Special Issue

Application of Machine Learning in Modern Power Systems

Message from the Guest Editor

This Special Issue, "Application of Machine Learning in Modern Power Systems", brings together state-of-the-art research on how machine learning can address the growing complexity and data-driven nature of modern energy systems.

The collection particularly emphasizes the critical importance of developing robust machine learning frameworks that can operate effectively in the dynamic and uncertain environment of modern power grids. With the increasing penetration of renewable energy sources, distributed generation, and electric vehicles, power systems face unprecedented variability and complexity that traditional analytical methods struggle to handle. The featured research explores innovative approaches, including federated learning for privacy-preserving grid optimization, reinforcement learning for real-time energy management, and hybrid models that combine physics-based knowledge with data-driven insights to enhance reliability and efficiency. These contributions demonstrate how ML techniques can adapt to the stochastic nature of renewable resources while maintaining grid stability and meeting evolving consumer demands.

Guest Editor

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Deadline for manuscript submissions

25 March 2026

MDPI

Energies

an Open Access Journal by MDPI

**Impact Factor 3.2
CiteScore 7.3**

mdpi.com/journal/
energies

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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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