Special Issue

Optimization and Machine Learning Approaches for Power Systems

Message from the Guest Editors

This Special Issue aims to spotlight cutting-edge methodologies and the modeling of problems at the intersection of machine learning and optimization, tailored for enhancing the efficiency, reliability, and sustainability of modern power systems. This Special Issue invites researchers and practitioners to explore how advanced optimization techniques and models, as well as machine learning models, can address these emerging complexities. Key areas of interest include optimization, stochastic optimization, load and price forecasting, renewable energy forecasting, and novel applications of machine learning, such as deep learning, reinforcement learning, and federated learning, for dynamic and real-time decision making within the grid. Contributions that combine optimization algorithms—such as linear and nonlinear programming, stochastic optimization, and metaheuristic methods—with machine learning models are also valued for their potential to solve complex, high-dimensional problems like grid reconfiguration, unit commitment, and energy dispatch.

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Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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