

# Artificial Intelligence in Electronic System Design Automation

Robin Young  
PhD  
Delft University of Technology  
Mekelweg 5, 2628 CD Delft, Netherlands

Morgan Mitchell  
PhD  
KTH Royal Institute of Technology  
Brinellvägen 8, 114 28 Stockholm, Sweden

Adrian King  
PhD  
ETH Zurich  
Rämistrasse 101, 8092 Zürich, Switzerland

**Abstract.** The integration of Artificial Intelligence (AI) in Electronic System Design Automation (ESDA) has transformed the landscape of electronic engineering. This paper explores the role of AI in automating the design process, enhancing efficiency and reducing time-to-market. By leveraging machine learning algorithms and AI-driven tools, the study highlights significant improvements in design quality and innovation. The paper discusses the implications of these advancements for the future of electronic system design.

**Keywords:** Artificial Intelligence, Design Automation, Machine Learning, ESDA, Innovation

## Introduction

The field of Electronic System Design Automation (ESDA) is undergoing a significant transformation with the integration of Artificial Intelligence (AI). AI technologies, particularly machine learning and deep learning, are being utilized to automate various stages of the design process, offering substantial improvements in efficiency and innovation. This paper examines the current trends and developments in AI-driven ESDA, analyzing the benefits and challenges associated with these technologies. By focusing on the impact of AI on design quality, time-to-market, and overall productivity, the study provides a comprehensive overview of how AI is reshaping the future of electronic system design.

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