Special Issue

Applied Computer Vision and Intelligent Computing for Electric Power Systems

Message from the Guest Editors

With the acceleration of the global energy transition, power systems are undergoing profound transformations, marked by large-scale renewable energy integration, new energy access, and the tight coupling of energy–carbon markets. Computer vision and artificial intelligence, with their powerful data processing capabilities and highly adaptive learning characteristics, have brought revolutionary improvements to the perception accuracy and decision-making efficiency of power systems. Furthermore, AI's data-driven insights and adaptive learning capabilities enhance the accuracy of power system situational awareness and operational decision-making, while computer vision enables real-time equipment inspection and anomaly detection through image-based analysis. It is necessary to study multi-modal power data fusion mechanisms, human–machine collaboration and autonomous decision-making mechanisms in power systems, as well as automated monitoring and fault diagnosis technologies for electrical equipment.

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Deadline for manuscript submissions

20 January 2026

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/246316

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