



Call for Papers

SS10 – Edge-to-Cloud Data-driven Distributed Industrial Cyber Physical Systems

Organized and Chaired by

Udayanto Dwi Atmojo¹, Rui Pinto², Valeriy Vyatkin³, Pouria Sayyad Khodashenas⁴

¹Dept. of Electrical Engineering and Automation, Aalto University, Finland, udayanto.atmojo(at)aalto.fi

²FEUP University of Porto, Portugal, Rui Pinto rpinto(at)fe.up.pt

³Dept. of Electrical Engineering and Automation, Aalto University, Finland, valeriy.vyatkin(at)aalto.fi

⁴Huawei Technologies Sweden, Sweden, pouria.khodashenas(at)huawei.com

FOCUS. Cloud and edge computing provides new opportunities in exploiting industrial data and decision making within industrial cyber physical systems. For industrial sectors with high degree of safety and resilience, they require mechanisms and approaches that achieve the right balance in processing, analytics, and control/automation across cloud, edge, and IoT computing continuum to fulfill real-time, reliability, and cybersecurity requirements. As such, computing, networking (such as 5G), and data storage technologies require novel enablers to establish high-level of flexibility, data governance that facilitate trustworthy data sharing, distributed intelligence and autonomy. Increased challenges and complexity are foreseen as emerging scenarios are increasingly cross-sector.

TOPICS

Topics of interest include, **but are not limited to:**

- ❖ Trustworthy (including, but not limited to: security, privacy, safety, etc) assurance mechanisms, methods for industrial cyber physical systems
- ❖ Edge artificial intelligence / Edge AI for industrial cyber physical systems
- ❖ Zero-touch resource allocation, orchestration, network management for edge-cloud enabled industrial cyber physical systems
- ❖ Enhancements, novel middleware, deployment strategies for advanced connectivity technologies (e.g., 5G NPN, TSN integration to 5G, etc) in edge-cloud enabled industrial cyber physical systems
- ❖ Interoperability measures (e.g., semantics, data model, etc) for industrial cyber physical systems, also in cross-sector cases, e.g., Asset administration shell (AAS)
- ❖ Quantum-based algorithms, communications, methods, simulations across IoT-edge-cloud continuum for industrial cyber physical systems
- ❖ Federated, distributed intelligence across IoT-edge-cloud continuum for industrial cyber physical systems.
- ❖ Fault tolerance, resilience mechanisms across IoT-edge-cloud continuum for industrial cyber physical systems
- ❖ Generative, foundational models and their applications across IoT-edge-cloud continuum for industrial cyber physical systems
- ❖ Methods, mechanisms, technologies for trustworthy data sharing involving edge-cloud-IoT continuum of industrial cyber physical systems.
- ❖ Edge-enabled analytics, decision making, control and automation for industrial cyber physical systems
- ❖ Eco-aware, sustainability, energy efficiency technologies, methods, mechanisms for industrial cyber physical systems utilizing edge-cloud computing continuum
- ❖ Testbeds, research and pilot infrastructures for testing, validation, demonstration of edge-cloud computing, edge AI considering industrial cyber physical systems setting.
- ❖ Performance evaluation, testing, validation, demonstration of edge-cloud computing, edge AI considering industrial cyber physical systems setting.
- ❖ Methods, mechanisms for self-X (self-healing, self-organization, self-repair, etc) considering edge-cloud computing continuum in industrial cyber physical systems setting.
- ❖ Methods, approaches for engineering edge-cloud computing enabled industrial cyber physical systems.
- ❖ Education on edge-cloud computing for industrial cyber physical systems

AIM

This Special Session aims at bringing together experts, professionals from industry and academia to share and discuss cutting-edge concepts, recent developments, research results, and practical achievements in the scope of the IoT-edge-cloud computing in industrial cyber physical systems and related topics.

SOLICITED PAPERS

◆ Original Research (Regular) ◆ Surveys ◆ Industry practice ◆ Work-in-progress

The working language of the conference is English, For submission rules, please refer to the Author's Instruction on the conference website.

PAPER ACCEPTANCE

Accepted, registered, and presented papers will be copyrighted by IEEE and published in the conference proceedings. The proceedings will be available in the IEEE Xplore® Digital Library. The final manuscript must be accompanied by a registration form and a registration fee payment proof and it is mandatory that at least one author attends and presents the paper at the conference. Failure to adhere to these guidelines may result in paper exclusion from post-conference distribution via IEEEExplore by the ETFA 2024 Organizing Committee. All conference attendees must pay the conference registration fee and cover their own personal expenses for travel and accommodations.

AUTHOR'S SCHEDULE 2024

❖ Regular and special sessions papers

Submission deadline **April 28th**

Acceptance notification **May 31st**

Deadline for final manuscripts **July 1st**

❖ Work-in-progress/ Industry practice papers

Submission deadline **May 26th**

Acceptance notification **June 17th**

Deadline for final manuscripts **July 1st**