CALL FOR PAPERS

16-19 DEC 2024 Sharjah, UAE

The IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2024)

The IEEE/ACM International Conference on Utility and Cloud Computing (UCC) is a premier annual conference series aiming to provide a platform for researchers from both academia and industry to present new discoveries and high-quality contributions in the broad area of Cloud, Edge and Computing Continuum utility computing and applications. The conference features keynotes, posters, workshops and a student symposium. UCC 2024 will be held in conjunction with the 11th IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT 2024).

Authors are invited to submit original, unpublished research manuscripts in all areas of Cloud-Edge Continuum for utility computing and related computing paradigms such as Serverless, Distributed Computing and Function as a Service. The theme of this year is Self-adaptive and Autonomic Cloud, Edge, and Utility Computing in the Era of Large Language Models (LLM). The theme will explore new synergies between self-* and autonomous management of cloud, edge and their computing utilities and LLM approaches and solutions. We invite novel contributions with excellent balance between sound and rigorous foundational research and experimental results that relate to this year's theme and to the general UCC topics, as below.

UCC 2024 topics of interest include but not limited to:

1. Resource Management for Cloud-Edge Continuum:

- · Principles and Theoretical Foundations of Utility Computing
- Architectural Models and Patterns to achieve Utility; Virtualization, Containerization, Composition and Orchestration
- · Formal and Qualitative Aspects
- · Middleware and Stacks
- · Networking and Network Management
- Saas, Paas, laas and XaaS

2. Resource Management and Scalability:

- Brokering, Scheduling, Capacity planning and Elasticity
- · Security, Trust, Privacy, Policies and Blockchains

3. Autonomic, Adaptive, Self-*, SLAs, Management and Monitoring; Designs and Deployment Models:

- Private, Public, Hybrid, Federated, Aggregated, Inter-Cloud; High Performance Computing (HPC)
- · Performance Analysis and Modelling
- · Foundational self-* solutions, possibly leveraging LLM techniques (see this year theme)

The IEEE/ACM International Conference

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4. Artificial Intelligence for Cloud-Edge Continuum and Utility Computing:

- Machine Learning Operations (MLOps)
- · Artificial Intelligence Solutions for Scheduling
- Provisioning and Deployment

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- · Lightweight machine learning for edge learning
- Artificial Intelligence Solutions for Orchestration
- GPU as a Service (GPUaaS), Artificial Intelligence as a Service (AlaaS); Support for Extract /Transform /Load (ETL) or ETL Pipelines

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- Machine Learning Cloud Frameworks; Artificial Intelligence Infrastructure
- Distributed, Federated, Collaborative Learning, and Large Language Models (LLM)

5. Applications, Systems and new Computing Paradigms for Cloud-Edge Continuum:

- Native Application Design, Programming Models and Engineering
- · Serverless and Function-Based Applications (FaaS)
- Microservices Architectures, Quantum Computing
- · Interfacing to Internet of Things, (IoT) Applications
- Utility-Driven Models and Mechanisms in All Domains (e.g., Smart Cities, Mobility, Healthcare, Industry 4.0)
- Micro Data Centers
- · Interfacing to Mobile Devices: Management, Hierarchy Models and Business Models
- Energy-Efficiency and Sustainability; Development; Operations (DevOps)
- Economic and Business Models
- Business and Legal Implications Beyond Technology
- Digital Twins solutions

Paper Submission: Please follow the instructions on the conference website: <u>www.ucc-conference.org</u>

A selection committee chaired by the UCC 2024 conference co-chairs will select and acknowledge the best paper to receive an award during the conference. Authors of highly rated papers from UCC 2024 will be invited to submit an extended version to special issues in ACM Transactions on Autonomous and Adaptive Systems (TAAS).

Important Dates

Time zone: Anywhere in the world! Paper Submissions Due: 10 August 2024 Acceptance Notification: 7 October 2024 Camera Ready Papers Due: 20 October 2024 Conference inquiries should be sent by e-mail to the conference co-chairs Rami Bahsoon <<u>r.bahsoon@bham.ac.uk</u>>

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Ernesto Damiani <<u>ernesto.damiani@ku.ac.ae</u>>