



## **ICIRA 2024 Special Session Proposal**

### **Title of the Proposal: Human-in-the-loop Hybrid-augmented Intelligence and Foundation Models in Smart Grids**

#### **Technical Outline of the Session and Topics:**

With the proposal of the "Carbon Peaking and Carbon Neutrality" goals, wind power, photovoltaics, and other new energy sources have experienced robust growth, yet they also present immense challenges to the power system, necessitating consideration of uncertainty in multiple operational scheduling and optimization control aspects. Human-in-the-loop hybrid augmented intelligence, particularly foundation models, by integrating human advanced cognitive capabilities with AI's potent data processing prowess, can ensure efficient and reliable decision-making, already demonstrating promising prospects within the power system.

In this special session, we will explore the design, implementation, and applications of human-in-the-loop hybrid-augmented intelligence and foundation models in smart grids. The special session will feature presentations and discussions on 6-10 papers and/or extended abstracts covering cutting-edge research and industry case studies. Topics for this special session include but are not limited to:

- *Human-in-the-loop hybrid-augmented intelligence and foundation models in power generation, transmission, distribution, and consumption.*
- *Human-in-the-loop hybrid-augmented intelligence and foundation models for renewable energy forecasting, especially under extreme weather conditions.*
- *Human-in-the-loop hybrid-augmented intelligence and foundation models design, algorithm implementation, and application strategies.*
- *Human-in-the-loop hybrid-augmented intelligence and foundation models platforms for power systems.*

#### **Contact details of the Session Organizers**

- *Organizer 1: Jun Zhang, Wuhan University, jun.zhang.ee@whu.edu.cn*
- *Organizer 2: Peidong Xu, Wuhan University, xupd@whu.edu.cn*