The 7th IEEE International Conference on Industrial Cyber-Physical Systems (ICPS)

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Proposal on Special Issue: *Tools and Methodologies for Real-time CPS Test Bed* and *Implementation*

Theme:

Recent advancement in sensing, communication, information processing, and control have led to confront a radical paradigm shift of all sectors of applications; energy, transportation, manufacturing, homes, unmanned aerial vehicle, maritime, health system and many more, evolving as cyber-physical system (CPS). As an example, principles of CPS are well-known in the form of “smart grids”, “smart water grids”, “precision farming”, “smart homes”, “smart manufacturing”.

Real-time and in-situ data acquisition should offer better tools to improve decision making process. There is great potential to revolutionize the management of all applications via CPS with development of powerful tool. Computing technologies offer a wide range of tools and methodologies to understand, address and communicate respective areas on sustainability challenges.

The real world applications requires demonstration of design, methodologies and ideas, with results obtained on test-beds. On one hand, test-beds provides a platform for multi-user experience, while on other hand, gives confidence to researchers on verification of numerous domains of CPS.

This special collection is emphasized to include multidisciplinary nature of emerging topics out of CPS, covering both theoretical, design and implementation, while also providing insights on existing deployments that can serve as design examples for some new applications. The high-quality submissions needs to explore new directions in the design, development of novel theories, methodologies, analysis, experimental evaluations, tools, and case studies demonstrated on CPS test-bed (hardware-in-loop test).

The theme of proposed special session is linked to IEEE IES technical committee on Industrial Cyber-Physical Systems.

Topics for this special issue include CPS demonstration on test bed (in various applications), but not limited to followings:

- Design for digital representations, future CPS with more sustainability and resiliency
- Multilayer CPS supervision framework
- CPS integration- interoperability among subsystems
- Real-time techniques for data collection, automated impact evaluation and supporting communication network for data share
- Tools development and techniques based on different theories; cognitive, big data, machine learning, collaborative learning, fog computing etc.
- Cyber security in different applications
- Communication network for CPS operation in terms of reliability, security and resiliency.
- Case studies demonstrating the reliability and sustainability of a given application in CPS implementation
- Human-robot interaction for end-users.

Deadline for manuscript submissions: Please refer to https://icps2024.ieee-ies.org

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