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Title: Advances in Intelligent and Cyber-Enabled Systems for Industrial and Healthcare Transformation: Trends, Challenges and Opportunities

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Motivation and Relevance:

The integration of intelligent technologies such as artificial intelligence (AI), machine learning (ML), digital twin (DT), Internet of Things (IoT), blockchain and immersive technologies (VR/AR), to autonomous and robotic systems, is significantly transforming the industrial and healthcare environments. As these systems get increasingly interconnected and cyber-enabled, they unlock opportunities for improved efficiency, scalability, resilience, predictive decision-making, personalized services, and sustainable development. This progress introduces new complexities related to cybersecurity, ethical governance, data integrity, and responsible AI deployment, particularly as robots and intelligent systems become deeply embedded in cyberspace and collaborate directly with humans in critical contexts.

In healthcare, intelligent and cyber-enabled systems are reshaping personalized diagnosis and treatment, rehabilitation, and patient monitoring. AI-driven analytics, wearable technologies, and remote care platforms enable earlier interventions, personalized therapies, and improved resource optimization, enhancing clinical outcomes while reducing systemic burden. In industry, smart automation, predictive maintenance, digital twins, and autonomous systems enable higher productivity, energy efficiency, and reduced environmental impact, supporting the transition to resilient and sustainable industrial operations. As these technologies expand, it is necessary to ensure confidentiality, ethical utilization, and cybersecurity, necessitating rigorous standards and interdisciplinary cooperation.

This special session aims to bring together researchers, practitioners, and industry leaders to explore emerging trends, key challenges, and transformative opportunities arising from intelligent and cyber-enabled systems. The session aims to promote a comprehensive awareness of how technology breakthroughs, together with their ethical, societal, and security ramifications, can responsibly enhance innovation in industrial and healthcare sectors. This discussion sustains the creation of future, secure, and human-centered intelligent solutions that align technical advancement with societal welfare.