Special Session on "Artificial Intelligence of Things in the Digital Continuum"

Special Session co-Chairs:

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Brief description

The emergence of the digital continuum as a distributed edge-to-cloud computation and communication infrastructure and its confluence with pervasive AI as an integral element of modern IoT services empowers the Artificial Intelligence of Things (AIoT) paradigm. AIoT manifests a shift of focus beyond pure connectivity aspects, towards distributed intelligence and autonomy, and jointly considering communication, computation, sensing, IoT service design and operational challenges.

This special session aims to explore novel service architectures, approaches to introduce intelligence, and communication/computation schemes in order to enable scalable, trustworthy, and efficient AIoT services across the digital continuum. It addresses the interplay and co-design of communication and computation infrastructures that support distributed intelligence, collaborative learning, and autonomous service operation, as well as the design of AIoT services with infrastructure awareness. Particular attention will be given to decentralized and federated learning approaches, efficient and distributed inference serving, AI-powered communication, operationalizing AI/ML-based IoT services, and intelligent service and resource orchestration in the digital continuum.

This special session invites original submissions on topics including (but not limited to):
- AI/ML for & on top of the cloud-edge-IoT continuum
- Federated and Decentralized Learning for the AIoT
- Novel serverless computation paradigms and platforms in the digital continuum
- Distributed ML inference for IoT services
- Generative AI in AIoT scenarios and distributed LLM serving
- AI/ML in constrained and heterogeneous environments & platforms
- Network & compute-aware orchestration of AI/ML workflows
- Novel MLOps approaches for AIoT systems
- Trustworty, secure and interoperable AIoT
- AIoT testbeds and experimental studies
- Experience reports from real-world AIoT use-cases and deployments

Potential support

This special session is associated with the recently concluded AIoTwin project.