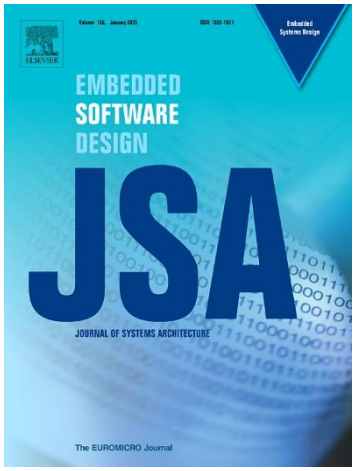
Special Issue on AI-Driven Real-Time Distributed Computing for the Edge-Cloud Continuum

https://www.sciencedirect.com/special-issue/317877/ai-driven-real-time-distributed-computing-for-the-edge-cloud-continuum

Submission deadline: 30 October 2025

Scope and topics

The widespread evolution of Artificial Intelligence (AI)-driven Internet of Things (IoT) applications, such as autonomous systems, smart cities, and industrial automation, have significantly altered the landscape of real-time distributed computing. These advancements lay the foundation for future innovations toward ensuring system performance, dependability, testability, reliability, flexibility, scalability, and autonomous computing. These ilities are particularly important as we move toward 2030, where themes such as AI-driven networks, 6G connectivity, massive twining, metaverse, self-autonomous robots, and smart autonomous systems demand robust, real-time processing and intelligent decision-making across a distributed network infrastructure.



This special issue solicits high-quality papers pertaining to all aspects of objects, components, service-oriented real-time and distributed computing technology that address the growing challenges of real-time distributed computing, particularly through case studies and applications that demonstrate the efficacy of proposed methods in real-world distributed systems, to meet the demands of next-generation edge AI-enabled IoT applications such as autonomous vehicles, smart cities, intelligent transportation systems, industrial automation systems and industry 4.0, smart grids, avionics, spatial, under-water, autonomous vehicles, consumer electronics, multimedia processing, etc. with an emphasis on scalability, security, and integration with modern technologies. The specific SI focus areas include, but are not limited to:

- Distributed and/or Real-Time Image, video, and Stream Processing
- Emerging Next-Gen Software-Defined Embedded Systems and Networks
- Federated Learning, TinyML, Edge ML, Generative AI, and Fog Computing
- Real-Time Data Analytics, Management, and Monitoring
- Middleware, Cloud Connectivity, and Microservices
- DevOps for Distributed Real-time Computing
- Optimization Algorithms, metaheuristics, and graphs for Edge-Cloud continuum
- Sustainable and Green Computing Transformation
- Formal Methods, Verification, and Model Checking
- Ontology-based Knowledge Modeling
- Dependability, Fault tolerance, and Resilience
- AI/ML Algorithms for Real-Time Analytics
- Operating Systems, Middleware, and System software and Software architectures
- Blockchain and Security Enhancements
- Digital Twins for Distributed and/or Real-Time IoT Systems and Applications

Manuscript Submission Instructions

Prospective authors should submit their manuscripts following The Journal of Systems Architecture (JSA) guidelines. Details can be found at: Guide for authors - Journal of Systems Architecture.

Solicited original submissions must not be currently under consideration for publication in other venues. All manuscripts and any supplementary material should be submitted through the Submission site for Journal of Systems Architecture. Please select the "**VSI:AI4ORC**" option as article type of the paper.

All submissions deemed suitable by the editors to be sent for peer review will be reviewed by at least two independent reviewers. Once your manuscript is accepted, it will go into production to be published in the special issue.

The special issue anticipates receiving extended papers from the IEEE ISORC 2025 conference.

Important Dates

Papers should be submitted according to the following schedule.

- CFP published online : **December 26, 2024**
- Submission Open: **December 30, 2024**
- Manuscript Submission Deadline: **October 30, 2025**

Guest Editors

Daniel Casini
Scuola Superiore Sant'Anna
Pisa, Italy
daniel.casini@santannapisa.it

Pascal Berthou
University of Toulouse III, UPS, CNRS-LAAS
Toulouse, France
berthou@laas.fr

Mustafa Al Lail
Texas A&M International University,
Laredo, TX, USA
mustafa.allail@tamiu.edu

AKRAM HAKIRI
University of Pau & Pays de l'Adour,
France.
akram.hakiri@issatm.rnu.tn

Aniruddha S Gokhale
Vanderbilt University, USA.
a.gokhale@vanderbilt.edu

Thierry Gayraud
LAAS-CNRS, University of Toulouse, CNRS,
UPS, France
gayraud@laas.fr