

Special Issue

AI-Driven Solutions for Operation and Control of Future Smart Grids

Message from the Guest Editors

The strong uncertainty, nonlinearity, and intermittency of renewable generation are imposing grand challenges for the secure and economic planning and operation of smart grids. Traditional methods' performance can be limited without considering such growing uncertainties.

Together with high-fidelity high-performance simulation techniques and big data analytics, the fast development of artificial intelligence (AI) technology, especially reinforcement learning (RL), provides a promising way of tackling these critical issues by providing effective and prompt control for power grid operation and control.

This Special Issue aims at presenting recent developments and advancements in AI-driven solutions for the operation and control of future smart grids with high penetration of renewable generation and power electronics-based devices for achieving the goals of the full absorption of renewable energy, the optimized allocation of large-scale energy resources, and the reliable supply of electricity. Keywords

- artificial intelligence
- smart grid
- renewable energy

Guest Editors

Dr. Ruisheng Diao

ZJU-UIUC Institute, Zhejiang University, Haining 314400, China

Dr. Renke Huang

Global Institute of Future Technology, Shanghai Jiao Tong University, Shanghai 200240, China

Deadline for manuscript submissions

15 January 2026



Electronics

an Open Access Journal
by MDPI

Impact Factor 2.6
CiteScore 6.1



mdpi.com/si/222088

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

[mdpi.com/journal/
electronics](https://mdpi.com/journal/electronics)





Electronics

an Open Access Journal
by MDPI

Impact Factor 2.6
CiteScore 6.1



[mdpi.com/journal/
electronics](https://mdpi.com/journal/electronics)



About the Journal

Message from the Editor-in-Chief

Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guestedited by leading experts in selected topics of interest.

Editor-in-Chief

Prof. Dr. Flavio Canavero

Department of Electronics and Telecommunications, Politecnico di
Torino, 10129 Torino, Italy

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), CAPlus /
SciFinder, Inspec, Ei Compendex and other databases.

Journal Rank:

JCR - Q2 (Engineering, Electrical and Electronic) /
CiteScore - Q1 (Electrical and Electronic Engineering)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is
provided to authors approximately 16.8 days after
submission; acceptance to publication is undertaken in 2.4
days (median values for papers published in this journal in
the first half of 2025).