

## INTEGRATION OF ARTIFICIAL INTELLIGENCE IN ARCHITECTURAL DESIGN PROCESS: INNOVATION TOWARDS SMART ARCHITECTURE

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### **Abstract**

The development of Artificial Intelligence (AI) technology has had a significant impact on various fields, including architecture. The integration of AI in the architectural design process is an important innovation that drives the creation of smart architecture, a design approach that combines artificial intelligence to produce adaptive, efficient, and sustainable buildings. This study examines how AI plays a role in designing smart buildings through data analysis, environmental simulation, building form optimization, and design personalization based on user preferences. In addition, it also discusses the challenges faced by architects in adopting this technology, such as the need for new skills, data use ethics, and integration with conventional design software. The results of the study show that AI not only improves the efficiency and accuracy of the design process, but also opens up opportunities to create architectural solutions that are more responsive to user and environmental needs. Thus, the integration of AI is a strategic step in realizing a smarter and more sustainable future architecture.

**Keywords:** Artificial Intelligence, architectural design, smart architecture, technological innovation

### **INTRODUCTION**

The development of digital technology has changed the way humans live, work, and interact with their environment. One of the most impactful technological innovations in the last decade is the rapid progress in the field of Artificial Intelligence (AI). AI has transformed various sectors of life, from the manufacturing industry, healthcare, education, to creative fields such as art and design. Architecture as a discipline that combines art and technology has

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