Special Issue

Machine Learning-Augmented Optimization Methods for Energy and Infrastructure Systems

Message from the Guest Editors

Energy systems and critical infrastructure networks—such as electric power grids, transportation networks, computing infrastructure, water systems, and communications infrastructure—are undergoing rapid transformation driven by electrification, digitalization, and globalization. Planning and optimizing these systems require solving large-scale, high-dimensional, and highly constrained optimization problems under deep uncertainty, complex interdependencies, and evolving operational conditions. Recent advances in machine learning (ML) provide powerful new capabilities to augment classical optimization and operations research methods. ML can accelerate solvers, learn surrogate models, improve uncertainty representation, guide search processes, and enable adaptive, data-driven planning. This Special Issue focuses on learning-augmented optimization frameworks that integrate ML with mathematical programming, network optimization, and decision analysis to advance energy and infrastructure planning, design, and operations.

Guest Editors

Dr. Olufemi A. Omitaomu
Dr. Chen Yang
Dr. Haoran Niu

Deadline for manuscript submissions

31 August 2026

AI

an Open Access Journal by MDPI

Impact Factor 5.0
CiteScore 6.9

mdpi.com/si/271390

AI
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
ai@mdpi.com

mdpi.com/journal/ai

AI

an Open Access Journal by MDPI

Impact Factor 5.0
CiteScore 6.9

mdpi.com/journal/ai

MDPI

About the Journal

Message from the Editor-in-Chief

Editor-in-Chief

Prof. Dr. Kenji Suzuki
Biomedical Artificial Intelligence Research Unit (BMAI), Institute of Integrated Research, Institute of Science Tokyo, Yokohama 226-8501, Japan

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within ESCI (Web of Science), Scopus, EBSCO, and other databases.

Journal Rank:

JCR - Q1 (Computer Science, Interdisciplinary Applications) / CiteScore - Q2 (Artificial Intelligence)