

February 2024

The art of artificial intelligence illusion: Exposing digital deception in the hospitality industry

Mohamed Youssef Helal

Helwan University, mohamed.yossef@fth.helwan.edu.eg

Mahmoud Ibraheam Saleh

Helwan University, mahmoudibraheam580@gmail.com

Follow this and additional works at: <https://digitalcommons.usf.edu/jght>



Part of the [Hospitality Administration and Management Commons](#), [Technology and Innovation Commons](#), and the [Tourism and Travel Commons](#)

This View Point is brought to you for free and open access by the M3 Center at the University of South Florida Sarasota-Manatee at Digital Commons @ University of South Florida. It has been accepted for inclusion in Journal of Global Hospitality and Tourism by an authorized editor of Digital Commons @ University of South Florida. For more information, please contact digitalcommons@usf.edu.

Recommended Citation

Helal, M. Y., & Saleh, M. I. (2024). The art of artificial intelligence illusion: Exposing digital deception in the hospitality industry. *Journal of Global Hospitality and Tourism*, 3(1), 265-272. <https://www.doi.org/10.5038/2771-5957.3.1.1037>

Corresponding Author

Mahmoud Ibraheam Saleh, Graduate School of Management Helwan University

Revisions

Submission: May. 14, 2023; 1st Revision: Jul. 09, 2023; 2nd Revision: Sep. 04, 2023; 3rd Revision: Oct. 10, 2023; 4th Revision: Jan. 28, 2024 Accepted: Feb. 05, 2024

The Art of Artificial Intelligence Illusion: Exposing Digital Deception in the Hospitality Industry

Mohamed Youssef Helal¹ and Mahmoud Ibraheam Saleh²

Faculty of Tourism and Hotel Management
Helwan University, Egypt

¹mohamed.yossef@fth.helwan.edu.eg

²mahmoudibraheam580@gmail.com

Abstract

This study investigates how artificial intelligence (AI) tools influence deceptive digital practices within the hospitality industry. As AI capabilities such as chatbots and language models are increasingly used in the industry, their potential impact on deception warrants examination. A comprehensive review is conducted to analyze how hospitality businesses utilize AI tools and how this shapes deceptive behaviors online. Specifically, the review examines how AI-generated content may erode consumer trust and decision-making. It also explores the emerging use of machine learning to fabricate fake reviews and social media posts. As deception undermines trust in businesses and the industry, the effectiveness of current detection strategies is evaluated. The literature highlights that while AI offers benefits, it also enables new forms of deception that current approaches may not fully address. This study seeks to fill gaps in our understanding of how AI influences online credibility and shapes consumer behavior in ways that require mitigation. The results inform risk management and responsible practices, to maintain transparency and trust in the industry.

Keywords: social media, hospitality industry, digital deception, artificial intelligence (AI), tourism technology

Introduction

Social media platforms have revolutionized the hospitality industry and have become one of the industry's primary marketing channels (Kim et al., 2015). Social media refers to online platforms and tools that allow consumers to generate, share, and exchange content about their experiences with hospitality businesses (Ladhari & Michaud, 2015). These platforms include social networking sites such as Facebook and Twitter, photo-sharing websites such as Instagram and Flickr, video-sharing websites such as YouTube, and review sites such as TripAdvisor and Yelp. However, such platforms have also spawned deceptive digital practices, resulting in significant concerns regarding marketing transparency. Digital deception refers to the intentional fabrication or alteration of online content or identity to create a false impression to mislead or misinform individuals seeking information (Choi et al., 2017).

While tourism management literature has explored the role of content credibility as a part of digital deception for tourists on social media (Jung et al., 2021; Ong et al., 2022; Yilmazdogan et al., 2021), there is a critical gap in understanding how artificial intelligence (AI) tools affect the industry's digital deceptive practices on social media in the hospitality management context. On

the one hand, AI tools can be beneficial in creating a well-established content structure, providing options such as ChatGPT, Chatsonic, OpenAI playground, Jasper Chat, Bard AI, LaMDA, Socratic, and Bing AI, among others. However, these tools' algorithms can still have fake information or algorithms (Kang & Lee, 2019) that increase deceptive digital practices in the hospitality industry.

For instance, reviews are an essential source of information for consumers when choosing accommodations, restaurants, and touristic activities (Han & Chen, 2022). Extant literature indicates that some AI systems attempt to substitute prevalent sharing economy platforms by furnishing analogous amenities in the hospitality sector. However, substantial prospects remain for AI to enhance technology, improving customer experiences on extant websites like Airbnb and VRBO for hospitality and short-term rental bookings. Incorporating AI capabilities into mainstream hospitality and rental platforms could enable more customized lodging, activity, and travel planning recommendations based on sophisticated user data analysis and preferences (Kang & Lee, 2019).

Considering the absence of literature in the hospitality domain concerning the impact of AI tools on digital deception, this study aims to fill this knowledge gap by scrutinizing putative futuristic modalities in AI. This research aims to investigate how AI tools, such as chatbots and language models, influence deceptive digital practices within the hospitality industry. The study outlines the objectives for achieving this aim as follows:

- To analyze the use of AI tools like chatbots and language models in the hospitality industry and their impact on deceptive digital practices.
- To examine how AI-generated content affects consumer trust and hospitality service decision-making.
- To investigate the emerging use of machine learning algorithms to fabricate fake online reviews and social media posts for hospitality businesses.
- To evaluate the effectiveness of current strategies used by hospitality firms to detect and curb AI-enabled deception on digital platforms.

Literature Review

The tourism and hospitality sectors would greatly benefit from further research examining how the implementation of AI technologies can serve to augment and improve existing sharing economy platforms, as opposed to replacing them entirely. As Paschen (2020) notes, situating AI as a comprehensive substitute fails to capitalize on its potential to enhance predominantly human-driven websites and applications in hospitality. By exploring innovative models whereby AI interacts symbiotically with industry platforms, as Al-Asadi and Tasdemir (2022) posit, intelligence assimilation may serve to optimize the matching of customers and listings for hospitality properties and rentals. Rather than displacing the open peer-to-peer framework exemplified by corporations such as Airbnb, scholars assert that AI integration, if performed judiciously, could optimize such models to furnish enhanced consumer experiences across the sector (Paschen, 2020). Additional scholarly inquiry into collaborative human-AI interaction protocols may effectively elucidate methods of applying emerging technologies to augment, not supplant, existing sharing economy paradigms central to tourism accommodation.

Moreover, extant literature suggests that machine learning harbors the formidable potential to transform manifold facets of the hospitality industry (Go et al., 2020). By scrutinizing substantial customer information and interaction datasets, machine learning algorithms can elucidate latent patterns and insights, enabling hospitality enterprises to refine customer service, target marketing more effectively, optimize pricing and availability, and streamline operations (Martinez-Torres & Toral, 2019). Putative machine learning applications in the hospitality sector incorporate personalized guest recommendations, conversational agents expediting customer service, predictive demand forecasting facilitating dynamic pricing, and automated image recognition augmenting safety and security (Park et al., 2018). As machine learning progresses, it may empower hospitality providers to furnish more customized, seamless, and positive guest experiences across lodging, food and beverage, entertainment, transportation, and other hospitality services (Martinez-Torres & Toral, 2019). The data-driven capabilities of machine learning can assist the hospitality industry in better comprehending and serving patrons.

While the data may be correct, the reviews of guests and tourists could vary at different times, and AI tools are stored in language model tools instances (Al-Asadi & Tasdemir, 2022). This can be problematic for the hospitality industry as it can lead to consumer disappointment, decrease trust and loyalty, and harm the industry's reputation and financial stability. AI can also be used to fabricate fake reviews, which can result in fraudulent digital activities in the hospitality sector. AI can be used to post fake reviews on websites (Paschen, 2020). For instance, TripAdvisor mainly relies on user-generated content and influences consumers' purchasing decisions. An example is a Reddit user who developed a bot that generated fictitious reviews for his restaurant, increasing its rankings and search results. This behavior, however, is against the law and immoral, damages the sector and consumers, and erodes credibility.

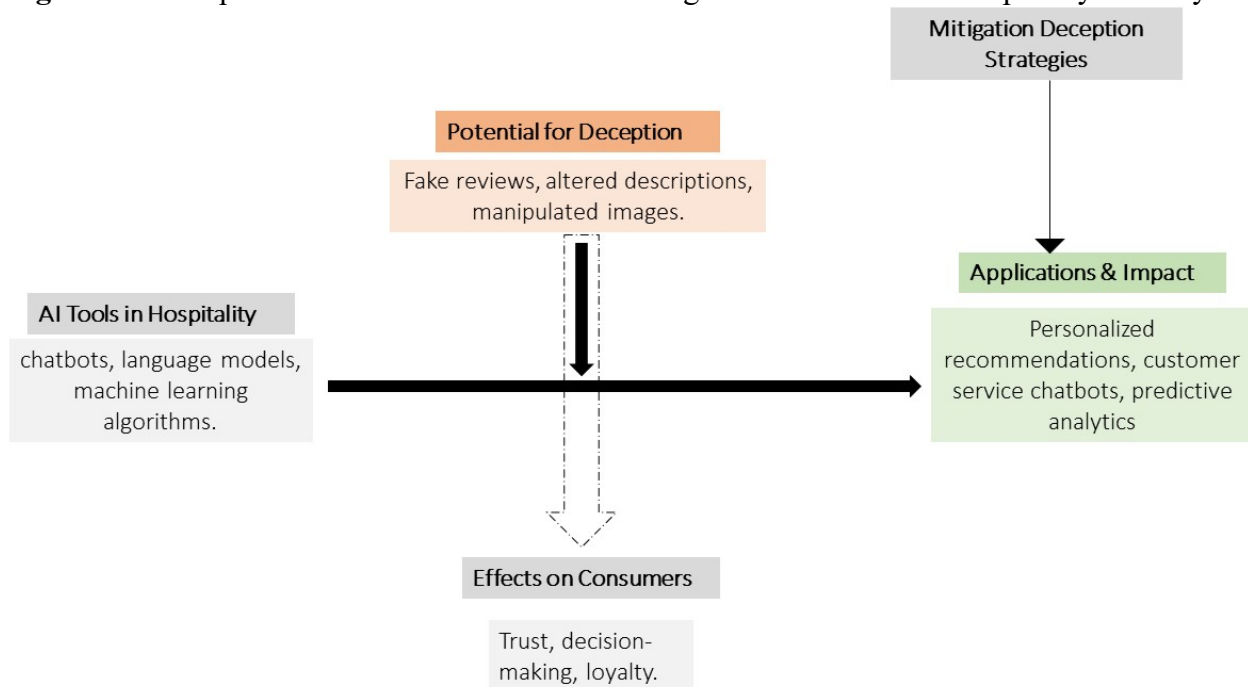
There are numerous types of deceptive advertising, such as false reviews, misleading descriptions, and Photoshopped images (Xie, 2016). For instance, some hotels may falsely assert that they provide upscale amenities or use images that do not accurately depict their basic amenities. This type of advertising strategy not only misleads consumers but also damages businesses' reputations. Many customers rely significantly on online evaluations and social media posts to make informed travel decisions about where to stay and what to do (Alshreef et al., 2023; Sparks et al., 2013). Consequently, deceptive, or fraudulent marketing techniques can have a significant impact on the experience of prospective guests. In addition, such practices can cause substantial harm to consumers, who may incur unexpected fees or fail to receive the promised services.

Further, deceptive advertising practices can erode consumer trust and loyalty, leading to a loss of business and revenues (un-Nisa et al., 2022). In addition, such practices can harm the reputation of the hospitality industry, leading to negative impacts on the industry. Consumers may suffer financial losses due to deceptive advertising practices, leading to negative reviews and reduced business engagement. The rapid proliferation of advanced AI capabilities within the hospitality sector necessitates an urgent examination of their potential for digital deception. The current review reveals that machine learning and AI tools harbor worthwhile applications for enhancing customer experience and business operations. However, the capacity of these technologies to generate artificial reviews, tailored descriptions, and manipulated imagery with apparent legitimacy raises grave concerns.

As consumer reliance on online evaluations and social media for travel planning grows exponentially, deception facilitated by sophisticated AI poses a severe threat to transparency and trust within the industry. Fabricated reviews tailored to increase bookings or falsely portray amenities undermine the integrity upon which reputations and purchase decisions are built. While current detection strategies aim to mitigate some manual deceptions, the ability of AI to dynamically simulate human behaviors presents a challenge such strategy may be ill-equipped to handle.

Given brands and consumers' considerable vulnerability to AI-enabled illusions, studying its manifestations and impacts through research like *The Art of AI Illusion* is urgently needed. With financial and reputational losses potentially swift to arise from artificial deception, the hospitality sector risks damage if preventative understanding and safeguards lag technological advancement. Only through diligent, ongoing scrutiny of AI's deception potentials can the relationships of trust underpinning hospitality thrive in the digital future (see Figure 1).

Figure 1. Conceptual Framework of Artificial Intelligence Illusion in the Hospitality Industry



Conclusion and Future Research Directions

This research agenda possesses considerable potential to meaningfully advance scientific knowledge across several interrelated domains (see Table 1). Examining how deceptive AI practices impact consumer trust and loyalty could improve our understanding of human cognition, decision-making, and responses to technological persuasion. The insights gained have the ability to inform the development of more ethical and transparent AI systems. Exploring strategies to mitigate digital deception in the hospitality industry may lead to new verification and validation techniques applicable for detecting AI deception more broadly, with implications for advancing AI safety and robustness. Investigating how the hospitality industry can adopt ethical AI practices may establish best practices transferable to other sectors, contributing to developing ethical

guidelines and governance frameworks for AI. Studying consumer perceptions of and interactions with AI-generated content holds promise for enhancing research on human-AI interaction, carrying implications for how AI technologies are designed, deployed, and regulated. Finally, examining the potential role of policymakers in reducing digital deception may provide insights into practical regulatory and oversight approaches, informing ongoing efforts to develop responsible and sustainable AI governance at institutional and societal levels. Collectively, this research agenda possesses the capability to meaningfully advance scientific knowledge at the intersections of AI ethics, explainable AI, human-AI interaction, and AI policy and governance - all of which are critical domains for building an AI-driven future responsibly.

Table 1. Future Research Avenue for AI and Digital Deception

No.	Research Question	Research Question Aim	Justification	Potential Methodology
1	How do the deceptive practices of AI on social media affect consumer trust and loyalty in the hospitality industry?	The study aims to investigate the impact of AI-generated content on consumers' decision-making, evaluating the legal and ethical implications of using AI to manipulate reviews.	With the increasing use of AI in generating content on social media platforms, understanding its impact on consumer trust and loyalty is crucial. Deceptive practices, such as AI-generated fake reviews, can erode consumer trust and affect the reputation and financial stability of the hospitality industry.	Future research can employ sentiment analysis to assess how consumers react to AI-generated content, conduct surveys and interviews to gauge trust levels, and analyze historical data to identify correlations between deceptive AI practices and changes in consumer loyalty.
2	What strategies can be implemented to mitigate the impact of digital deception on the reputation and financial stability of the hospitality industry?	The research will explore the various strategies that can be used to counter digital deception in the hospitality industry, focusing on factors such as data verification, using trusted sources, and reviews' credibility to establish trust.	As digital deception poses significant risks to the industry, it is essential to explore strategies to counter it. Factors like data verification, reliance on trusted sources, and the credibility of reviews play a pivotal role in building and maintaining trust.	Research can involve case studies of successful and unsuccessful strategies employed by hospitality businesses, surveys to gather expert opinions on effective countermeasures, and analysis of the financial impact of implementing such strategies.
3	How can the hospitality industry adopt ethical AI practices to prevent digital deception?	This study investigates ways the hospitality industry can adopt ethical AI practices to prevent digital deception, such as transparency, accountability, and oversight.	Ethical AI practices are fundamental to ensuring responsible use of technology. In the hospitality industry context, transparency, accountability, and oversight are crucial to prevent digital deception.	Future investigations can involve interviews with industry leaders to understand their perspectives on ethical AI adoption, analysis of industry guidelines and best practices, and case studies of businesses successfully implementing ethical AI practices.
4	What are consumer perceptions of AI-generated content in the hospitality industry?	The research investigates consumer perceptions of AI-generated content and its impact on trust, confidence, and loyalty in the hospitality industry.	Consumer perceptions are central to understanding how AI-generated content influences trust, confidence, and loyalty in the hospitality sector. It helps businesses align their practices with consumer expectations.	Surveys, focus groups, and in-depth interviews can be conducted to gather consumer opinions on AI-generated content, focusing on its impact on decision-making, trust, and loyalty.
5	How can the hospitality industry accurately verify user-generated reviews to reduce digital deception?	The study explores how the hospitality industry can implement verification protocols to ensure the accuracy and credibility of user-generated reviews.	Ensuring the accuracy and credibility of user-generated reviews is essential for countering digital deception. Developing robust verification protocols can help achieve this goal.	Research can involve the development and testing of review verification algorithms, case studies of businesses implementing successful verification measures, and surveys to gather consumer feedback on the effectiveness of these measures.
6	What role can government policymakers play in reducing digital deception in the hospitality industry?	This research will examine the potential role of government policymakers in mitigating digital deception within the hospitality industry, with a particular emphasis on policy measures that support transparency.	Government policies and regulations can significantly impact industry practices. Investigating the potential role of policymakers in mitigating digital deception is critical.	Analysis of existing policies related to online reviews and AI use in the hospitality industry, interviews with policymakers, and comparative studies of regions with different regulatory approaches can provide insights.
7	How can we classify deceptive content on social media in the hospitality industry?	The research will investigate the different forms of digital deception in the hospitality industry, from fake reviews to false social media posts, developing a classification for better understanding.	Developing a classification for deceptive content is foundational for understanding and combating digital deception in the industry. This classification can encompass various forms of deception, from fake reviews to false social media posts.	Content analysis, machine learning algorithms, and expert panel evaluations can be employed to develop a comprehensive classification system.
8	Can AI combat digital deception on social media in the hospitality industry?	The study explores the possibility of using AI to counter digital deception on social media and prevent fraudulent activities in the hospitality industry.	Leveraging AI to counter digital deception is a proactive approach. Investigating the feasibility and effectiveness of AI in detecting and preventing fraudulent activities is essential.	Experiments with AI-based deception detection systems, case studies of businesses implementing AI solutions, and comparative analyses of AI vs. human moderation can be conducted to assess AI's role in combating digital deception.

The previous study's argument and proposed future research questions directly relate to and address the research aims. In terms of analyzing the use of AI tools like chatbots and language models in hospitality and their impact on deception, several questions explore this topic. Questions 1, 3, 5, 7, and 8 examine how AI influences consumer trust and loyalty, how the industry can adopt ethical practices, strategies for verifying reviews and content, developing a classification system for deceptive content, and the potential for AI to combat deception. Regarding the aim to examine the effects of AI-generated content on trust and decision-making, research questions 1, 4, and 8 focus on understanding consumer perceptions, reactions, and how trust may be impacted. The third aim, investigating machine learning algorithms for generating fake reviews and posts, is indirectly linked to questions examining strategies and classifications related to detecting and authenticating content produced through these technologies. Finally, the questions look to evaluate current mitigation approaches by exploring strategies for countering deception, policies, review verification, and the roles of policymakers. Questions 2, 3, 5, 6, and 8 thus aim to assess strategies and policies. In conclusion, the proposed research questions effectively map onto each objective and provide a basis for further exploring the key topics and gaps identified.

Theoretical Implications

This study contributes to the theoretical understanding of the intersection between AI and digital deception within the hospitality industry. The study sheds light on the evolving role of AI tools in shaping consumer behavior, trust, and online information credibility. Specifically, insights are provided into how AI technologies may be both positively and adversely deployed to impact interactions in the digital marketing sphere. Additionally, the research lays important groundwork for future academic investigations into the phenomena of technological trickery and AI applications. From a practical perspective, this study informs hospitality industry stakeholders, including businesses, marketers, and platform providers, about the potential risks and benefits associated with incorporating AI tools.

Practical Implications

The present study provides guidance to hospitality industry stakeholders regarding the responsible implementation of AI technologies and maintenance of consumer trust. Specifically, the adoption of strategies aimed at verifying information authenticity and bolstering transparency in AI systems are recommended. Moreover, best practices identified through this research may generalize favorably to other economic sectors. At the application level, the findings can inform stakeholders within the hospitality industry who seek to integrate AI tools responsibly. Managers are well-positioned to evaluate discrete approaches focused on validating information accuracy and disclosing AI assistance with the goal of regaining credibility potentially lost through deception. Similarly, marketers may pilot innovative collaborations between human operators and AI systems. Platform providers meanwhile can initiate pilot oversight mechanisms targeting AI activities. Ideally, if ethical standards are uniformly embraced across domains, ensuing outcomes could establish guidelines safeguarding consumer welfare amidst rapidly advancing technological change. Furthermore, the study may encourage hospitality organizations to formalize policy frameworks promoting principled AI design as well as conscientious application of technologies to cultivate responsibility online. Such dedicated focus on simultaneously detecting and mitigating deceptive digital practices while augmenting transparency within consumer interactions is

imperative for preserving trust and upholding industry reputation during periods of revolutionary technological change.

Limitations and Future Research

While the present study offers an initial foundation, limitations within the research design concurrently point to prospective opportunities for extended scholarly inquiry. Broadening the investigative scope to encompass additional contextual settings and demographic populations could further reinforce the generalizability of acquired findings. Moreover, longitudinally examining psychological responses could furnish nuanced insights into human experiences over time. Exploring prospective regulatory and collaborative solutions involving governing bodies, corporations, and citizens presents exciting pathways toward cultivating sustainable AI practices which uphold basic humanistic values. Continued rigorous interdisciplinary scholarship remains imperative to more comprehensively address the multifaceted challenges which arise at the nexus of technology and society. As AI becomes increasingly integrated into daily life, holistic understanding of its socio-technical implications grows in importance. Therefore, future research directions hold promise to meaningfully advance scientific knowledge across intersecting domains including, but not limited to, AI ethics, explainable systems, human-machine interaction, and responsible innovation.

References

- Al-Asadi, M. A., & Tasdemir, S. (2022). Using artificial intelligence against the phenomenon of fake news: A systematic literature review. In M. Lahby, A. S. K. Pathan, Y. Maleh, & W. M. S. Yafooz (Eds.), *Combating fake news with computational intelligence techniques* (pp. 39-54). Springer. https://doi.org/10.1007/978-3-030-90087-8_2
- Alshreef, M. A., Hassan, T. H., Helal, M. Y., Saleh, M. I., Tatiana, P., Alrefae, W. M., Elshawarbi, N. N., Al-Saify, H. N., Salem, A. E., & Elsayed, M. A. S. (2023). Analyzing the influence of eWOM on customer perception of value and brand love in hospitality enterprise. *Sustainability*, 15, Article 7286. <https://doi.org/10.3390/su15097286>
- Choi, S., Mattila, A. S., Van Hoof, H. B., & Quadri-Felitti, D. (2017). The role of power and incentives in inducing fake reviews in the tourism industry. *Journal of Travel Research*, 56(8), 975-987. <https://doi.org/10.1177/0047287516677168>
- Go, H., Kang, M., & Suh, S. C. (2020). Machine learning of robots in tourism and hospitality: Interactive technology acceptance model (iTAM)-cutting edge. *Tourism Review*, 75(4), 625-636. <https://doi.org/10.1108/TR-02-2019-0062>
- Han, J., & Chen, H. (2022). Millennial social media users' intention to travel: The moderating role of social media influencer following behavior. *International Hospitality Review*, 36(2), 340-357. <https://doi.org/10.1108/IHR-11-2020-0069>
- Jung, W., Kim, J., Kim, S., & Chun, J. W. (2021). The role of engagement in travel influencer marketing: The perspectives of dual process theory and the source credibility model. *Current Issues in Tourism*, 24(17), 2416-2420. <https://doi.org/10.1080/13683500.2020.1845126>
- Kang, J., & Lee, S. (2019). Algorithm design to judge fake news based on Bigdata and artificial intelligence. *International Journal of Internet, Broadcasting and Communication*, 11(2), 50-58. <https://doi.org/10.7236/IJIBC.2019.11.2.50>
- Kim, W. G., Lim, H., & Brymer, R. A. (2015). The effectiveness of managing social media on hotel performance. *International Journal of Hospitality Management*, 44, 165-171. <https://doi.org/10.1016/j.ijhm.2014.10.014>
- Ladhari, R., & Michaud, M. (2015). eWOM effects on hotel booking intentions, attitudes, trust, and website perceptions. *International Journal of Hospitality Management*, 46, 36-45. <https://doi.org/10.1016/j.ijhm.2015.01.010>

- Martinez-Torres, M. D. R., & Toral, S. L. (2019). A machine learning approach for the identification of the deceptive reviews in the hospitality sector using unique attributes and sentiment orientation. *Tourism Management*, 75, 393-403. <https://doi.org/10.1016/j.tourman.2019.06.003>
- Ong, Y. X., Sun, T., & Ito, N. (2022). Beyond influencer credibility: The power of content and parasocial relationship on processing social media influencer destination marketing campaigns. In J. L. Stienmetz, B. Ferrer-Rosell, & D. Massimo, (Eds.), *Information and communication technologies in tourism ENTER 2022* (pp. 110-122). Springer. https://doi.org/10.1007/978-3-030-94751-4_11
- Park, E., Chae, B., & Kwon, J. (2018). Toward understanding the topical structure of hospitality literature: Applying machine learning and traditional statistics. *International Journal of Contemporary Hospitality Management*, 30(11), 3386-3411. <https://doi.org/10.1108/IJCHM-11-2017-0714>
- Paschen, J. (2020). Investigating the emotional appeal of fake news using artificial intelligence and human contributions. *Journal of Product & Brand Management*, 29(2), 223-233. <https://doi.org/10.1108/JPBM-12-2018-2179>
- Sparks, B. A., Perkins, H. E., & Buckley, R. (2013). Online travel reviews as persuasive communication: The effects of content type, source, and certification logos on consumer behavior. *Tourism Management*, 39, 1-9. <https://doi.org/10.1016/j.tourman.2013.03.007>
- un-Nisa, N., Acha, A., & Dharejo, N. (2022). The consequences of upholding deceptive marketing practices and its effect on consumers' related attitudes including consumer loyalty and consumer trust: Evidence from the fashion industry in the UAE. *Journal of Advanced Research in Social Sciences and Humanities*, 7(2), 71-82. <https://doi.org/10.26500/JARSSH-07-2022-0203>
- Xie, G. X. (2016). Deceptive advertising and third-person perception: The interplay of generalized and specific suspicion. *Journal of Marketing Communications*, 22(5), 494-512. <https://doi.org/10.1080/13527266.2014.918051>
- Yilmazdogan, O. C., Dogan, R. S., & Altıntas, E. (2021). The impact of the source credibility of Instagram influencers on travel intention: The mediating role of parasocial interaction. *Journal of Vacation Marketing*, 27(3), 299-313. <https://doi.org/10.1177/1356766721995973>