# Special Session I

## Special Session Basic Information:

| 专栏题目<br>**Session Title** | 中文：电力系统中的大数据与信息安全：挑战与前沿<br>英文：Big Data and Information Security in Power Systems: Challenges and Frontiers |
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### 专栏介绍和征稿主题
### Introduction and topics

  在新型电力系统中，随着智能电网、可再生能源和物联网技术的快速发展，电力领域正面临前所未有的机遇与挑战。如何利用大数据分析提升电力系统的效率与安全性，以及如何确保在智能电气环境中数据的隐私与安全，已成为当前研究的热点问题。本专栏旨在为研究人员和行业专家提供一个交流平台，探讨智能电气系统中的数据处理、安全管理和隐私保护的创新解决方案。

  我们诚邀与会者提交以下主题的论文，具体包括但不限于：

   1. 智能电气系统中的大数据分析，包括但不限于电气负荷预测、数据挖掘技术在智能电网中的应用；

   2. 电气系统的智能运维，包括但不限于智能电网的监测与优化，预测性维护以及自适应控制与管理技术；

   3. 信息安全与隐私保护，包括但不限于电气系统中的数据安全技术、网络安全和隐私保护方法；

  我们期待您的参与，共同推动智能电气系统领域的研究进展，促进大数据与信息安全技术的创新与应用。

  In the new power system, with the rapid development of smart grids, renewable energy, and Internet of Things (IoT) technologies, the electricity sector is facing unprecedented opportunities and challenges. How to utilize big data analytics to enhance the efficiency and safety of power systems, as well as how to ensure data privacy and security in intelligent electrical environments, has become a hot research topic. This section aims to provide a platform for researchers and industry experts to discuss innovative solutions for data processing, security management, and privacy protection in intelligent electrical systems.We cordially invite participants to submit papers on the following topics, including but not limited to:

1. Big Data Analytics in Intelligent Electrical Systems, including but not limited to electrical load forecasting and the application of data mining techniques in smart grids;
2. Intelligent Operation and Maintenance of Electrical Systems, including but not limited to monitoring and optimization of smart grids, predictive maintenance, and adaptive control and management technologies;
3. Information Security and Privacy Protection, including but not limited to data security technologies in electrical systems, network security, and privacy protection methods.

  We look forward to your participation in advancing research in the field of intelligent electrical systems and promoting innovation and application of big data and information security technologies.

## Special Session Chair(s):



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### Organizer's Brief Biography

王旭，上海交通大学副教授，博士生导师，研究方向包括电力系统运行调度，韧性电网，电力市场，人工智能在电力优化中的应用，发表高水平期刊论文 90 余篇，授权发明专利 10 余件，获 IEEE 国际会议等最佳论文奖 8 项。主持国家自然科学基金项目 3 项、国家重点研发计划国际合作项目任务、中国博士后科学基金等项目，获 2024 年中国电工技术学会科技进步一等奖、2025 年国网上海市电力公司科技进步一等奖等科研奖励。

Xu Wang, Associate Professor and Doctoral Supervisor at Shanghai Jiao Tong University, with research interests including power system operation and scheduling, resilient power grids, power markets, and the application of artificial intelligence in power optimization. Published over 90 high-level journal papers and granted more than 10 invention patents. Hosted 3 projects funded by the National Natural Science Foundation of China, international cooperation projects under the National Key R&D Program, and the China Postdoctoral Science Foundation, and won research awards such as the first prize for scientific and technological progress from the China Electrotechnical Society in 2024 and the first prize for scientific and technological progress from State Grid Shanghai Electric Power Company in 2025.

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## Organizer's Brief Biography

马慧，新疆大学软件学院副教授，硕士生导师，主要研究领域为大数据分析、智能网络运维、信息安全与隐私技术等。主持自治区高层次人才培养计划"天池英才"青年博士在研项目 1 项、主持自治区科技计划项目重点研发专项 2 项、主持国网新疆电力有限公司碳足迹研究项目 1 项，作为主要核心成员参与自然科学基金地区基金项目 1 项，授权发明专利 2 项。在国内外高质量 SCI 期刊/会议发表学术论文累计 10 余篇，如 IEEE ICASSP、IEEE Network、IEEE TNSE 等权威 IEEE 系列期刊/会议。

Ma Hui is an associate professor and master's supervisor at the School of Software, Xinjiang University. Her main research areas include big data analytics, intelligent network operation and maintenance, as well as information security and privacy technology. She is the principal investigator of one ongoing project under the "Tianchi Talent" program for high-level talent cultivation in the autonomous region, and she leads two key research and development projects under the regional science and technology plan. Additionally, she is the principal investigator of a carbon footprint research project for the State Grid Xinjiang Electric Power Company and is a core member involved in a regional fund project supported by the National Natural Science Foundation. She holds two authorized invention patents and has published more than ten academic papers in high-quality domestic and international SCI journals/conferences, including authoritative IEEE series journals/conferences such as IEEE ICASSP, IEEE Network, and IEEE TNSE.