


ChatGPT-4 for Hospitality: Implications

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Abstract

The aim of this study is to examine the several applications of ChatGPT-4 for the hospitality industry and to provide an agenda of research for investigating the potential implications of this model in the domain of hospitality. Questions, based on studies in the literature, were asked to ChatGPT-4 to see the opportunities it can offer to the hotel industry. This study, which discusses chatbots and artificial intelligence, suggests several potential applications of ChatGPT for the hospitality sector. The study's suggestions are derived from previous research conducted on ChatGPT and a review of existing literature related to the topic. It is quite likely that ChatGPT-4 will have a significant influence on the hospitality industry. This chatbot will probably contribute to concierge services, booking hotels for tourists, giving feedback, room services, translation, training employees, operational efficiency, marketing hotels, and travel guidance.

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INTRODUCTION

The hospitality industry is currently facing an important period in the contemporary era, marked by significant advancements in technological innovation (Bhat & Sharma, 2022; Tian, 2023). To effectively navigate through this crucial turning point, the hospitality industry must effectively manage the integration of new technologies with traditional operational procedures (Sharma, 2016). Recent AI advances have opened up new opportunities for the hospitality business. Chatbots assist this change (Dwivedi et al., 2021; Gursoy et al., 2023). Chatbots, particularly those utilizing sophisticated models such as ChatGPT, have been utilized in several domains, including education (Göktaş, 2023; Pérez et al., 2020); customer service (Jenneboer et al., 2022); food and beverage services (Leung & Wen, 2020); grammar, listening, and writing (Huang et al., 2022); medicine (Athavale et al., 2023); e-commerce (M. Li & Wang, 2023); and tourism (Orden-Mejía & Huertas, 2022).

Tourist expectations have changed due to globalization (Cuomo et al., 2022). Modern tourists want upgraded, personalized, and digitally advanced experiences (Gao et al., 2023; Pencarelli et al., 2021). Chatbots could improve tourism and hospitality services. Chatbots could notify customers of flight changes, make reservations (Ukpabi et al., 2019), provide tourism research (Ivanov, 2020), offer 24/7 customer support, improve engagement (Pillai & Sivathanu, 2020), create personalized travel recommendations, predict tourist pleasure, offer emotional reactions (Orden-Mejía & Huertas, 2022), improve international communicative ability, and answer commonly asked questions (MaryLincy M et al., 2023).

ChatGPT-4, today's most advanced chatbot, can provide great benefits for the hospitality industry, including virtual concierge services, feedback and surveys, booking and reservations, travel guidance, room service, operational efficiency and training, marketing, and multi-language support. In this study, it is discussed what ChatGPT-4 can do for the hospitality industry. In the literature, the benefits of ChatGPT for tourism businesses, tourists, destinations (Carvalho & Ivanov, 2023; Dwivedi et al., 2021; Erul & Işin, 2023; Gursoy et al., 2023), and tourism education (Ivanov & Soliman, 2023; Skavronskaya et al., 2023) have been studied; however, there is no detailed study on the opportunities ChatGPT-4 can provide for the hospitality industry.

This study differs from other studies (Carvalho & Ivanov, 2023; Dwivedi et al., 2023; MaryLincy M et al., 2023; Pillai & Sivathanu, 2020) as it tries to explain in detail the possibilities that ChatGPT-4 can offer for the hospitality industry. Also, it adds to the literature on ChatGPT in the hospitality industry by predicting opportunities of ChatGPT-4 in the hospitality industry via implications.

The Use Cases of Artificial Intelligence and Chatbots

The term "artificial intelligence" (AI) refers to a system's ability to correctly understand data from the outside world, learn from that data (Saranya & Subhashini, 2023), and then use what it has learned to accomplish specific goals and tasks by adapting to its environment (Inamdar, 2023). AI uses machine learning to discover basic rules and patterns. This method allows computers to learn without instructions. AI can also include a system's ability to understand data (like natural language processing or voice/image recognition) or to handle, move, and manage things based on what it has learned, whether it's a computer or another related device (Kaplan & Haenlein, 2019).

AI has attracted attention in many fields because of the opportunities it offers. AI can be used in early diagnosis of certain diseases (Esteva et al., 2017); offers predictive maintenance, autonomous driving, and improved safety in

automotive sector (Krishnamurthy et al., 2020); improves retail sales, supply chain efficiency, inventory optimization, customer service, and payments (Guha et al., 2021); can quickly evaluate enormous volumes of data from several sources, discover patterns and correlations, and execute high-frequency trading (Cohen, 2022); can help producers become more competitive in the global market by making them more efficient, cutting costs, and improving quality (Xu et al., 2022); could help and improve many parts of energy policy, such as, making it easier to use renewable energy, lowering greenhouse gas emissions, and making sure energy markets work as well as possible (Danish & Senjyu, 2023); gives the farm industry smart solutions, such as watering systems, improves efficiency and food growth (Sitharthan et al., 2023); improves student learning (Wang et al., 2023).

One of the most important developments offered by artificial intelligence is the chatbot. A chatbot is a software application that interacts with users on a specific topic or in a specific domain using text and voice in a natural, conversational manner (Erul & Işin, 2023). It is a computer program that pretends to be a person talking (Smutny & Schreiberova, 2020). Chatbots can be used to provide information, respond to inquiries, discuss a particular subject, or complete a task (Hobert et al., 2023).

Chatbots have become an essential tool for businesses and organizations in various industries (Athavale et al., 2023; M. Li & Wang, 2023; Luo et al., 2023). There are many applications for chatbots. Chatbots can provide customer support, handle a large volume of customer inquiries and support requests (Jenneboer et al., 2022); be a solution to provide emotional support to consumers and reduce the labor costs of servicing staff (Luo et al., 2023); offer the opportunity for individualized education, act as a teacher's assistant, enhance the learning experience for students (Pérez et al., 2020); produce digital ordering methods for restaurants (Leung & Wen, 2020); positively enhance students' language learning in some topics such as grammar, listening, and writing (Huang et al., 2022); assist in various tasks including electronic health record (Athavale et al., 2023); become an integral part of e-commerce and provide round-the-clock online support (M. Li & Wang, 2023).

Tourism might greatly benefit from chatbots. Chatbots can book, and generate receipts; answer queries, suggest activities, and connect customers to the service desk; notify consumers of departure changes; produce feedback forms/surveys for customers to share their travel experiences, and offer facilities (Ukpabi et al., 2019); give information about tourism research (Ivanov, 2020); offer 24/7 customer support, improved engagement (Pillai & Sivathanu, 2020); create personalized travel recommendations of touristic sites and attractions, identify the user's preferences (Calvaresi et al., 2021); influence and predict tourist satisfaction, give emotional responses to tourists (Orden-Mejía & Huertas, 2022); develop intercultural communicative competence (Chang, 2023); answer frequently questions of tourists (MaryLincy M et al., 2023).

Chatbot applications are widely used today. The most preferred of these is ChatGPT, which is an artificial intelligence-generated content (AIGC) model created by OpenAI (Barrot, 2023). It has the capacity to handle complex language comprehension and production tasks via conversational interactions (Rudolph et al., 2023). The conversational agent is capable of generating comprehensive responses based on specific instructions provided inside a given prompt. With the release of OpenAI's GPT-4 in March 2023, ChatGPT received a major upgrade with more features. Users may now enter textual and visual images simultaneously, making multimodal activities like picture captioning, chart reasoning, and paper summarization easier (Wu et al., 2023). It generates text that looks like human writing (Atlas, 2023).

While there have been studies on the use of chatbots in the tourism sector and hospitality businesses, it has been realized that there are not detailed studies on the benefits that ChatGPT-4 can offer hospitality businesses. Carvalho & Ivanov (2023) and Gursoy et al., (2023) mentioned the opportunities that ChatGPT can offer to hospitality businesses and stated that more detailed studies should be conducted.

Methodology

The purpose of the present study is to examine the various implementations of ChatGPT-4 within the hospitality sector, and to put forth a research agenda that delves into the possible consequences of this model in this domain. In this section, the opportunities that ChatGPT-4 may offer to hospitality businesses are tried to be expressed through implications. GPT-4 can handle 32,000 tokens simultaneously, accept visual queries, and has 100 trillion parameters (Barrot, 2023). In this study, ChatGPT was chosen because it is the most up-to-date and has these qualities. Figure 1 shows the differences between GPT-4 and previous versions of ChatGPT; the information was given by GPT-4.

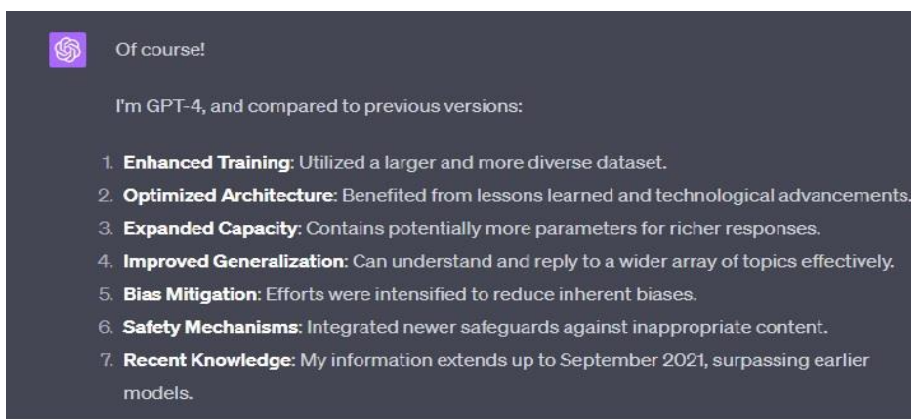
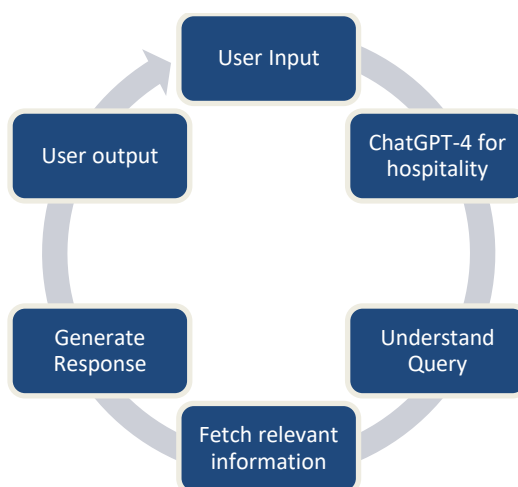


Figure 1. The differences of GPT-4

The questions determined to see the opportunities that ChatGPT-4 can offer for the hospitality industry were directed to ChatGPT-4. The author based his questions on the studies of Carvalho & Ivanov (2023) and Gursoy et al. (2023).



Source: Created by author

Figure 2. ChatGPT-4 using in hospitality

ChatGPT is used in many areas and gives very fast and accurate answers compared to other chatbots. It can

respond to users by using the relevant plugins in line with the prompts given. As shown figure 2, with the appropriate prompts, each user in the hospitality industry has the potential to achieve the intended or almost desired outcome.

Results

Modern hospitality requires innovative technology to improve the customer experience and operational efficiency. ChatGPT, a cutting-edge conversational AI model, is a key hotel technology. This OpenAI paradigm has several opportunities for hotels.

Using ChatGPT-4 in Virtual Concierge Services

Virtual Concierge Services: Large Language Model-based chatbots can automate concierge services. They can provide directions and travel information for tourists quickly (Carvalho & Ivanov, 2023). ChatGPT-4 can function as a digital concierge, providing responses about hotel facilities, nearby points of interest, suggestions for eating options, and more relevant information. To see how ChatGPT-4 provides a virtual concierge service, a question was asked: "I am staying at a hotel in Miami at Ocean Drive Street. I want to join an event. Can you suggest an event near Ocean Drive? Use plugins, please." ChatGPT-4 gave an updated and correct answer, as shown in Figure 3. It created a list of events in the specified area and gave their current prices. It also provided links to the websites of related events.



Figure 3. The answer of GPT-4 as a virtual concierge

ChatGPT-4's response on this occasion is evidence of its enormous potential as a virtual concierge service. It correctly understood the question, made use of plugins to gather up-to-date information, and provided a thorough, pertinent, and workable response. This demonstrates how ChatGPT-4 could be a useful addition for hotels by providing accurate and up-to-date information on nearby areas of interest, activities, and amenities, enhancing the entire visitor experience.

Using ChatGPT-4 for Feedback and Surveys

Feedback and Surveys: Chatbots like ChatGPT can do more than just give ideas for making user surveys. They can also look at the answers to these surveys and figure out what they mean (Carvalho & Ivanov, 2023). ChatGPT-4 has the capability to gather tourist feedback regarding hotel and tourism experiences. The conversational nature of this system effectively involves users, resulting in a more interactive and engaging feedback experience hence

reducing monotony. After the holiday of visitors', ChatGPT-4 may establish communication with them. The feedback may inquire about the individuals' subjective evaluation of their holiday experience at the hotel as well as assess their level of contentment with the various services provided by the hotel.

The way hotels and tourism businesses collect and evaluate feedback has the potential to change with the adoption of ChatGPT-4 for surveys and feedback. The system's engaging and dynamic nature may lead to higher response rates and more complete feedback, and its ability to assess responses may give hotels and other tourism businesses important data. Further enhancements in services and increased levels of customer satisfaction could increase.

Using ChatGPT-4 in Booking and Reservations

Booking and Reservations: Booking systems can benefit from ChatGPT's interaction with other travel-related technology and services (Gursoy et al., 2023). Tourists may utilize chatbots powered by ChatGPT-4 to make restaurant or hotel reservations. They can handle inquiries about stock, price, and personalized orders. ChatGPT-4 cannot currently make hotel reservations on behalf of travelers at this time, but it may give suggestions to help with this process based on the prompts. A question was asked to see what ChatGPT-4 can do. Firstly, this question was asked: "Can you book a hotel for me?" and ChatGPT-4 answered: "I can help you find a hotel room. Please provide me with the following details: destination or specific hotel name (if you have one in mind); check-in and check-out dates; number of adults and children; any specific preferences or requirements (e.g., pool, gym, breakfast included, etc.)" The second question was asked based on Chatgpt's answer: "I am currently in Sultan Ahmet Square in Istanbul. I am alone and looking for a hotel on a historical street where I can feel the historical atmosphere. I will check in tonight and check out tomorrow. Can you help me?" ChatGPT used their plugins to provide a link about hotels near the specified area. Reservations can be made through this link, which also redirects to "booking.com". ChatGPT gives more accurate results if the correct prompt is entered. Figure 4 shows this conversation.

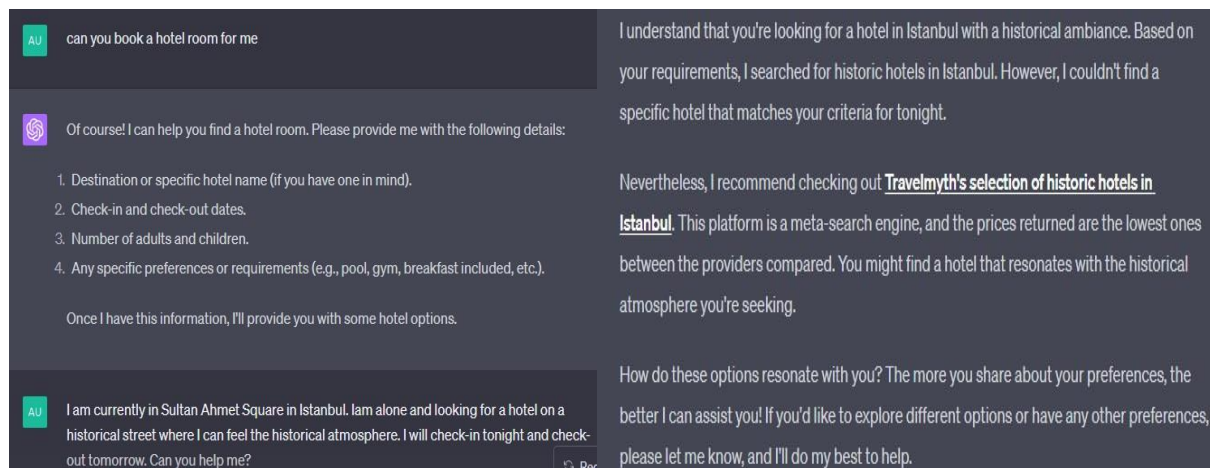


Figure 4. Conversation about hotel booking

The answer demonstrates that ChatGPT-4 can interact with various travel technologies and respond to questions on availability, cost, and personalised orders. While it cannot make hotel reservations for visitors, it may make recommendations and offer helpful links. By sharing a booking.com link, ChatGPT-4 guided a user to hotels around Sultan Ahmet Square. While ChatGPT-4 is unable to complete bookings, it helps users along the way and directs them to the right resources.

Using ChatGPT-4 as Travel Guide

Travel Guidance: When ChatGPT is combined with other travel-related technologies and services, like travel review platforms, sites for hotels and attractions, etc., the whole tourist experience could get better (Gursoy et al., 2023). The use of ChatGPT-4 may give guests the opportunity to get hotel, travel advice, information on available means of transportation, and specifics on the culture of the surrounding area, all of which have the potential to improve the overall quality of their vacation experience. It can give destination recommendations, routes, hotels, real-time information on weather conditions, and local events. In order to provide a positive and seamless experience for tourists, the ChatGPT-4 may offer valuable information about local traditions and cultural norms. As shown in Figure 5. ChatGPT-4 can give destination recommendations to someone visiting Istanbul for the first time. It can also suggest hotels that are not far from the specified location, in line with the given prompt. When a question (“I’m visiting İstanbul for the first time. Can you recommend some must-visit places?”) was asked about destinations recommend, and it suggested 15 destinations (Hagia Sophia, Blue Mosque, Topkapi Palace, Basilica Cister, Grand Bazaar, Spice Bazaar, Bosphorus Cruise, Dolmabahçe Palace, Galata Tower, Chora Church, Istanbul Archaeology Museums, Taksim Square and Istiklal Street, Ortaköy, Rüstem Pasha Mosque, and Süleymaniye Mosque). Then, a location was given and asked about a hotel: “I am at Grand Bazaar now. Is there a hotel not far from Grand Bazaar? The hotel must not be luxurious.” It suggested three hotels and web links. The interview about hotel recommendations is not shown by the author because it contains advertisements. The author chose one of these hotels, which ChatGPT-4 suggested, and asked, “I want to stay at X Hotel. Is there any event or something like that at this hotel or near this hotel?”. ChatGPT-4 suggested updating two events (the whirling dervish ceremony and the rhythm of the dance show at Hodjapasha centre) and gave web sites.

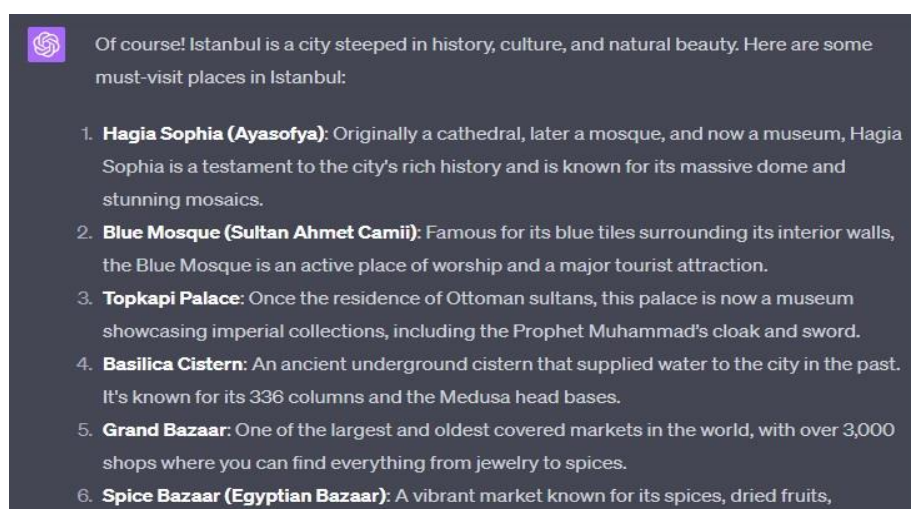


Figure 5. Conversation about destination suggesting

ChatGPT-4 can make suggestions for travel places, hotels, weather, local events, and cultural norms. In this scenario, a customer wants recommendations for places to visit and accommodations in Istanbul. ChatGPT-4 recommends 15 must-see locations, three budget hotels near the Grand Bazaar, and two local activities near the chosen accommodation. This highlights ChatGPT-4's ability to give travellers with useful information and improve their trip experience.

Using ChatGPT-4 for Room Service

Room Service: Room service and how to utilize it, check-in and check-out processes, emergency procedures, smoking policies, and sustainable guest behavior may all be drafted with the aid of ChatGPT (Carvalho & Ivanov, 2023). In addition to this, it may offer individualized recommendations for rooms, amenities, services, and activities (Hajji, 2023). For example, ChatGPT-4 can help a tourist who wants to order food in the room. ChatGPT-4, or a ChatGPT-based bot, provides users with access to an interactive digital menu. In order to enhance the dining experience and increase revenue, the bot can suggest drinks or appetizers based on the guest's order. Visitors can get an estimated delivery time from the bot. The robot may adjust its menu to meet certain dietary and other needs. After they finish their meal, the robot can survey them on how they feel room service should be improved. The hotel's culinary management system might be integrated with the bot to expedite food requests. At any moment, users can place an order for food and beverages.

Using ChatGPT-4 for Operational Efficiency and Training

Operational efficiency and training: ChatGPT is able to provide engaging job descriptions and interview questions that are especially tailored to the requirements of the role, the guidelines of the business, and the industry. The incorporation of ChatGPT or other equivalent Language Model-based Learning systems (LLMs) into business chatbots has the ability to automate conversations across the entirety of the employee onboarding process. This includes both during and after the process. As part of this automation, pertinent information relating to conditions, rules, laws, and other questions would be made available to users (Carvalho & Ivanov, 2023). When ChatGPT-4 is integrated into the digital systems used in many departments of a hotel, the hotel manager can improve the tourist experience and optimize resource allocation by asking about room occupancy rates, the current status of housekeeping staff, any VIP guests checking in, prepared rooms, etc. Also, the manager can get real-time data access, assess demand, recommend the best employee distribution, keep track of how much energy is used in empty rooms, and turn off lights by using ChatGPT-4. It does not only help hotel managers; It can also offer opportunities for employees. New employees in the hotel industry might benefit from using ChatGPT-4 as a training tool. This technology has the potential to deliver scenario-based instruction as well as solutions to common problems. The author gave this prompt: "You are a chatbot integrated into the hotel reception unit. A new receptionist asks for your help and asks you this question: Hello, I'm new here and need to understand the check-in procedure for VIP guests. Help this receptionist", and ChatGPT-4 offered ten options (pre-arrival preparation, warm welcome, express check-in, luggage handling, room tour, special amenities, concierge introduction, brief on hotel facilities, check for immediate requests, follow-up) for VIP customers, as shown in Figure 6. It can be said that ChatGPT-4 has the potential to help a new employee during the training or working process.

ChatGPT-4 can optimise resource allocation by delivering real-time data on room occupancy rates, cleaning staff status, VIP visitor check-ins, and prepared rooms when connected with a hotel's digital systems. It can also help with demand forecasting, personnel distribution, monitoring energy use in vacant areas, and lighting management. Furthermore, ChatGPT-4 can be an effective training tool for new staff. It is capable of providing scenario-based training as well as answers to frequent difficulties. For example, when asked about the check-in process for VIP guests, ChatGPT-4 provided a complete list of 10 choices, demonstrating its ability to assist new workers during training or work processes.

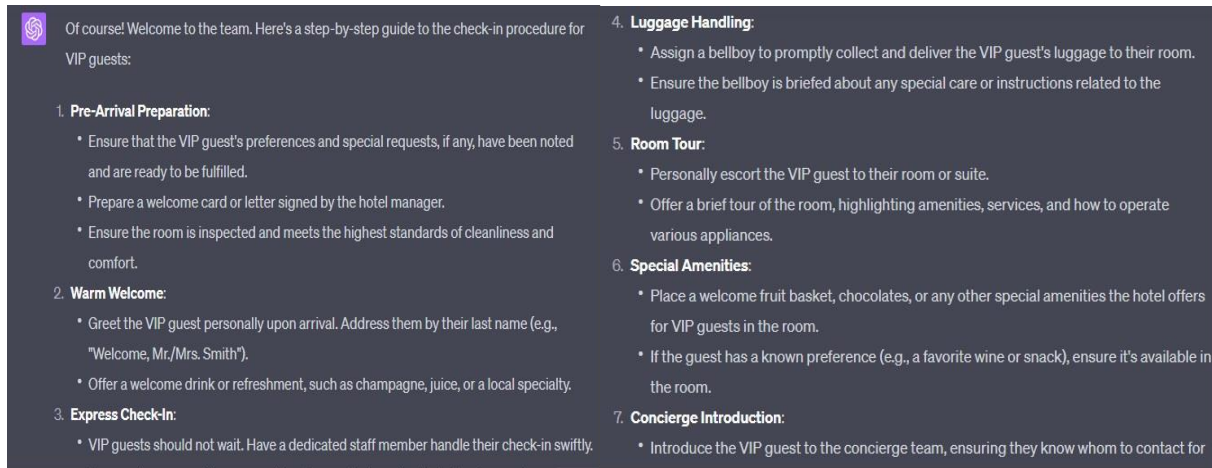


Figure 6. Recommendations of ChatGPT-4 for VIP customer welcome

Using ChatGpt-4 for Marketing

Marketing: AI can write marketing and sales copy, including text, images, and videos; help create products; analyze customer feedback; and improve sales (Chui et al., 2022). ChatGPT-4 could help marketing make content faster and better, maybe even as good as what humans can do. It's possible that this tool will also help marketers study and learn more about how people talk about, think about, and feel about products and campaigns. ChatGPT-4 could help marketers customize letters and ideas, offer automated customer service 24 hours a day, 7 days a week, and improve the speed and accuracy of customer service in call centers (Rivas & Zhao, 2023). The author wanted to see the capabilities of ChatGPT-4 in marketing a hotel and asked a question: "You are a chatbot that is used as a marketing tool in a hotel. You have been integrated into all departments of this hotel. I am a potential customer and want to have a holiday with my family. I want to swim in the sea, taste different cuisines, and have fun at night. You should market this hotel and convince me to buy a holiday." The answer of ChatGPT-4 was impressive:

"Absolutely! Welcome to [Hotel Paradise], where unforgettable memories await you and your family. Here's why our hotel is the perfect choice for your dream vacation:

Private Beach Access:

Dive into the pristine waters of our private beach. The gentle waves and golden sands are perfect for both relaxation and play. Whether you want to build sandcastles with your kids or indulge in water sports, our beachfront offers it all.

World-Class Dining:

Our hotel boasts multiple dining venues, each offering a unique culinary experience.

Azure Bistro: Savor international dishes and local delicacies prepared by our award-winning chefs.

Oceana Seafood Grill: Dive into a seafood lover's paradise with fresh catches of the day.

Spice Route: Embark on a gastronomic journey through Asian, Mediterranean, and Middle Eastern cuisines.

Kids' Menu: We haven't forgotten our little guests! Our specially curated kids' menu ensures they enjoy their meals as much as you do.

Vibrant Nightlife:

As the sun sets, our hotel comes alive with entertainment options.


Moonlit Beach Parties: Dance the night away under the stars with live music and DJ sets.

Live Shows: Enjoy cultural performances, magic shows, and live bands at our in-house theater.

Kids' Club: While you enjoy your evening, our trained staff will keep your kids entertained with movies, games, and activities.

 **Luxurious Accommodations:**

Our family suites are designed with comfort and luxury in mind. Spacious rooms, modern amenities, and breathtaking sea views ensure you and your family feel right at home.


 **Exclusive Family Packages:**

We offer special family packages that include:

Complimentary meals for kids under 12.

Free access to our water park and kids' club.

Special family excursions to nearby attractions.

 **Wellness & Spa:**

While your kids are at the club, indulge in some 'me time' at our world-class spa. From rejuvenating massages to beauty treatments, we've got you covered.

 **Excursions & Activities:**

Explore the local culture, go on boat trips, or take diving lessons. Our concierge team can customize excursions based on your interests.

 **Safety First:**

We prioritize the safety and well-being of our guests. Our hotel follows strict health and safety guidelines, ensuring a worry-free vacation for you and your loved ones.

At [Hotel Paradise], we believe in creating moments that last a lifetime. Our dedicated team is committed to ensuring you have the perfect holiday. So, pack your bags and let us take care of the rest. Book now and experience paradise with us!

 ”

ChatGPT-4 might speed up the content production process, analyse how people interact, perceive, and experience products and campaigns, personalise communication and concepts, and improve the speed and precision of customer support in contact centres. The author assessed ChatGPT-4's marketing abilities by instructing it to promote a hotel to a potential consumer looking for a coastal holiday with various cuisines and nocturnal entertainment. ChatGPT-4 delivered an enthralling and comprehensive marketing message, highlighting the hotel's features such as private beach access, top-tier dining, a vibrant nightlife, opulent accommodations, exclusive family packages, wellness and spa services, excursions and activities, and safety protocols. It created a captivating and thorough message that addressed all of the customer's preferences, showcasing its potential as an effective marketing tool.

Using ChatGPT-4 for Multi-Language Support

Multi-Language Support: ChatGPT-4 is compatible with and supports a variety of natural languages. By providing instantaneous translations, hotels may better assist visitors who speak languages other than English. It can also

develop code and applications since it understands several computer languages (Hajji, 2023). According to ChatGPT-4, it knows at least 23 languages (English, Spanish, French, German, Chinese (Simplified and Traditional), Russian, Japanese, Korean, Portuguese, Italian, Dutch, Arabic, Turkish, Swedish, Danish, Norwegian, Finnish, Polish, Hungarian, Greek, Hebrew, Indonesian, Thai, and many more). ChatGPT-4 has the capability to provide hotels with real-time translation services, hence facilitating effective communication between tourists from many nations and hotel staff. By employing ChatGPT for language translation, hotels may effectively address linguistic barriers, enhance customer satisfaction, and ensure that all visitors, regardless of their language skill, have a feeling of significance and individualized care.

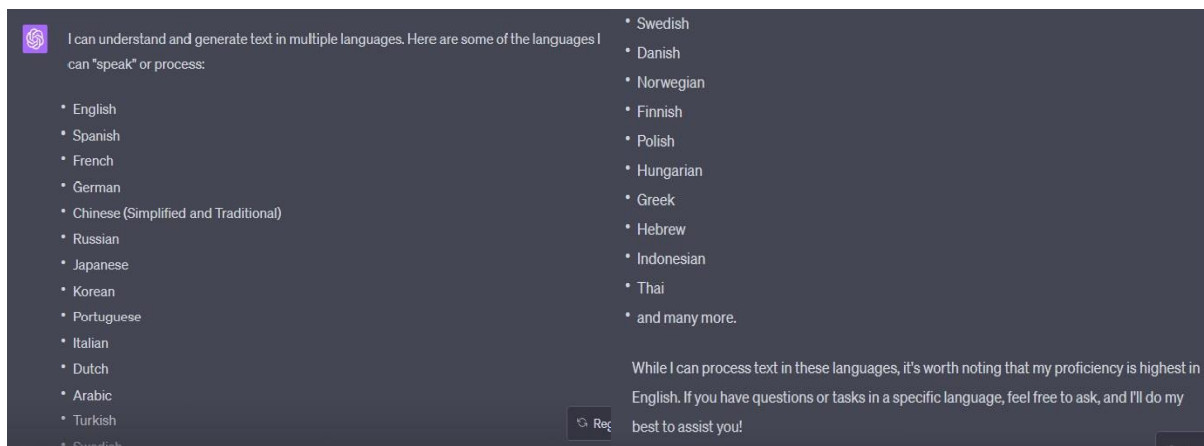


Figure 7. Languages ChatGPT-4 knows

Using ChatGPT-4 in Integration with IoT

Integration with IoT: IoT devices may alter guest room temperature, lighting, and other characteristics based on visitor preferences and utilization; allow hotel check-in and check-out without human interaction; and request hotel room service and housekeeping with them. IoT can monitor entrance points, detect and report threats, and remotely manage security equipment to improve hotel security. IoT data about visitors' behavior, preferences, and happiness may enhance marketing, operations, and service (Elkhwesky & Elkhwesky, 2023). The integration of ChatGPT-4 and the Internet of Things (IoT) within the hotel industry has the potential to provide many opportunities for enhancing overall tourist satisfaction, optimizing operational procedures, and introducing innovative service offerings. ChatGPT-4 and the IoT may enable visitors to manage their rooms' temperature, entertainment, and more by voice or text. This integrated system saves energy, makes repairs, and gives hotels real-time feedback. ChatGPT-4 and IoT may increase guest experiences through personalized services and help hotels make smart decisions and generate new services using data. Briefly, ChatGPT-4 can offer voice-activated room controls, smart room service, maintenance alerts, energy efficiency, enhanced security, and interactive local guidance.

Discussion and Conclusion

Chatbots have many impacts on businesses. Many industries, including education (Essel et al., 2022), medicine (L. Li, 2023), e-commerce (M. Li & Wang, 2023), and tourism (Carvalho & Ivanov, 2023) have utilized chatbots. The fact that chatbots impact every industry demonstrates their revolutionary potential, promising efficiency, customization, and improved user experiences across the board (Mydyti & Kadriu, 2021). The rapid advancement of technology, particularly in the field of artificial intelligence, has brought in a new era for many different industries. The hospitality industry is at the forefront of this transformation (Carvalho & Ivanov, 2023; Nadkarni & Haider,

2022).

This study describes how ChatGPT-4, a sophisticated chatbot created by OpenAI, can be utilized and what it could imply for the hospitality sector in general. This is one of the first studies on ChatGPT in the hospitality industry (Carvalho & Ivanov, 2023; Gursoy et al., 2023). It develops a framework for the direction of ChatGPT’s hospitality industry application. This study shows how important AI is to changing the hotel industry. Because globalization and the digital shift are making tourists’ standards change quickly, the industry needs to quickly adapt and come up with new ideas. Chatbots, especially ChatGPT-4, stand out as a sign of this change. They can be used for a wide range of things, from being a virtual assistant to making operations more efficient.

The study describes ChatGPT-4 as an innovative tool that can change the hospitality experience. This AI tool will seamlessly integrate into existing hospitality paradigms, automating concierge services and improving operational efficiency. ChatGPT-4 has promise in virtual concierge services, feedback gathering, booking and reservations, travel assistance, room service, and marketing in the hotel industry (Carvalho & Ivanov, 2023; Gursoy et al., 2023). ChatGPT-4’s integration with the Internet of Things (IoT) will optimize energy usage, maintenance, and security while improving the guest experience (Elkhwesky & Elkhwesky, 2023).

The results of this study shows that by offering real-time information, customised travel ideas, and customer support, ChatGPT-4 have the potential to revolutionise the travel and hospitality industries. Due to its many features, such as virtual concierge services, feedback and surveys, booking and reservations, travel advice, room service, operational efficiency and training, marketing, integration with the Internet of Things and multilingual assistance, it can be said that ChatGPT-4 is an innovation in the industry. These results are consistent with the studies of Carvalho & Ivanov (2023), Elkhwesky & Elkhwesky (2023) and, Gursoy et al. (2023).

This study differs from other studies by presenting detailed usage methods of ChatGPT-4 for the hotel industry. While Carvalho & Ivanov (2023) and, Gursoy et al. (2023) discuss the general benefits, risks, and challenges of ChatGPT associated with the technology, this study provides insights about the detailed use of ChatGpt-4 in the hotel industry.



Source: Created by autor

Figure 8. ChatGPT-4 for Hospitality

In conclusion, ChatGPT-4 presents a unique and effective solution for the hotel industry today. In order to ensure a future characterized by technological advancement and a strong emphasis on human experience, it is essential for the industry to take advantage of technologies such as ChatGPT-4. This study examines the potential in question and, therefore, tries to set the path for future investigations and implementations in the field of hospitality and beyond. The hospitality industry is being transformed by AI, specifically ChatGPT. During this technological transition, it would be important to employ these technologies efficiently to provide visitors with a unique experience, boost business efficiency, and stand out from the competition. The author emphasizes that “the future of the hospitality industry is shaped by the integration of AI technologies.”

Practical Implications

The use of ChatGPT-4 into the hotel industry has several practical implications. It has the ability to significantly improve the client experience by delivering real-time information, optimising the booking process, assuring continuous customer assistance, and developing customised travel suggestions. These advancements have become essential in an era when customers want personalised and seamless experiences. Furthermore, the automation of many functions like as bookings, room service, and feedback gathering can result in considerable labour cost savings and an increase in operational efficiency. This is especially important in a sector where operational efficiency has a direct impact on customer experience and overall business performance.

Furthermore, ChatGPT-4 provides an opportunity for hotels to improve their marketing tactics. Hotels might create personalised marketing messages and recommendations by utilising the features of ChatGPT-4, resulting in a more efficient and targeted marketing strategy. ChatGPT-4’s multi-language capability enables hotels to cater to a worldwide audience, which improves the overall customer experience by breaking down language barriers. This feature plays a role in the hotel business since it serves a diversified customer from all over the world. Overall, the integration of ChatGPT-4 into the hotel sector promises to improve customer experience, operational efficiency, and marketing tactics, all of which are key aspects for success in the hospitality business.

Further Studies

First and foremost, a thorough research of the ethical implications of implementing ChatGPT-4 in the hospitality sector is required. The study should address issues about the security of confidential information, the reliability of data, and the possible use of this technology. Also, an assessment of the impact of ChatGPT-4 and similar technologies on employment in the hospitality industry is required. The study should include an analysis of the potential of job displacement as well as the need for new skills and education. Future research efforts should be dedicated towards conducting extensive empirical studies to further investigate the complexity and barriers that limit the proper implementation of ChatGPT-4 in the domain of hospitality.

Limitations

This study’s narrow emphasis on analysing the potential uses and implications of ChatGPT-4 just within the hotel industry, while ignoring other industries and various applications of artificial intelligence technology, is one major limitation. Also, the ethical implications of using ChatGPT-4 in the hospitality industry are also not sufficiently explored by this study. It is essential to do a more thorough analysis of the ethical issues raised by using AI-generated content in the hospitality sector.

REFERENCES

- Athavale, A., Baier, J., Ross, E., & Fukaya, E. (2023). The Potential of Chatbots in Chronic Venous Disease Patient Management. *JVS-Vascular Insights*, 100019. <https://doi.org/10.1016/j.jvsvi.2023.100019>
- Barrot, J. S. (2023). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing*, 57, 100745. <https://doi.org/10.1016/j.asw.2023.100745>
- Bhat, D. A. R., & Sharma, V. (2022). Enabling service innovation and firm performance: The role of co-creation and technological innovation in the hospitality industry. *Technology Analysis & Strategic Management*, 34(7), 774–786. <https://doi.org/10.1080/09537325.2021.1919614>
- Calvaresi, D., Ibrahim, A., Calbimonte, J.-P., Schegg, R., Fragniere, E., & Schumacher, M. (2021). The Evolution of Chatbots in Tourism: A Systematic Literature Review. In W. Wörndl, C. Koo, & J. L. Stienmetz (Eds.), *Information and Communication Technologies in Tourism 2021* (pp. 3–16). Springer International Publishing. https://doi.org/10.1007/978-3-030-65785-7_1
- Carvalho, I., & Ivanov, S. (2023). ChatGPT for tourism: Applications, benefits and risks. *Tourism Review*. <https://doi.org/10.1108/TR-02-2023-0088>
- Chang, H. (2023). The Effect of AI Chatbot-Based Tourism English Instruction on Intercultural Communicative Competence. *STEM Journal*, 24(2), 15–30. <https://doi.org/10.16875/stem.2023.24.2.15>
- Cohen, G. (2022). Algorithmic Trading and Financial Forecasting Using Advanced Artificial Intelligence Methodologies. *Mathematics*, 10(18), 3302. <https://doi.org/10.3390/math10183302>
- Danish, M. S. S., & Senjyu, T. (2023). Shaping the future of sustainable energy through AI-enabled circular economy policies. *Circular Economy*, 2(2), 100040. <https://doi.org/10.1016/j.cec.2023.100040>
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., ... Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Dwivedi, Y. K., Pandey, N., Currie, W., & Micu, A. (2023). Leveraging ChatGPT and other generative artificial intelligence (AI)-based applications in the hospitality and tourism industry: Practices, challenges and research agenda. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-05-2023-0686>
- Elkhwesky, Z., & Elkhwesky, E. F. Y. (2023). A systematic and critical review of Internet of Things in contemporary hospitality: A roadmap and avenues for future research. *International Journal of Contemporary Hospitality Management*, 35(2), 533–562. <https://doi.org/10.1108/IJCHM-01-2022-0090>
- Erul, E., & Işin, A. (2023). ChatGPT ile Sohbetler: Turizmde ChatGPT nin Önemi (Chats with ChatGPT: Importance of ChatGPT in Tourism). *Journal of Tourism and Gastronomy Studies*, 1. <https://doi.org/10.21325/jotags.2023.1217>

- Essel, H. B., Vlachopoulos, D., Tachie-Menson, A., Johnson, E. E., & Baah, P. K. (2022). The impact of a virtual teaching assistant (chatbot) on students' learning in Ghanaian higher education. *International Journal of Educational Technology in Higher Education*, 19(1), 57. <https://doi.org/10.1186/s41239-022-00362-6>
- Esteva, A., Kuprel, B., Novoa, R. A., Ko, J., Swetter, S. M., Blau, H. M., & Thrun, S. (2017). Dermatologist-level classification of skin cancer with deep neural networks. *Nature*, 542(7639), 115–118. <https://doi.org/10.1038/nature21056>
- Göktaş, L. S. (2023). Can ChatGPT Succeed in Distance Education Exams A Research on Accuracy and Verification in Tourism. *Journal of Tourism and Gastronomy Studies*, 2. <https://doi.org/10.21325/jotags.2023.1224>
- Guha, A., Grewal, D., Kopalle, P. K., Haenlein, M., Schneider, M. J., Jung, H., Moustafa, R., Hegde, D. R., & Hawkins, G. (2021). How artificial intelligence will affect the future of retailing. *Journal of Retailing*, 97(1), 28–41. <https://doi.org/10.1016/j.jretai.2021.01.005>
- Gursoy, D., Li, Y., & Song, H. (2023). ChatGPT and the hospitality and tourism industry: An overview of current trends and future research directions. *Journal of Hospitality Marketing & Management*, 32(5), 579–592. <https://doi.org/10.1080/19368623.2023.2211993>
- Hobert, S., Følstad, A., & Law, E. L.-C. (2023). Chatbots for Active Learning: A Case of Phishing Email Identification. *International Journal of Human-Computer Studies*, 103108. <https://doi.org/10.1016/j.ijhcs.2023.103108>
- Huang, W., Hew, K. F., & Fryer, L. K. (2022). Chatbots for language learning—Are they really useful? A systematic review of chatbot-supported language learning. *Journal of Computer Assisted Learning*, 38(1), 237–257. <https://doi.org/10.1111/jcal.12610>
- Inamdar, S. (2023). Impact of artificial intelligence text generators (AITGs) on libraries. *Library Hi Tech News*. <https://doi.org/10.1108/LHTN-03-2023-0048>
- Ivanov, S. (2020). The first chatbot of a tourism/hospitality journal: Editor's impressions. *European Journal of Tourism Research*, 24, 2401. <https://doi.org/10.54055/ejtr.v24i.403>
- Jenneboer, L., Herrando, C., & Constantinides, E. (2022). The Impact of Chatbots on Customer Loyalty: A Systematic Literature Review. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(1), 212–229. <https://doi.org/10.3390/jtaer17010011>
- Kaplan, A., & Haenlein, M. (2019). Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. *Business Horizons*, 62(1), 15–25. <https://doi.org/10.1016/j.bushor.2018.08.004>
- Krishnamurthy, V., Nezafati, K., Stayton, E., & Singh, V. (2020). Explainable AI Framework for Imaging-Based Predictive Maintenance for Automotive Applications and Beyond. *Data-Enabled Discovery and Applications*, 4(1), 7. <https://doi.org/10.1007/s41688-020-00042-2>
- Leung, X. Y., & Wen, H. (2020). Chatbot usage in restaurant takeout orders: A comparison study of three ordering methods. *Journal of Hospitality and Tourism Management*, 45, 377–386.

- <https://doi.org/10.1016/j.jhtm.2020.09.004>
- Li, L. (2023). Role of chatbots on gastroenterology: Let's chat about the future. *Gastroenterology & Endoscopy*, 1(3), 144–149. <https://doi.org/10.1016/j.gande.2023.06.002>
- Li, M., & Wang, R. (2023). Chatbots in e-commerce: The effect of chatbot language style on customers' continuance usage intention and attitude toward brand. *Journal of Retailing and Consumer Services*, 71, 103209. <https://doi.org/10.1016/j.jretconser.2022.103209>
- Luo, B., Lau, R. Y. K., & Li, C. (2023). Emotion-regulatory chatbots for enhancing consumer servicing: An interpersonal emotion management approach. *Information & Management*, 60(5), 103794. <https://doi.org/10.1016/j.im.2023.103794>
- MaryLincy M, Abisha M, AgnesJenitha G, & BabyShola P. (2023). Flutter Based Chatbot for Tourism. *Mediterranean Journal of Basic and Applied Sciences*, 07(02), 56–67. <https://doi.org/10.46382/MJBAS.2023.7208>
- Mydyti, H., & Kadriu, A. (2021). The Impact of Chatbots in Driving Digital Transformation. *International Journal of E-Services and Mobile Applications*, 13(4), 88–104. <https://doi.org/10.4018/IJESMA.2021100106>
- Nadkarni, S., & Haider, I. (2022). Digital transformation, operational efficiency and sustainability: Innovation drivers for hospitality's rebound in the United Arab Emirates. *Worldwide Hospitality and Tourism Themes*, 14(6), 572–578. <https://doi.org/10.1108/WHATT-05-2022-0054>
- Orden-Mejía, M., & Huertas, A. (2022). Analysis of the attributes of smart tourism technologies in destination chatbots that influence tourist satisfaction. *Current Issues in Tourism*, 25(17), 2854–2869. <https://doi.org/10.1080/13683500.2021.1997942>
- Pérez, J. Q., Daradoumis, T., & Puig, J. M. M. (2020). Rediscovering the use of chatbots in education: A systematic literature review. *Computer Applications in Engineering Education*, 28(6), 1549–1565. <https://doi.org/10.1002/cae.22326>
- Pillai, R., & Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 32(10), 3199–3226. <https://doi.org/10.1108/IJCHM-04-2020-0259>
- Saranya, A., & Subhashini, R. (2023). A systematic review of Explainable Artificial Intelligence models and applications: Recent developments and future trends. *Decision Analytics Journal*, 7, 100230. <https://doi.org/10.1016/j.dajour.2023.100230>
- Sharma, D. (2016). Enhancing customer experience using technological innovations: A study of the Indian hotel industry. *Worldwide Hospitality and Tourism Themes*, 8(4), 469–480. <https://doi.org/10.1108/WHATT-04-2016-0018>
- Sitharthan, R., Rajesh, M., Vimal, S., Saravana Kumar, E., Yuvaraj, S., Kumar, A., Jacob Raglend, I., & Vengatesan, K. (2023). A novel autonomous irrigation system for smart agriculture using AI and 6G enabled IoT network. *Microprocessors and Microsystems*, 101, 104905. <https://doi.org/10.1016/j.micpro.2023.104905>
- Smutny, P., & Schreiberova, P. (2020). Chatbots for learning: A review of educational chatbots for the Facebook

- Messenger. *Computers & Education*, 151, 103862. <https://doi.org/10.1016/j.compedu.2020.103862>
- Tian, J. (2023). Does technological innovation have an impact on employment in the hospitality industry? *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-03-2022-0370>
- Ukpabi, D. C., Aslam, B., & Karjaluoto, H. (2019). Chatbot Adoption in Tourism Services: A Conceptual Exploration. In S. Ivanov & C. Webster (Eds.), *Robots, Artificial Intelligence, and Service Automation in Travel, Tourism and Hospitality* (pp. 105–121). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78756-687-320191006>
- Wang, X., Liu, Q., Pang, H., Tan, S. C., Lei, J., Wallace, M. P., & Li, L. (2023). What matters in AI-supported learning: A study of human-AI interactions in language learning using cluster analysis and epistemic network analysis. *Computers & Education*, 194, 104703. <https://doi.org/10.1016/j.compedu.2022.104703>
- Xu, J., Kovatsch, M., Mattern, D., Mazza, F., Harasic, M., Paschke, A., & Lucia, S. (2022). A Review on AI for Smart Manufacturing: Deep Learning Challenges and Solutions. *Applied Sciences*, 12(16), 8239. <https://doi.org/10.3390/app12168239>