry. The study aims to determine whether ChatGPT can serve as an essential personal assistant for tourists in various

cities. This research is significant for the domestic tourism industry and is important for the development of Shenzhen as a special economic zone and a prominent city in the artificial intelligence industry. It also contributes to the digitalization of the tourism industry and provides ideas and directions for its future development.

## **2. Application of ChatGPT in the tourism industry**

### *2.1. Basic situation*

OCT East is located in Dameisha, Shenzhen, Guangdong province, covering nearly 9 square kilometers. The OCT Group has constructed a world-renowned resort destination at a significant expense of 3.5 billion RMB. This destination has the distinction of being the inaugural recipient of the "National Ecotourism Demonstration Zone" title, which was jointly bestowed by the Ministry of Environmental Protection and the National Tourism Administration. It contains the first large-scale National Ecotourism Demonstration Zone with leisure vacation, sightseeing, outdoor sports, popular science education, and ecological exploration. The main areas include OCT East Grand Canyon, Tea Creek Valley Leisure Park, Cloud Valley Sports Park, main hotel clusters, and Tianlu Mansion, reflecting the harmony between people and nature [2]. OCT East boasts the world's inaugural open-air touring vehicle on a double-slope mountain as part of its internal transportation system. This vehicle spans approximately two kilometers and shuttles between the Grand Canyon and the Cloud tribe. There are also more than 20 bus routes and holiday express lines for tourists to travel to OCT East.

Given the substantial influx of guests at OCT East, prioritizing selecting an appropriate journey time and accommodation has become crucial for tourists. Utilizing AI technology, specifically ChatGPT, in the context of tourism can significantly aid visitors in resolving various decision-making challenges. This includes tasks like strategizing vacation plans to avoid high-demand periods and effectively managing accommodation expenses. Consequently, many individuals have begun to depend on the suggestions offered by ChatGPT. The broad adoption of artificial intelligence applications can be attributed to ChatGPT's ability to handle large amounts of data, utilize advanced algorithms to solve intricate problems and leverage enhanced computing and storage capacities. Many technological tourism attractions in Shenzhen, such as Nanshan Science and Technology Park, have applied tour guide robots and intelligent interpretation within the attractions' premises, greatly reducing the burden of labor costs and providing tourists with more convenient and personalized routes. By incorporating the former methods into OCT East, developing a dedicated app for tourists to provide multiple transportation methods, such as the section leading to Dameisha OCT East, which is often congested during the holiday period, tourists only need to provide their available time and enter their desired destination on the OCT East app. The application can retrieve real-time traffic conditions, including traffic flow, to generate numerous optimal journey times for guests, thereby helping them avoid any inconvenience caused by traffic congestion.

Accommodation involves statistics, processing, and analysis of accommodation data in and out of OCT East to provide the best prices and ratings for hotels and inns, catering to different budgets and accommodation requirements. The app also provides real-time information on available rooms for booking, presenting users with the most accurate data to better judge their hotel choices.

In terms of voice interaction, taking the example of the Forbidden City in Beijing, there are audio guides available for tourists in the area, providing different introductions based on the location of the tourist, giving tourists their own personal guide. Nevertheless, when encountering tourists from diverse nations who speak various languages, such as at the Forbidden City in Beijing, the application can incorporate multiple language packs to deliver audio introductions to cater to tourists from different countries. These introductions would include translations and provide information and recommendations about local attractions or points of interest. This approach enhances the overall experience for foreign visitors and effectively addresses the challenge of communication barriers faced by international tourists [3].

### *2.2. Personalized itinerary planning:*

Nowadays, personalized tourism is increasingly popular, with people prepared to invest a significant amount of money to engage travel assistants who can tailor their trip plans to meet their specific needs and preferences. However, not all tourists have sufficient budgets to hire private travel assistants to plan their itineraries and accommodations. With the emergence of ChatGPT, a large language system close to human language, through extensive computing power and big data analysis, tourists only need to provide their travel budget and requirements to ChatGPT to receive a perfect travel guide.

Integrating ChatGPT into the OCT East app allows it to serve as a travel assistant, offering visitors recommendations for exploring the area. It can also provide real-time updates on parking availability and the number of visitors at different attractions. This information is presented to tourists in the form of bar charts, enabling them to make informed decisions about whether to drive or use public transportation to reach OCT East. Furthermore, as a travel assistant, ChatGPT can predict and provide route sequences for various attractions based on the time schedule and budget provided by the user, planning out a personalized itinerary at OCT East that is different for each guest, offering a unique experience to visitors without the need for expensive travel assistant fees, while improving the visitor capacity utilization of the park, avoiding long queuing times for guests, and bustling or unattended attractions. ChatGPT offers comprehensive information for tourists with children, beyond conventional methods of acquiring travel information. It provides details on the suitability of attractions for children and the availability of child-friendly food packages.

In addition to planning, ChatGPT can also provide detailed information about the destination, such as weather forecasts, transportation routes, and introductions to unique attractions. ChatGPT has the ability to make prompt choices and offer up-to-date information to visitors, taking into account various circumstances such as rainfall or delays in public transportation.

Furthermore, ChatGPT can record user feedback and comments to continuously improve and optimize the quality and accuracy of personalized customization, offering preference recommendations tailored to different users. By learning user preferences and feedback, ChatGPT can gradually enhance its understanding and satisfaction level of users [4].

Nevertheless, in the era of abundant information, individuals frequently depend on concise videos for travel suggestions, swiftly browsing through them to discover a destination that aligns with their preferences. Subsequently, they search for others' viewpoints on the attraction, akin to the habitual practice of perusing reviews before placing a takeout order, to ascertain the authenticity of the restaurant's delectability. Travel is unchanged, however, the abundance of user evaluations complicates the process of making judgments for tourists. ChatGPT can alleviate this laborious issue by incorporating user reviews and firsthand accounts after the trip, to circumvent potential obstacles and comprehend other passengers' perspectives and insights through shared experiences. This intuitive and authentic information allows users to better understand the destination's situation for better mental preparation [5].

## **3. Advantages and challenges of ChatGPT in application**

### *3.1. Advantages*

As a travel assistant in the OCT East app, ChatGPT can reflect its potential value in the digital tourism industry in terms of multilingual support, usability, information retrieval, and personalized advice.

ChatGPT possesses the ability to proficiently translate and elucidate information in several languages, hence offering its services to international travelers irrespective of their geographical location. In terms of information retrieval speed, compared to websites and manual inquiries, the ChatGPT travel assistant can obtain a large amount of information in a timely manner and provide answers and suggestions within seconds, which is crucial for tourists in a hurry and needing instant answers for travel-related questions such as ticket information or attraction opening hours. Personalized recommendations can offer tailored guidance and suggestions based on the specific requirements and interests of travelers, thereby enhancing the overall user experience.

### 3.2. Challenges

As ChatGPT begins to show its potential value as a travel assistant in the tourism industry, it will bring new changes to the industry. However, there are still many aspects in which ChatGPT as a travel assistant needs continuous improvement. In terms of language, although ChatGPT can support a variety of languages, it may encounter errors and misinterpretations when faced with specific dialects, accents, or complex sentences, resulting in misunderstandings and inaccurate answers. Furthermore, ChatGPT's deficiency lies in its absence of human emotional expertise and comprehension, which might pose difficulties in navigating intricate interpersonal connections or comprehending the implications of behaviors, such as managing grievances or offering emotional assistance. Moreover, ChatGPT's responses are based on existing data and trained models, so managers need to continuously provide the latest information on attractions or accurate data of unique attractions to ChatGPT to ensure the accuracy and timeliness of information; otherwise, tourists may receive outdated advice and inaccurate information. Lastly, as a travel assistant, ChatGPT's assistance involves tourists' needs and accommodation queries, which may contain personal privacy, and if tourists require more personalized recommendations, more detailed personal information is needed. Hence, safeguarding the confidentiality of visitors' personal information poses a significant obstacle, necessitating strong network data security measures to guarantee tourists' tranquility [6].

### 4. Conclusion

ChatGPT, as a travel assistant, has extensive opportunities in the digital tourism sector. It offers real-time data to travelers and creates personalized recommendations based on this data. Its advantage lies in its precise attraction information. The tourism sector will continue to advance in its digital transformation and development, thanks to the ongoing implementation and use of artificial intelligence technology. In this progress, the satisfaction and experiences of tourists are of utmost importance. ChatGPT serves as a travel assistant that greatly improves visitors' experience by providing tailored advice to fit their specific requirements and expectations. Presently, ChatGPT exhibits constraints within the tourist sector, contributing to its limited popularity. It is unable to autonomously acquire external information and may provide erroneous results when confronted with intricate human language.

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