

Role of artificial intelligence technology in the development of furniture design Process

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Abstract:

Artificial intelligence (AI) empowers innovative applications in furniture that are presented in generative models. In recent times, there are many implementations of machine-learning approaches to develop the furniture design process. Due to contemporary individuals' requirements, rapid fluctuations in customers' preferences, and the geometrics complexity of designs, furniture designers need to explore multiple alternative solutions during the design process. This study aims to clarify the current AI technologies implemented in furniture design to develop the design process and boost furniture designers' abilities and performances in their work. Therefore, this study presents two models: the first one is for the design process to differentiate between the design conducted by humans and the design implemented by AI. The second model clarifies the role of the furniture designer inside AI systems for the design process. Based on the review study, the author presents a SWOT analysis of the strengths, weaknesses (limitations), opportunities, and threats of using AI to design furniture. A survey was conducted to measure furniture designers' responses to the SWOT analysis. The findings of this paper have enclosed that, (89.4%) of furniture designers view AI performs better in generating initial ideas than other design tasks. (87.2%) view AI is not sufficient without the involvement of designers. (72.3%) view AI is a professional design tool that will enhance interactive design and virtual design. (78.7%) of them are afraid of losing designers' identities due to using the same AI techniques.

Keywords:

Artificial Intelligence(AI), Furniture Design, Generative Design, Machine Learning, SWOT analysis

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