Special Issue on
"*Advances in Cyber-Medical Systems*"
IEEE Transactions on Systems, Man, and Cybernetics: Systems

The *IEEE Transactions on Systems, Man, and Cybernetics: Systems* calls for research paper submissions for consideration in the Special Issue publication featuring the recent advances in cyber-medical systems. Unpublished original contributions from prospective authors are invited for consideration in the special issue, subject to blind reviews, with the main focus on new theories and technologies for improving the performance of cyber-medical technologies for healthcare optimization. Comprehensive case studies and in-depth review papers will also be considered.

The continuously developing field of cyber-medical systems integrates advanced computational technologies, control engineering, mathematics, and medical sciences to optimize healthcare processes, enhance diagnostics, and personalize treatments. These systems are transforming traditional medical practices by incorporating various advanced technologies, such as cybernetics, artificial intelligence (AI), and cyber-physical systems (CPS). Their application enables the development of intelligent, adaptive, personalized, and robust healthcare solutions aimed at improving patient outcomes, safety, and overall system efficiency.

Despite the promising advancements, the increasing complexity, interdisciplinary nature, and safety-critical applications of cyber-medical systems pose significant challenges in design, implementation, and validation. This special issue aims to address these challenges by promoting innovative research in the modeling, analysis, control, and optimization of cyber-medical systems. We invite contributions that explore and develop novel computational techniques, theoretical frameworks, and experimental applications to advance the performance, safety, and adaptability of cyber-medical technologies.

This special issue will focus on (but not limited to) the following topics:

- Modeling and control of cyber-medical systems, including multi-scale and hybrid approaches.
- Algorithm-assisted personalized medicine and treatment optimization.
- Medical Cyber-Physical Systems (MCPS) for real-time monitoring and intervention.
- Advanced decision-support systems for medical diagnostics and therapy.
- Verification, validation, and safety assurance in cyber-medical applications.
- Internet of Medical Things (IoMT) and intelligent medical devices.
- Robust control, adaptive control, and predictive control in healthcare applications.
- Privacy, security, and trust in cyber-medical systems.
- Virtual and augmented reality applications in medical training and rehabilitation.

Important Dates

- Paper submission deadline: December 1st, 2025 - February 15, 2026
- The first-round review: December 1st, 2025 - March 1st, 2026
- Publication date (tentative):   June 2026

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Paper Submission

All papers are to be submitted through the IEEE's **Manuscript Central** for IEEE Transactions on Systems, Man, and Cybernetics: Systems https://mc.manuscriptcentral.com/systems. Please select the "Special Issue" under Manuscript Category of your submission. All manuscripts must be prepared according to the IEEE Transactions on Systems, Man, and Cybernetics: Systems publication guidelines.