

Title : AI-Driven Modeling and Optimization for Sustainable Systems

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Abstract

The growing complexity of energy, industrial, environmental, and socio-economic systems requires intelligent and efficient approaches to support sustainable development. Artificial Intelligence (AI), Machine Learning (ML), mathematical and data-driven modeling, and optimization techniques offer powerful capabilities for prediction, resource utilization, decision-making, and balancing economic, environmental, and operational objectives. The symposium **“AI-Driven Modeling and Optimization for Sustainable Systems”** aims to provide an interdisciplinary platform for researchers, academicians, industry professionals, and practitioners to present recent advances in AI-enabled modeling, prediction, optimization, and intelligent decision-making for sustainability. Particular emphasis will be placed on integrating data-driven intelligence with mathematical and computational optimization to address real-world sustainability challenges. The symposium will cover applications in sustainable and renewable energy, circular economy and resource recovery, sustainable manufacturing, green and closed-loop supply chains, sustainable mobility and electric vehicles, agriculture, and environmental systems. It seeks to promote interdisciplinary collaboration and facilitate the development of intelligent, efficient, resilient, and sustainable solutions.

Key Themes and Topics

The symposium invites original research articles, review studies, methodological contributions, and application-oriented studies addressing, but not limited to:

- Artificial Intelligence and Machine Learning for Sustainable Systems
- Mathematical, Computational, and Data-Driven Modeling
- Predictive Analytics and Forecasting for Sustainability
- Optimization, Metaheuristics, and Evolutionary Algorithms
- Multi-Objective Optimization and Sustainable Decision-Making
- Hybrid AI-Optimization Models and Intelligent Decision-Support Systems
- AI and Optimization for Renewable and Sustainable Energy Systems
- Circular Economy, Waste Valorization, and Resource Recovery
- Sustainable Manufacturing and Resource-Efficient Production
- Green, Sustainable, and Closed-Loop Supply Chain Optimization
- Sustainable Mobility, Electric Vehicles, and Intelligent Transportation
- AI-Driven Modeling and Optimization for Agriculture, Environmental, and Other Sustainable Engineering Systems

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