



ICONIP 2023

November 20-23, 2023, Changsha, China

Invited Session Proposal for ICONIP2023

Title: Advanced Computational Intelligence Applications for Modelling, Optimization, Control, and Planning of Smart Grid

Description:

The smart grid is currently undergoing a transition towards a low-carbon grid, driven by the integration of distributed energy resources (DERs) and electric vehicles (EVs). However, the integration of these numerous elements has also resulted in increased complexity in terms of planning, dispatch, operation, and control for smart grid applications. Traditional methods may be inadequate when facing increasingly intractable models.

To address these challenges, there is a growing need for innovative computational intelligence algorithms specifically tailored for smart grid applications. This special session aims to gather high-quality research papers for various aspects of smart grid applications. The goal is to advance the state-of-the-art smart grid technology and enable more efficient, reliable, and sustainable energy management systems.

Topics include (but are not restricted to):

- Reinforcement learning Intelligent optimization techniques for smart grid planning, dispatch, operation, and control.
- Machine learning algorithms for load forecasting, demand response and energy scheduling in smart grids.
- Advanced optimization methods for EV management and charging dispatch.
- Big data analytics and data mining techniques for extracting insights from smart grid data.
- Artificial intelligence methods for fault detection, diagnosis, and self-healing in smart grids.
- Advanced optimization methods for power flow analysis and voltage control in smart grids.
- Decision support systems based on computational intelligence for smart grid planning and operation.
- Multi-agent systems and game theory approach for smart grid optimization.

Proposers:

1. Xiangyu Li, Research Associate, University of New South Wales,
xiangu.li1@unsw.edu.au
2. Zihang Qiu, Software R&D Engineer, Technology of Digital Energy,
qiuzihang0305@outlook.com