

Preface: Proceedings of 2025 International Conference on Advanced Mechatronics and Intelligent Energy Systems (AMIES 2025)

The 2025 International Conference on Advanced Mechatronics and Intelligent Energy Systems (AMIES 2025) was held in Oshawa, Canada, from August 1st to 3rd, 2025.

AMIES 2025 covered a broad range of topics highlighting the dynamic convergence of mechanical, electronic, and digital intelligence. Research on new energy vehicles, smart grids, and renewable energy systems focused on energy efficiency, advanced control strategies, and sustainable development, emphasizing the importance of integrating clean energy sources with intelligent management for a low-carbon future. Studies in optical communication, signal processing, and electronic devices explored cutting-edge developments in high-speed data transmission, photonic systems, and microelectronic design, which together form the backbone of modern intelligent infrastructures. In the area of artificial intelligence, robotics, and intelligent systems, participants presented innovative approaches to autonomous control, intelligent sensing, and machine learning, demonstrating how AI-driven technologies enhance automation, precision, and adaptability across diverse industrial applications. Meanwhile, contributions on blockchain, smart contracts, and emerging materials technologies examined secure data exchange, decentralized control mechanisms, and novel functional materials that are driving the next generation of intelligent manufacturing and energy solutions. Together, these studies showcase how interdisciplinary collaboration is shaping the future of engineering by merging digital innovation with sustainable design and advanced materials science.

The Organizing Committee of AMIES 2025 extends its sincere appreciation to all authors for their valuable contributions and to the reviewers for their diligent efforts in maintaining the quality of this publication. We also express our gratitude to the keynote speakers and participants whose insights and discussions enriched the academic exchange throughout the conference.

It is our hope that this proceedings volume will serve as a valuable reference for researchers, engineers, and professionals working in related fields. The findings and perspectives presented herein not only capture the current state of scientific and technological advancement but also inspire continued innovation in the ever-evolving domains of mechatronics, intelligent energy systems, and interdisciplinary engineering.