

IEEE Transactions on Systems, Man, and Cybernetics: Systems Focused Section on “Frontiers of Systems Science and Intelligent Systems: Comprehensive Reviews on Theory, Technologies, and Socio-Technical Integration”

IEEE Transactions on Systems, Man, and Cybernetics: Systems (IEEE TSMC-S) invites original review papers for a Focused Section on the frontiers of systems science and intelligent systems. This focused section is designed as an all-review collection (original research manuscripts will not be considered) to synthesize cutting-edge progress, identify knowledge gaps, and guide future research directions across the core interdisciplinary domains of IEEE TSMC-S.

Systems science and intelligent systems, including artificial intelligence (AI), autonomous technologies, and human-machine interaction, have become fundamental to shaping our global socio-technical landscape. However, research in these areas is often fragmented across multiple domains, each with its own theoretical foundations and technological approaches. A comprehensive review collection is needed to synthesize the diverse strands of research, bridging knowledge gaps and highlighting critical interdisciplinary synergies. This will provide the community with a consolidated understanding of the current state of the art, while guiding future research by identifying unresolved challenges and emerging opportunities.

As intelligent systems become increasingly embedded within societal structures, their integration introduces significant ethical, social, and technical challenges. The widespread deployment of autonomous systems, AI-driven decision-making, and smart infrastructures raises fundamental questions related to trust, fairness, transparency, privacy, and broader societal impact. This focused section aims to address these issues by providing a platform for rigorous and critical discourse on how intelligent technologies should be designed, governed, and integrated in ways that prioritize human values and societal well-being. By synthesizing both theoretical advances and real-world applications, this collection will serve as a valuable resource for researchers, practitioners, and policymakers, supporting the responsible, equitable, and sustainable evolution of systems science and intelligent technologies.

This focused section will focus on (but not limited to) the following topics:

- Foundational Theories for Intelligent Systems: Synthesizing Advances in Systemic Decision-Making, Optimization, and Adaptive Control.
- Trustworthy Autonomous Systems: A Holistic Review of Integrated Control, Safety Assurance, and Ethical Governance Across the Lifecycle.
- Human-Centric AI and Collaborative Systems: Emerging Paradigms, Performance Metrics, and Socio-Technical Impacts.
- Resilience and Security in Cyber-Physical and Networked Systems: From Component Robustness to Systemic Interdependency Management.
- AI-Enhanced Systems Engineering: A Review of Data-Driven Modeling, Simulation, and Optimization for Complex System Design and Evolution.
- Systems Approaches to Global Challenges: Architecting and Managing Smart Cities, Healthcare Networks, and Climate-Resilient Infrastructures.
- Digital Twins as a Unifying Framework for System Lifecycle Management: From Virtual Design to Predictive Maintenance and Adaptive Evolution.
- Governance, Ethics, and Social Responsibility in Intelligent Cyber-Physical Systems: Frameworks for Value-Sensitive Design and Policy Integration.

Manuscript Preparation and Submission:

Only comprehensive review papers will be considered for this focused section. Paper must be prepared in accordance with IEEE Transactions on Systems, Man, and Cybernetics: Systems standards. Instructions for authors are available online at: <https://www.ieeesmc.org/publications/transactions-on-smc-systems/information-for-authors>. Length should be no more than 18 pages. Manuscripts should be submitted through the online submission service available at: <https://mc.manuscriptcentral.com/systems>. When submitting, select the manuscript type as “**Focused Section: Frontiers of Systems Science and Intelligent Systems**”. All manuscripts will be subjected to peer review process.

Important Dates:

- Paper submission: June 1, 2026
- The first round of review: Aug 1, 2026
- Revised manuscript submission: Sep 1, 2026
- Expected publication date: Dec 1, 2026

Guest Editors:

Zidong Wang, Brunel University of London, London UB83PH, United Kingdom, Email: zidong.wang@brunel.ac.uk

Jing Liang, Henan Institute of Technology, Xinxiang 453003, China, Email: liangjing@zzu.edu.cn

Imre J. Rudas, Óbuda University, Budapest 1034, Hungary, Email: rudas@uni-obuda.hu

Chenping Hou, National University of Defense Technology, Chagnsha 410073, China, Email: hcpnudet@hotmail.com