

# Special Session XXII

## Special Session Basic Information:

### 专栏题目

### Session Title

中文：人工智能在电力工业软件中的应用

英文：Application of Artificial Intelligence in Power Industry Software

### 专栏介绍和征稿主题

### Introduction and topics

中文：国家发改委与国家能源局近日联合印发《关于推进“人工智能+”能源高质量发展的实施意见》，明确指出“持续深化机器视觉、多模态、时序预测等人工智能关键技术在能源领域的应用研究，推动人工智能与能源领域软件深度融合”。电力工业软件作为我国电力基础设施数字化智能化升级的核心载体，其对加快电力行业数字化转型、推进新型电力系统建设具有重要的战略价值。随着新型电力系统建设的不断推进，电力工业软件的应用场景与核心需求也在持续迭代演进，人工智能技术在电力工业软件的设计、研发、应用、运维等全环节的应用价值与重要性愈发凸显。在此背景下，为进一步推动电力工业软件高质量发展，探索人工智能技术在电力工业软件中的创新应用，本专题聚焦电力工业软件全生命周期各类场景，重点征集人工智能与电力工业软件深度融合的创新成果，有望为电力系统运行规划水平、助力能源转型提供有力支撑。

英文：The National Development and Reform Commission and the National Energy Administration recently jointly issued the Implementation Opinions on Promoting High-Quality Development of "AI+" Energy, explicitly stating the need to "continuously deepen applied research on key artificial intelligence technologies such as machine vision, multi-modal, and time series forecasting in the energy sector, and promote the deep integration of AI with energy sector software." As a core enabler of the digital and intelligent upgrade of China's power infrastructure, power industry software holds significant strategic value in accelerating the digital transformation of the power sector and advancing the construction of new-type power systems. With the continuous progression of new-type power system development, the application scenarios and core requirements of power industry software are constantly evolving, and the value and importance of applying AI technologies across the entire lifecycle of power industry software (including design, development, application, and operation and maintenance) are becoming increasingly prominent. Against this backdrop, to further promote the high-quality development of power industry software and explore innovative applications of AI technologies within it, this special section focuses on various scenarios throughout the full lifecycle of power industry software, with an emphasis on soliciting innovative achievements in the deep integration of AI and power industry software. This effort is expected to provide strong support for enhancing power system operation and planning capabilities and facilitating the energy transition.

#### 征稿主题

- 1.AI 在电力工业软件领域的发展趋势与前景分析；
- 2.AI 在电力工业软件产品的全生命周期管理分析；
- 3.电力工业软件的智能感知与智能决策方法；
- 4.电力工业软件的知识挖掘与知识图谱构建方法；
- 5.电力工业软件与大模型技术的协同方法；
- 6.人-电力工业软件的交互设计与用户体验；
- 7.电力工业软件的可信及可解释 AI 技术；
- 8.AI 在电力工业软件领域典型案例与示范经验；
- 9.AI 电力工业软件在优化调度、故障诊断等领域的应用；

#### Topics:

1. Analysis of development trends and prospects of AI in the field of power industry software;
2. Analysis of AI in full lifecycle management of power industry software products;
3. Intelligent perception and intelligent decision-making methods for power industry software;

4. Knowledge mining and knowledge graph construction methods for power industry software;
5. Collaboration methods between power industry software and large model technologies;
6. Human-power industry software interaction design and user experience;
7. Trustworthy and Explainable AI Technology for Power Industry Software;
8. Typical cases and demonstration experiences of AI in the field of power industry software;
9. Applications of AI power industry software in areas such as optimal scheduling and fault diagnosis.

## Special Session Chair(s):

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## Organizer's Brief Biography

中文：窦嘉铭，男，河北石家庄人，IEEE/CIGRE/CES/CSEE 学生会员，北京交通大学电气工程博士在读，首批中国科协青年人才托举工程博士生计划（现青培工程）入选者，主要从事电力可信智能决策、电力系统科学智算、电力智能化转型等方向的研究。近年参与国家自然科学基金、国网总部科技项目等项目 10 余项，主持校级课题 2 项。以第一/通讯作者在中国电机工程学报、电力系统自动化、IEEE TIA 等期刊会议上发表/录用论文 17 篇，专利授权/受理 9 项。兼任 IEEE TII、IJEPES、电力系统自动化等期刊会议审稿专家，获电力系统自动化期刊优秀审稿专家（2024 年、2025 年）。

英文：Jiaming Dou, male, from Shijiazhuang, Hebei Province, is a student member of IEEE, CIGRE, CES, and CSEE. He is currently pursuing a Ph.D. in Electrical Engineering at Beijing Jiaotong University and is among the first batch of recipients of the Young Elite Scientist Sponsorship Program (Doctoral Program) of the China Association for Science and Technology, now known as the Youth Training Project. His research primarily focuses on trustworthy AI decision-making in power systems, AI4S in power systems, and the intelligent transformation of energy and power systems. In recent years, he has participated in over ten projects, including those funded by the National Natural Science Foundation of China and science and technology projects at the headquarters of State Grid Corporation, and have led two university-level research projects. He has published/been accepted for 17 papers as the first/corresponding author in journals and conferences such as the Proceedings of the CSEE, Automation of Electric Power Systems, and IEEE TIA. He holds 9 granted/filed patents. He also serves as a reviewer for journals and conferences including IEEE TII, IJEPES, and Automation of Electric Power Systems, and has been recognized as an Outstanding Reviewer for Automation of Electric Power Systems (2024, 2025).

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中文：李再男博士，助理研究员，主要研究方向为柔性直流输电控制与保护、新能源电力系统控制与保护研究。已在 IEEE 汇刊、中国电机工程学报等 SCI/EI 期刊以第一作者/通讯作者身份发表论文 16 篇，获授权发明专利 5 项，担任 IEEE TIE、TSE、TPD 等国际权威期刊审稿人，曾获国家电网省部级二等奖、日内瓦国际发明展览会金奖。

英文：Li Zainan, Ph.D, Assistant research, his main interests are flexible DC transmission control and protection research, and renewable energy power system control and protection research. He has published 16 papers as the first author/corresponding author in SCI/EI journals such as IEEE and Proceedings of the CSEE. He has granted 5 invention patents, and is a reviewer of international authoritative journals such as IEEE TIE, TSE, and TPD, etc. He was awarded the Second Prize of the State Grid Provincial and Ministerial Levels and the Gold Prize of the Geneva International Invention Exhibition.



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英文：Bin Yang is a Tenure-track Associate Professor and Master's Supervisor at Hebei University of Technology. He is recognized as a "Yuanguang Scholar" and a member of the State Key Laboratory of Reliability and Intelligence of Electrical Equipment. He also serves as the Deputy Secretary-General of the Hebei Provincial Society of Electrotechnics. His research primarily focuses on AI applications in distribution networks, protection and control technologies for modern distribution systems, and grid-forming (GFM) converter control. He has authored over 10 papers as the first/corresponding author in prestigious journals and conferences, including IEEE Transactions on Smart Grid, IEEE Transactions on Industrial Informatics, Automation of Electric Power Systems (in Chinese), and CSEE Journal of Power and Energy Systems. He also holds or has filed more than 10 patents. In addition to his research, he serves as a reviewer for journals such as IEEE TSG, IEEE TII, and IJEPES. His work is supported by several funding bodies, including a sub-project of the Smart Grid-National Science and Technology Major Project, the National Natural Science Foundation of China, the National Natural Science Foundation of Hebei Provin, and the S&T Program of Shijiazhuang.