

Special Session 5
Artificial Intelligence for Smart Grid and Sustainable Energy Systems

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Scope of the Session:

Due to the emerging technical breakthroughs on implementation platforms and well-known applications, artificial intelligence (AI) has become one of the most popular topics among numerous science and engineering research communities. Typical AI techniques such as neural networks, expert systems, fuzzy logics, and evolutionary computations have brought an advancing frontier towards various engineering applications, providing powerful tools for modelling, control, complex optimization, state estimation, and fault diagnostics in power grids and sustainable energy systems. Moreover, more interesting and practical applications on smart grids and energy systems are promising to be proposed by adopting the novel deep learning and other AI approaches and platforms.

This special session intends to bring together the state-of-the-art advances of AI approaches for solving emerging problems in smart grids and sustainable energy systems. The submissions are encouraged to focus on but not limited to neural networks, expert systems, fuzzy logics, robust computing, and evolutionary computations with the applications to smart grid scheduling, renewable generation forecasting and integration, battery modelling and charging strategy, plug-in electric vehicles and power-trains scheduling, condition monitoring and fault diagnosis for power system devices and all relevant topics. A brief list of potential submission topics is shown below:

- Cloud computing, fog computing, edge computing, Evolutionary computation applications
- Deep learning, broad learning and AI assisted applications
- Data driven based approaches
- ICT technologies
- Cyber-attack detection
- Condition monitoring and fault diagnosis for power system devices