Chapter 8
The Importance and Place of Artificial Intelligence in Design: Artificial Intelligence, Machine Development, and Configuration

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ABSTRACT

Artificial Intelligence (AI) plays a significant role in nearly every aspect of modern life. Widely used in fields such as law, healthcare, astronomy, aviation, and food production, AI also brings groundbreaking innovations to the field of design. Its subfields—including machine learning, deep learning, natural language processing, computer vision, and expert systems—enhance the efficiency of design processes and support the creation of user-oriented, innovative solutions. Machine learning allows the analysis of user behavior to generate goal-oriented designs, while techniques like generative design enable the automatic production of creative alternatives. In areas such as architecture, graphic, digital, fashion, and engineering design, AI integrates sustainability, aesthetics, and functionality. The integration of AI transforms design from a purely visual process into a comprehensive solution that meets human needs and adds technological and economic value.

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INTRODUCTION

Artificial intelligence has become very important today. Artificial intelligence is the reason for preference in every area of our life. Artificial intelligence and its sub-branches are used in many fields such as law, health, astronomy, aircraft industry, aviation sector, food production. One of the uses of artificial intelligence is the subject of design. Artificial intelligence is very important for the optimization of designs. The sub-branches of artificial intelligence are in the sales process of architectural products, and an efficient strategy can be created by establishing efficient communication between designers and customers Decently. If you need to briefly get to know artificial intelligence; Artificial intelligence is defined as a discipline that mimics human-like cognitive functions and uses algorithms and computer systems to solve complex problems. Artificial Intelligence has enabled revolutionary innovations in many fields and has spread to a wide range of research areas. Among the main sub-branches of this field are Machine Learning, learning from data and creating Decisional models; Deep Learning, using layered neural networks in large-scale data processing; Natural Language Processing (NLP), understanding and generating human language; Computer Vision includes the analysis and interpretation of visual data, and Expert Systems, the development of decision support systems based on human expertise in a specific field. In addition, fields such as robotics, autonomous systems, fuzzy logic and genetic algorithms focus on the practical applications of Artificial Intelligence. This article describes the sub-branches of Artificial Intelligence and emphasizes the importance of these technologies for both academic research and industrial applications. The integration of Artificial Intelligence into design has revolutionized creative processes by increasing efficiency and innovation. Among the various branches of Artificial Intelligence, a few stand out especially in Deconstruction applications. Machine Learning is used to analyze user preferences and generate data-driven design solutions, while Natural Language Processing (NLP) provides user-centered improvements through feedback analysis and speech interfaces. Dec.100.200.200.200.200.200.200.200.200.200.20 0.200. Computerized Image helps color, shape and composition optimization by supporting visual content analysis. Moreover, Productive Artificial Intelligence stands out by creating innovative design concepts, automating workflows and generating various alternatives. Optimization Algorithms play an important role in achieving efficient and resource-conscious design solutions, especially in architecture and product development. Finally, Robotic and Autonomous Systems facilitate prototyping and physical manufacturing processes. This summary highlights how the strategic selection and combination of these branches of ARTIFICIAL INTELLIGENCE can enable designers to achieve more creative, functional and user-oriented results in various fields. Design, on the other hand, is the solution of a problem or