# 2026 第九届 IEEE 国际无人系统大会
# 特邀专题简介表

**特邀专题名称**

信息丰富时代下的分布式控制与决策

**组织者**

1.温广辉，教授，东南大学

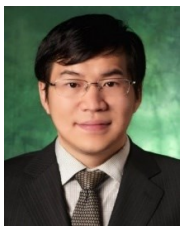
2.杨涛，教授，东北大学

3.赵丹，助理研究员，东南大学

4.周艳，助理研究员，东南大学

**个人简介**

**温广辉**，东南大学首席教授，博士生导师，国家杰出青年科学基金获得者，IET Fellow。2012 年获北京大学力学系统与控制专业博士学位，长期从事网络群体智能理论与技术、分布式控制与优化、弹性协同控制和分布式强化学习等领域的研究工作。在 Nature Reviews Electrical Engineering、Research、The Innovation 和 IEEE 汇刊发表学术论文 200 余篇，出版学术专著 4 部，获国际学术期刊最佳论文奖 1 次、国内外学术会议最佳论文奖 4 次。任中国指挥与控制学会副秘书长、中国指挥与控制学会青年工作委员会副主任；主持国家杰青项目、优青项目，国家自然基金联合重点项目、科技部重点研发计划项目课题等 30 余项科研项目。获中国青年科技奖，ARC Decra Fellow、中国指挥与控制学会青年科学家奖等荣誉称号。



**杨涛**，东北大学教授，博士生导师，国家青年高层次人才。2012 年获美国华盛顿州立大学博士学位，长期从事工业人工智能、智能优化与控制一体化、信息物理系统、分布式协同控制和优化等领域的研究工作。在 IEEE 汇刊和 Automatica 发表学术论文 40 余篇。获美国橡树岭大学联盟 Ralph E Powe 青年教授奖、高等教育(研究生)国家级教学成果二等奖（4/5）、辽宁省研究生教学成果特等奖（4/5）、中国自动化学会自然科学二等奖（1/5）；三次获国际会议最佳论文奖、最佳学生论文奖。主持国家自然基金重点项目、重大项目课题、国家重点研发计划课题等科研项目。任《自动化学报》副主编、《控制工程》副主编、IEEE TCST、IEEE

TCNS、IEEE TNNLS 等期刊编委。

**赵丹**，东南大学副研究员，入选科协青年托举工程，获中国博士后站前特别资助、江苏省卓越博士后资助。主要研究方向为网络群体系统攻击隔离与弹性控制，在 IEEE 汇刊等期刊发表 SCI 论文 12 篇，其中系统与控制领域国际顶级期刊 IEEE TAC 和 Automatica 3 篇，授权发明专利 5 项，申请发明专利 10 项。主持国家自然科学基金项目 1 项、JKW 主题项目 3 项。获中国指挥与控制学会技术发明一等奖（排 2），2023 年日内瓦国际发明展金奖，2023 年 IEEE ICUS 最佳论文奖。

**周艳**，东南大学助理研究员,入选国家资助博士后计划、江苏省卓越博士后计划，中国指挥与控制学会博士学位论文激励计划。主要从事分布式控制、最优控制、学习控制、安全控制等领域的研究工作。在 IEEE 汇刊和 Automatica 等国际期刊和 EI 会议上发表学术论文 25 篇，授权专利 2 项。主持国自然青年科学基金、江苏省青年基金等科研项目。获得中国仿真学会创新技术一等奖（排 13）1 项，IEEE ICUS 最佳论文奖 2 项。

**特邀专题简介**

随着泛在感知、高速通信与分布式计算技术的融合演进，人类社会已进入以数据泛在化、网络全域化、交互实时化为特征的全面信息丰富时代。物理实体与数字空间通过物联网、边缘计算等平台深度耦合，构建起了全天候、全覆盖的数据感知与协同网络，推动着控制与决策科学的基础范式从“集中式、机理驱动”向“分布式、数据与机理混合驱动”的深刻变革。与此同时，系统规模扩张与数据复杂度的急剧增长，也使得通信资源受限、决策实时性衰减、分布式协同机理不明等核心科学问题日益凸显，严重制约了高端装备、智能制造等国家重大需求领域向高自主、高可靠、可重构方向的跨越发展。 因此，探索信息丰富环境下分布式控制与智能决策的新理论、新方法，已成为推动新一代信息技术与实体经济深度融合、保障关键系统自主可控的前沿课题。

本特邀专题邀请以下与“信息丰富时代下的分布式控制与决策”主题相关的包含创新思想、概念、新发现、改进以及新应用的原创论文。

- 无人集群系统跨域协同技术
- 安全监测与弹性控制
- 可信协调决策
- 分布式强化学习理论与应用
- 机器学习与分布式决策
- 分布式学习的隐私与安全
- 高效通信技术
- 博弈环境下的协同控制与决策

# IEEE ICUS 2026
## Invited Session Summary

**Title of Session**

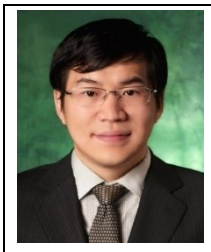
Distributed Control and Decision in an Information-Rich World

**Organizers**

**1. Prof. Guanghui Wen**
Southeast University, China
**2. Prof. Tao Yang**
Northeastern University, China
**3. Dr. Dan Zhao**
Southeast University, China
**4. Dr. Yan Zhou**
Southeast University, China

**Biosketches of Organizers**

**Guanghui Wen** is a Chief Professor and Doctoral Supervisor of Southeast University, a recipient of the National Science Fund for Distinguished Young Scholars, an IET Fellow. He received the Ph.D. degree in mechanical systems and control from Peking University, Beijing, China, in 2012. He has been engaged in long-term research in the fields of analysis and synthesis of complex networks, distributed control and optimization, resilient control, and distributed reinforcement learning. He has published over 200 academic papers in prestigious journals, including Nature Reviews Electrical Engineering, Research, The Innovation, and various IEEE Transactions. He has authored four academic monographs and received one Best Paper Award from an international academic journal and four Best Paper Awards from domestic and international conferences. Prof. Wen currently serves as the Deputy Secretary-General of the Chinese Institute of Command and Control and the Deputy Director of its Youth Working Committee. He has led over 30 major research projects, including projects funded by the National Science Fund for Distinguished Young Scholars of China, the Excellent Young Scientists Fund of China, the Key Joint Funds of the National Natural Science Foundation of China, and key projects of the Ministry of Science and Technology, China. His honors include the China Youth Science and Technology Award, ARC Decra Fellow, and the Young Scientist Award from the Chinese Institute of Command and Control.



**Tao Yang** is a Professor and Doctoral Supervisor at Northeastern University, and a recipient of the Candidates of national youth talent program. He received the Ph.D. degree from Washington State University in 2012. His research focuses on industrial artificial intelligence, integrated intelligent optimization and control, cyber-physical systems, and distributed control and optimization. He has published more than 40 academic papers in Top-tier journals such as IEEE Trans. and Automatica. In 2018, he received the Ralph E. Powe Junior Faculty Enhancement Award from the Oak Ridge Associated Universities (ORAU). In 2022, he was awarded the Second Prize in the National Teaching Achievement Award (Postgraduate Education) (Ranked 4/5) and the Special Prize in Liaoning Province Graduate Teaching Achievement Awards (Ranked 4/5). In 2023, he received the Second Prize of the Natural Science Award from the Chinese Association of Automation (CAA) (Ranked 1/5). Additionally, he has won three Best Paper Awards and Best Student Paper Awards at international conferences. Prof. Yang has led several major research projects, including key projects funded by the State Key Program of National Natural Science of China, the Major Program of National Natural Science of China, National Key Research and Development Program of China. Currently, he serves as an Associate Editor for IEEE/CAA Journal of Automatica Sinica and Control Engineering of China, and a member of the editorial boards for journals including IEEE TCST, IEEE TCNS, and IEEE TNNLS.

**Dan Zhao** is an Associate Researcher at Southeast University, selected for the Young Elite Scientists Sponsorship Program by CAST, China Postdoctoral Science Foundation, Jiangsu Funding Program for Excellent Postdoctoral Talent. Her primary research interests focus on attack isolation and resilient control of networked multi-agent systems. She has published 12 SCI-indexed papers in journals including IEEE Transactions, with three appearing in the top-tier international journals of systems and control: IEEE TAC and Automatica. She holds five authorized invention patents and has ten more applications pending. She is leading one project funded by the National Natural Science Foundation of China and three thematic projects supported by JKW. Her notable recognitions include the First Prize for Technological Invention from the CICC (ranked second), a Gold Medal at the 2023 Geneva International Exhibition of Inventions, and the Best Paper Award at the 2023 IEEE ICUS.

**Yan Zhou** is an Assistant Researcher at Southeast University, selected for the Postdoctoral Fellowship Program of CPSF, Jiangsu Funding Program for Excellent Postdoctoral Talent, and the CICC Doctoral Dissertation Incentive Program. Her research focuses on distributed control, optimal control, learning-based control, and security control. She has published 25 papers in international journals and EI-indexed conferences such as IEEE Transactions and Automatica, and holds 2 authorized patents. She has led research projects such as National Natural Science Foundation of China and the Funded by Basic Research Program of Jiangsu. She is a recipient of the First Prize in Technological Innovation from CSF (Ranked 13) and has twice received the Best Paper Award at IEEE ICUS.

**Details of Session**

With the integrated evolution of ubiquitous sensing, high-speed communication, and distributed computing technologies, human society has stepped into a comprehensive information-rich world characterized by data ubiquity, full-domain networking, and real-time interaction. Physical entities and digital spaces are deeply coupled through platforms such as the Internet of Things and edge computing, creating an around-the-clock, all-encompassing data perception and collaborative network. This is driving a profound paradigm shift in the science of control and decision from a “centralized, mechanism-driven” approach toward a “distributed, data-mechanism hybrid-driven” one. At the same time, the rapid expansion of system scale and the sharp increase in data complexity have brought to the forefront core scientific challenges, such as limited communication resources, declining real-time decision-making capability, and unclear mechanisms for distributed coordination. These challenges severely constrain the leapfrog development of high-end equipment, smart manufacturing, and other major national strategic domains toward higher autonomy, reliability, and reconfigurability. Therefore, exploring new theories and methods for distributed control and intelligent decision in an information-rich environment has become a cutting-edge research topic, crucial for promoting the deep integration of new-generation information technology and the real economy, as well as for ensuring the autonomy and controllability of critical systems.

This Invited Session calls for original papers on the theme of "Distributed Control and Decision in an Information-Rich World", contributing innovative ideas, novel concepts, new discoveries, methodological improvements, and emerging applications.

- Cross-Domain Cooperative Technology of Unmanned Swarm Systems
- Security Monitoring and Resilient Control

- Trustworthy Coordination Decision
- Theory and Applications of Distributed Reinforcement Learning
- Machine Learning and Distributed Decision
- Privacy and Security in Distributed Learning
- Efficient communication technology
- Cooperative Control and Decision in Adversarial Environments