IEEE Transactions on Industrial Cyber-Physical Systems

CALL FOR PAPERS

for Special Collection on

"The emergence of the industrial metaverse"

Theme: The concept of the metaverse has gained significant attention in recent years. Often portrayed in science fiction as virtual worlds where people can seamlessly interact and engage with each other and computer-generated environments, the metaverse has transcended its fictional origins and is rapidly becoming a tangible reality. While the metaverse has predominantly been associated with entertainment, socializing, and gaming, an emerging trend is poised to revolutionize industries worldwide — the emergence of the industrial metaverse reaching more and more adequate technological and societal readiness levels. The importance of this topic lies in its potential to reshape how industries operate, innovate, and collaborate. By harnessing the power of the industrial metaverse, companies can create immersive virtual workspaces, facilitate remote collaboration, streamline complex processes, enhance training and simulation, and optimize productivity. Moreover, the industrial metaverse has the potential to democratize access to knowledge and expertise, breaking down geographical barriers and enabling global participation. This special collection aims to provide a comprehensive understanding of the industrial metaverse's emergence and its potential impact on industries, considering its multidisciplinary nature and real-world relevance. It also aims to shed light on the significance and potential impact of the industrial metaverse on a broad audience. It will also bridge knowledge gaps by exploring the industrial metaverse through an applications-oriented approach. By focusing on practical use cases and real-world applications, it is aimed to provide a comprehensive understanding of how the industrial metaverse can be harnessed to address challenges, seize opportunities, and drive innovation across a wide range of industries.

Topics include, but are not limited to, the following research topics and technologies:

- Immersive virtual workspaces for industrial design and engineering
- Human-machine interaction and collaboration within the industrial metaverse
- Industrial metaverse for realistic simulation and training
- Digital twin technology that enables real-time supervision, predictive maintenance, and performance optimization
- Evaluation and countermeasures of the security and privacy challenges
- Sustainable and eco-friendly practices introducing metaverse features in industries
- Industry-specific applications: In-depth analysis of the application of the industrial metaverse in specific industries, such as automotive, healthcare, manufacturing, logistics, energy, transportation, and construction

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Tentative timeline:

Submission of papers: October 2023; December 2023, and February 2024