Special Session I

Special Session Basic Information:

Session Title	AI-Enabled New Paradigms in Software Engineering

Introduction and topics

Artificial intelligence (AI) is profoundly transforming traditional paradigms of software engineering, with intelligent solutions emerging across the entire lifecycle from requirements definition to system operation. This track focuses on innovative applications and practical explorations of AI in software engineering, aiming to build a platform for academic and industrial exchanges. It explores how AI technologies—such as machine learning, natural language processing, and knowledge graphs—can enhance the efficiency, quality, and maintainability of software development. Topics of interest include LLM-based automated code generation, intelligent testing, defect prediction, and automated modeling in requirements analysis. We welcome contributions from multiple dimensions, including theoretical research, technical tools, and practical cases, to collectively promote the deep integration of AI and software engineering and explore new intelligent pathways for future software development.

- Applications and optimizations of Large Language Models (LLMs) in code generation, completion, and refactoring
- AI-driven automated test generation, defect detection, and intelligent debugging techniques
- Intelligent requirements engineering: natural language requirement parsing, scenario modeling, and conflict detection
- AI support for software maintenance and evolution: legacy system refactoring, dependency analysis, and adaptive operation
- Software quality assurance: AI-based reliability prediction, security assessment, and interpretability research
- Integration and application of AI technologies in low-code/no-code platforms
- AI-enabled software engineering solutions for domain-specific systems (e.g., embedded, distributed, safety-critical systems)
- Construction of AI-assisted software development toolchains and open-source ecosystem practices
- Ethical risks of AI models in software engineering (data bias, intellectual property, trustworthiness) and mitigation strategies
- Innovative applications of cross-modal technologies (code-document, image-text fusion) in software development

Special Session Chair(s):

Name	Hongping Gan
Prefix	Dr.
Department	School of Software
Organization	Northwestern Polytechnical University
City/Region	China Xi'an

Organizer's Brief Biography

Hongping Gan received his Ph.D. degree in Communication and Information Engineering from the State Key Laboratory of ISN, Xidian University, Xi'an, China, in 2020. From 2018 to 2019, sponsored by the China Scholarship Council, he worked as a visiting scholar at the School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, Australia. He is currently a Tenured Associate Professor and Researcher at the School of Software, Northwestern Polytechnical University. His research interests include deep learning, image processing, and intelligent software engineering. He has published over 50 high-quality papers in internationally renowned journals and conferences, such as IEEE TIP, CVPR, and ICCV.