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THE APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN TOURISM PLANNING DESIGN

a chapter by

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Introduction

The application of artificial intelligence in the tourism planning design has significantly transformed the way tourism planning designer and delivered their ideas. By integrating AI technologies such as sentiment analysis with Natural Language Processing (NLP), augmented reality, virtual reality, robotics in tourism planning design and intelligent chat bots, the tourism sector has witnessed a remarkable shift towards personalization and accurate recommendations for design planning students. Since the term "artificial intelligence" was first coined in 1956, there has been a clear link between artificial intelligence and interactive art. This connection is rooted in the inherent relationship between computer technology and art (Sanchez, et al, 2022).

During the 1980s, PC brain science arose as a mental field. During this time, the notion of experience was introduced to artists and technologists as a means of creating new forms of interactive art. Additionally, there were significant developments in AI technology that impacted various industries including tourism. These advancements have enabled the tourism design planning to design their future tourism destination align with supply and demands analysis and the future impact, carrying capacity calculation to improve personalization and accurate recommendations, aligning with its main goals (Wasserman & Fierman, 2022). AI is already reshaping the local landscape, and it is important to understand how planners can use AI equitably and productively. If deployed responsibly, AI has the potential to assist planners in their work, improve existing planning processes, create efficiencies, and allow planners to refocus their work on the human factors of planning (i.e., human interactions, connecting with community members, and human skills).

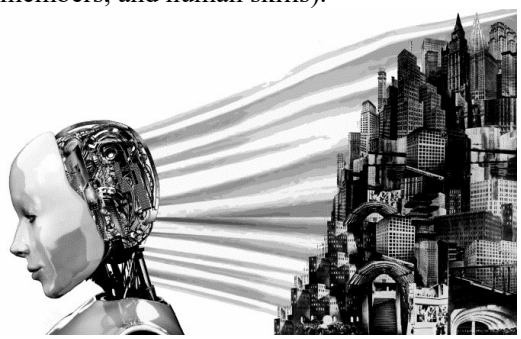

Figure 1: AI and Tourism Planning, Sources: Sanchez, et al (2022)

Graphical AI in Tourism Planning

Graphical AI, a user-centrist approach to developing AI applications using a visual and graphical language, can be potentially applied in the field of tourism planning and development. This approach allows for the creation of intuitive and interactive interfaces that can facilitate better communication between students and AI systems (Shumway, & Gordner, 2022).

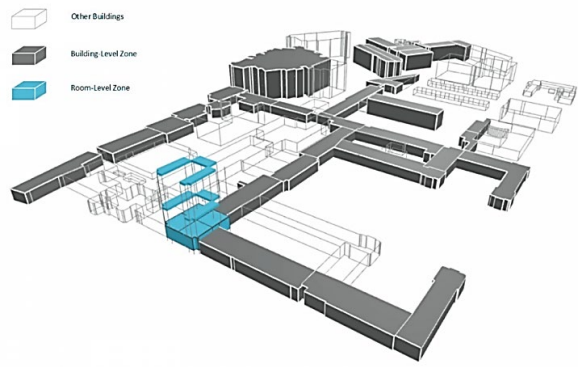

Figure 2: 3D Building Design using AI, Sources: Shumway and Gordner (2022)

Graphical AI in tourism planning and development provides a user-centrist approach using visual and graphical language, enabling the creation of intuitive and interactive interfaces. These interfaces can enhance the user experience and facilitate better communication and decision-making in the tourism industry. By allowing domain experts in tourism to design AI models without prior programming knowledge, Graphical AI can empower them to create AI-based applications tailored to the specific needs of the tourism industry. This approach not only democratizes AI development but also enables more efficient and effective tourism planning and development (Hurtado, et al, 2021).

Figure 3: Green City Building using AI, Sources: Williams, Sarah. (2022)

The use of AI in this context consists of specifying a clear objective (e.g., ensuring accurate spelling) and implementing automated conditional steps based on "if this, then that" logic. This allows the software to identify and correct common English word errors such as misplacement of "I" and "E", rectifying with the appropriate spelling where necessary (Williams, 2020). It's not magic, but it can indeed seem like magic at times. There is a concern that working together with machines will result in us being replaced by them. Some worry that technology such as AI, which has already defeated top chess players, will outpace, and outperform human capabilities (DeAngelis, 2020). However, it's important to remember that planning is not simply a game of speed and ability; it involves creativity and a focus on human needs.

The Use of AI, Smart Cities: Integrating Technology, Community, and Nature

AI can analyse and interpret data, producing various combinations based on defined variables. Its accuracy and reliability rely on the quality of input data and the formulated algorithms. As planners establish appropriate AI methods, they can improve their knowledge and skills to enhance planning practices for creating more sustainable communities.

Figure 4: Green Apartment using AI, Sources: Williams, Sarah. (2022)

By allowing domain experts in tourism to design AI models without prior programming knowledge, Graphical AI can empower them to create AI-based applications tailored to the specific needs of the tourism industry. This approach not only democratizes AI development but also enables more efficient and effective tourism planning and development (Batty, 2018).

Equity and Inclusion and the Need for Ethical AI

The primary goal of AI systems' development is to solve complex problems that humans may struggle to resolve independently. AI itself is not inherently harmful; its impact depends on the intentions of its user. Machines do not form their own opinions or make decisions based on experiences. The programmer, who develops the algorithm and selects the data for the machine, bears responsibility for the machine's decisions and their consequences. Planners aiming for the common good can rely on ethical guidelines, while AI and its programmers currently lack a definitive ethical framework within which to operate.

Conclusion

Moreover, urban planners can utilize this publication to determine initial steps for integrating AI into their work and consider the role they wish to undertake. For some, this concept may be entirely novel, and acquiring more knowledge about it could serve as the starting point. Others may already possess familiarity with AI's capabilities and be prepared to directly engage with the technology sector, as previously mentioned. Whether one is a novice or an expert in AI, active participation in discussions regarding its potential applications in planning is crucial. AI has transcended science fiction and its tools for planning are now a reality. If planners do not leverage these tools, others will step into that space instead (Hurtado, et al, 2021). It is imperative that we grasp how to collaborate with AI, harness this technology for process improvement, and continue creating inclusive communities through technological advancement.

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