Special Issue

Artificial Intelligence in Modern Power and Energy Systems

Message from the Guest Editors

This Special Issue aims to collect original and innovative contributions on the application of artificial intelligence techniques in power and energy systems. We welcome work addressing machine learning (ML), deep learning (DL), reinforcement learning (RL), large language models (LLMs), and other data-driven solutions, which are emerging as powerful tools for modeling, forecasting, optimization, and decision support in modern energy ecosystems. For this Special Issue, topics of interest include, but are not limited to, the following:

- Energy demand and generation forecasting using ML and DL methods;
- RL-based approaches for adaptive control, energy management, and electricity market participation;
- Fault prediction, anomaly detection, predictive maintenance, real-time monitoring, and system diagnostics using ML and DL methods;
- Use of LLMs for enhanced user engagement through natural language interfaces and decision support;
- Generative AI for synthetic data generation, scenario modeling, and system design.

We encourage both theoretical developments and practical case studies that demonstrate real-world applicability and impact.

Guest Editors

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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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