



IEEE Conference on Industrial Cyber-Physical Systems (ICPS)

Perth, Australia, 11-14 May 2026

<https://icps2026.ieee-ies.org/>

Proposal for an ICPS 2026 Special Session

- **Title of the proposed Special Session:**

Resilient Industrial Cyber-Physical Systems under Extreme and Uncertain Conditions

- **Names, photos, very short bios, and emails of the organizers:**

Organizer 1: Yanyan Yin, yanyan.yin@curtin.edu.au



Dr Yanyan Yin is IEEE Senior Member, she received her PhD from Curtin University in 2013 and she is a Senior Lecturer with the School of EECMS, Curtin University. Her current research interests include modern power system stability, power system protection and substation automation, artificial intelligence methods, and smart grid control.

URL of Google Scholar: <https://scholar.google.com/citations?user=E1uqd-0AAAAJ&hl=zh-CN>

Organizer 2: Ge Guo guoge@qhd.neu.edu.cn



Ge Guo (Senior Member, IEEE) received the B.S. degree and PhD degree from Northeastern University, Shenyang, China, in 1994 and 1998, respectively. From May 2000 to April 2005, he was with Lanzhou University of Technology, as a Professor and the director of the Institute of Intelligent Control and Robots. He then joined Dalian Maritime University, as a Professor with the Department of Automation. Since 2018, He has been a Professor with Northeastern University (NEU) and the director of the Center of Intelligent Transportation Systems of NEU. He has published over 200 international journal papers within his areas of interest, which include intelligent transportation systems, cyber-physical systems, etc. Dr. Guo is an Associate Editor of the IEEE Transactions on Intelligent Transportation Systems, the IEEE Transactions on Intelligent Vehicles, the Information

Sciences, the IEEE Intelligent Transportation Systems Magazine, the ACTA Automatica Sinica, the China Journal of Highway and Transport and the Journal of Control and Decision. He won a series of awards including the CAA Young Scientist Award, the First Prize of Natural Science Award of Hebei Province, the first Prize of Science and Technology Progress Award of Gansu Province, etc.

<https://scholar.google.com/citations?user=k-IqDXIAAAAJ&hl=zh-CN>

Organizer 3: Yanqing Liu yanqing.liu@curtin.edu.au



Dr Yanqing Liu is a Lecturer with School of EECMS, Curtin University. His current research interests include the application of deep learning and reinforcement learning in industrial systems, particularly in power systems and substation automation and protection. His work also focuses on advanced model predictive control (MPC) as well as optimization techniques for large-scale dynamic system operation, and energy management.

https://scholar.google.com/citations?hl=zh-CN&user=pqWajJsAAAAJ&sortby=pubdate&view_op=list_works&gmla=AF9nlQsJCTzgvyc9v021F1WxXcF_1zhIdO3V-i47sP8-83JnVaMDzhAy8-mp9SmlOfEyhf6ew8IbT7xzH643k6qMGj5yPqelxK78Zmz-Cx9jzPGXFam

Include a paragraph per organizer with CV info incl. publication record (URL of Google Scholar/IEEE or personal website with publications)

- **Technical outline and topics of the special session:**

Outline (up to 100 words):

Industrial Cyber-Physical Systems (ICPS) are increasingly deployed in safety-critical and infrastructure-intensive domains such as smart energy systems, advanced manufacturing, intelligent transportation networks, and industrial automation. These systems operate under tightly coupled cyber-physical interactions, where communication networks, embedded intelligence, and physical processes must function cohesently in real time.

However, ICPS are now facing unprecedented challenges due to: extreme environmental events (grid disturbances, high penetration of renewable, cyber threats and incomplete system observability). This special session aims to bring together researchers and practitioners working on resilient control, secure communication and system-level robustness in industrial cyber-physical systems operating under extreme and uncertain conditions.

Topics:

- Resilient ICPS architectures under extreme events
- Resilient control for ICPS
- Deterministic communication for resilient ICPS
- Resilient smart grids and intelligent transportation

- Learning-based resilience enhancement for ICPS
- Resilient substation automation

- **Technical track(s) with similar topics (clearly point out difference to the Track scope)**

The existing session SS5 primarily centers on methodological advancements in monitoring, distributed intelligence, and control algorithms for networked CPS. In contrast, this proposed special session emphasizes system-level and infrastructure-oriented resilience in industrial cyber-physical systems operating under extreme and uncertain environments. This session targets broader architectural design principles, cross-layer resilience strategies, large-scale industrial deployment challenges, and infrastructure robustness under extreme events such as natural disasters, renewable intermittency, and high-impact disturbances. Furthermore, this session explicitly focuses on industrial applications and critical infrastructures, including smart grids, manufacturing systems, transportation networks, and large-scale energy systems.

- **IES Technical Committees supporting the special session (if any)**

- **At least 6 potential initial contributing authors (names, affiliations and institutional emails):**

Yueyuan Zhang, Soochow University, zhangyueyuan@suda.edu.cn
Nobuhiko Kobayashi, Electrical engineer, nobuhiko.kobayashi@graduate.curtin.edu.au
Boyu Mi, School of EECMS, Curtin University, boyu.mi@postgrad.curtin.edu.au
Liqiang Jin, Changzhou University, liqiang.jin@cczu.edu.cn
Peng Cheng, Inner Mongolia Minzu University, cpjiayou@163.com
Shenping Xiao, Hunan University of Technology, xsph_519@163.com

- **At least 10 potential reviewers (names, affiliations and emails):**

Haoyu Yang, Curtin University, haoyu.yang1@postgrad.curtin.edu.au
Hongbing Zeng, Hunan University of Technology, zenghongbing@hut.edu.cn
Chongyang Liu, Yantai Normal University, liu_chongyang@yahoo.com
Xiangkai Sun, Chongqing Technology and Business University, sunxk@ctbu.edu.cn
Weidi Cheng, Murdoch University, Weidi.Cheng@murdoch.edu.au
Feng Tian, Anhui University, fengtian_ahu@163.com
Chengcheng Ren, Anhui University, chengcheng_ren@ahu.edu.cn
Shang Liu, Northeastern University, drliushang@gmail.com
Tianyu Sun, University of Technology Sydney, sun1tian2yu3@163.com
Jiageng Liu, Shenyang Ligong University, liu331453318@163.com

- The proposers have read and adhere to the overall IEEE IES Special session conditions as shown on the website https://icps2026.ieee-ies.org/for_authors/index.html#call-for-special-sessions: YES / NO