

2024 IEEE/ACM 17th International Conference on Utility and Cloud Computing (UCC 2024)

**Sharjah, United Arab Emirates
16-19 December 2024**



**IEEE Catalog Number: CFP24UCC-POD
ISBN: 979-8-3503-6721-8**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24UCC-POD
ISBN (Print-On-Demand):	979-8-3503-6721-8
ISBN (Online):	979-8-3503-6720-1

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2024 IEEE/ACM 17th International Conference on Utility and Cloud Computing (UCC) UCC 2024

Table of Contents

Message from the Honorary Chair	xiv
Message from the General Co-Chairs	xv
Message from the Program Co-Chairs	xvii
Organizing Committee	xviii
Technical Program Committee	xx
Keynote Speakers	xxii

Optimization of Resource Placement and Allocation in Cloud, Fog, and Edge Computing and Orchestration

A Cost-Efficient Resource Allocation for Fog Computing with Users and Providers Perspective	1
<i>Joao Bachiega (University of Brasilia, Brazil), Breno Costa (University of Brasilia, Brazil), Michel J. F. Rosa (University of Brasilia, Brazil), Leonardo R. Carvalho (University of Brasilia, Brazil), Marcelo A. Marotta (University of Brasilia, Brazil), Aleteia Araujo (University of Brasilia, Brazil; The University of Melbourne, Australia), and Rajkumar Buyya (The University of Melbourne, Australia)</i>	
Dependency, Deadline and Priority Aware Multi-Queue Dynamic Task Scheduling using Heterogeneous Resources in Fog Environment	9
<i>Maneesha Rani Saha (Bangladesh University of Engineering and Technology, Bangladesh), Muhammad Ehsanul Kader (Bangladesh University of Engineering and Technology, Bangladesh), and Rezwana Reaz (Bangladesh University of Engineering and Technology, Bangladesh)</i>	
HEET: A Performance Measure to Quantify Heterogeneity in Distributed Computing Systems ..	17
<i>Ali Mokhtari (University of Louisiana at Lafayette, USA), Saeid Ghafouri (Queen Mary University, UK), Pooyan Jamshidi (University of South Carolina, USA), and Mohsen Amini Salehi (University of North Texas, USA)</i>	
KubeComp: A Resource-Centric Composable Container Orchestrator for GPU Pooling	27
<i>Hsu-Tzu Ting (National Tsing Hua University, Taiwan), Jerry Chou (National Tsing Hua University, Taiwan), Ming-Hung Chen (IBM Research, US), I-Hsin Chung (IBM Research, US), and Huaiyang Pan (H3 Platform Inc., Taiwan)</i>	

Optimal Placement of Edge-To-Cloud AR/VR Services with Reconfiguration Cost	37
<i>Mohammadsadeq Garshasbi Herabad (Karlstad University, Sweden), Javid Taheri (Karlstad University, Sweden; Queen's University Belfast, UK), Bestoun S. Ahmed (Karlstad University, Sweden; Czech Technical University, Czech Republic), and Calin Curescu (Ericsson AB, Sweden)</i>	
Optimizing Data Quality and Decision-Making in IoT with AI-Driven Data Reduction in DICOM .	47
<i>Laercio Pioli (Federal University of Santa Catarina, Brazil), Douglas D. J. de Macedo (Federal University of Santa Catarina, Brazil), Daniel G. Costa (University of Porto, Portugal), and Mario A. R. Dantas (Federal University of Juiz de Fora, Brazil)</i>	
Truffle: Efficient Data Passing for Data-Intensive Serverless Workflows in the Edge-Cloud Continuum	53
<i>Cynthia Marcelino (TU Wien) and Stefan Nastic (TU Wien)</i>	
Predicting ARM64 Serverless Functions Runtime: Leveraging Function Profiling for Generalized Performance Models	63
<i>Xinghan Chen (University of Washington, USA), Robert Cordingley (University of Washington, USA), Ling-Hong Hung (University of Washington, USA), and Wes Lloyd (University of Washington, USA)</i>	
CloudResilienceML: Ensuring Robustness of Machine Learning Models in Dynamic Cloud Systems.....	73
<i>Chanh Nguyen (Umeå University, Sweden), Lidia Kidane (Umeå University, Sweden), Vo Nguyen Le Duy (RIKEN, Japan), and Erik Elmroth (Umeå University, Sweden)</i>	
Advancing Orchestration: Leveraging Distance Functions to Meet Application Intent	82
<i>Maria Daniela Leite de Souza (Intel Corporation, USA) and Thijs Metsch (Intel Corporation, USA)</i>	

Machine Learning for Specialized Applications

Lightweight Machine Learning for Edge Learning in Kubernetes Clusters	88
<i>Paula Cecilia Fritzsche (Technology Centre of Catalonia, Spain), Aleix Vila Cano (Technology Centre of Catalonia, Spain), Guillermo Raya Garcia (Technology Centre of Catalonia, Spain), Ashneet Khandpur Singh (Technology Centre of Catalonia, Spain), and Mario Reyes de los Mozos (Technology Centre of Catalonia, Spain)</i>	
Scalable RegenesiS: Towards Shrinking Blockchain with On-Chain State	94
<i>Siddharth Maurya (Samsung R&D Institute, India), Vinit Kumar Patra (Samsung R&D Institute, India), Mohit Sinha (Samsung R&D Institute, India), Praveen Kumar (Samsung R&D Institute, India), and Gandhi Kishor Addanki (Samsung R&D Institute, India)</i>	
Optimizing Multiple Consumer-Specific Objectives in End-to-End Ensemble Machine Learning Serving	103
<i>Minh-Tri Nguyen (Aalto University, Finland), Hong-Linh Truong (Aalto University, Finland), Paolo Arcaini (National Institute of Informatics, Japan), and Fuyuki Ishikawa (National Institute of Informatics, Japan)</i>	

Optimization of Resource, Cloud, Fog, and Edge Computing

Evaluating Energy-Aware Cloud Task Scheduling Techniques: A Comprehensive Dialectical Approach	109
<i>Anas Hattay (Universite Paris-Saclay, France), Fred Ngolè Mboula (Universite Paris-Saclay, France), Eric Gascard (Universite Grenoble Alpes, France), and Zakaria Yahouni (Universite Grenoble Alpes, France)</i>	
Latin Square Job Scheduling for Distributed Data Processing on Warehouse-Scale Computers .	119
<i>Kevin Exton (The University of Melbourne, Australia) and Maria A. Rodriguez (The University of Melbourne, Australia)</i>	
FoRLess: A Deep Reinforcement Learning-Based Approach for FaaS Placement in Fog	129
<i>Cherif Latreche (Univ Rennes, France), Nikos Parlavantzas (Univ Rennes, France), and Hector A. Duran-Limon (University of Guadalajara, Mexico)</i>	
Maximizing the Application Utility in the Computing Continuum by Feasible Site Selection	138
<i>Geir Horn (University of Oslo, Norway), Marta Rózańska (University of Oslo, Norway), and Rudolf Schlatte (University of Oslo, Norway)</i>	
A Unified Approach to Virtual Machine Placement and Migration in the Cloud using Deep Reinforcement Learning	148
<i>Zihao Yang (The University of Melbourne, Australia; Omen Security Pty Ltd, Australia), Muhammed Tawfiqul Islam (The University of Melbourne, Australia), and Aaron Harwood (Streamsoft Technologies Pty Ltd, Australia)</i>	
UnBound: Multi-Tenancy Management in Scalable Fog Meta-Federations	158
<i>Chih-Kai Huang (Univ Rennes) and Guillaume Pierre (Univ Rennes)</i>	
Sustainable Cloud Resource Deployment: Integrating Real-Time Energy Data and Edge Continuum for Optimized Cloud Operations	168
<i>Naveen Kumar Kamalakannan (University of East London, UK), Khalander Shariff Rafiulla Shariff (University of East London, UK), and Umaina Haider (University of East London, UK)</i>	

Poster Session

Exploring Enhanced Dominant Resource Fairness using Linear Programming Calculated Weights .	174
<i>Bo Yan (Binghamton University, State University of New York (SUNY), NY), Angel Beltre (Sandia National Laboratories), Pankaj Saha (Binghamton University, State University of New York (SUNY), NY), and Madhusudhan Govindaraju (Binghamton University, State University of New York (SUNY), NY)</i>	
Comparing the Performance and Cost of Different Cloud Service Providers for Small Applications: A Comparison Between AWS and Azure	182
<i>Nabiha Arif Polani (University of East London, United Kingdom) and Umaina Haider (University of East London, United Kingdom)</i>	
The Impact of Generative AI on Cloud Data Security: A Systematic Study of Opportunities and Challenges	185
<i>Hardik Ruparel (University of California, USA), Harshal Daftary (Stony Brook University, USA), Videet Singhai (Carnegie Mellon University, USA), and Pramod Kumar (The Pennsylvania State University, USA)</i>	

ENFIRED: ENforcing IoT FIREwall using Fog-Cloud Framework Under Delay Constraints	189
<i>Towhidul Islam (Bangladesh University of Engineering and Technology, Bangladesh), Asif Ahmed (Bangladesh University of Engineering and Technology, Bangladesh), and Rezwana Reaz (Bangladesh University of Engineering and Technology, Bangladesh)</i>	
AI-Based Voice Security: Chaos-Based Encryption with ANN Models	194
<i>Wafaa Al Nassan (University of Sharjah, UAE) and Talal Bonny (University of Sharjah, UAE)</i>	
An Efficient Resource Allocation Model in IIoT using Federated Reinforcement Learning	198
<i>Mahdi Safaei Yaraziz (University of Huddersfield, UK) and Richard Hill (University of Huddersfield, UK)</i>	

Blockchain, Distributed Security, Security and Intrusion Detection

Improving IDS Performance with XGBoost: Hyperparameter Optimization and Real-Time Analysis	201
<i>Anthony Zatika (Johns Hopkins University) and Joel Coffman (United States Air Force Academy)</i>	
SecInt: An Approach to Enhance Kubernetes with Secondary Network Interface for Service Exposure in Telecommunications	211
<i>Kai Levin (Mälardalen University and Ericsson, Sweden), Auday Al-Dulaimy (Mälardalen University, Sweden), Marian Darula (Ericsson, Sweden), Claudio Porfiri (Ericsson, Sweden), Lionel Jouin (EST, Sweden), and Thomas Nolte (Mälardalen University, Sweden)</i>	
Exploring Data Poisoning Attacks Against Adversarially Trained Skin Cancer Diagnostics	220
<i>Anum Paracha (Birmingham City University, UK), Junaid Arshad (Birmingham City University, UK), Mohamed Ben Farah (Birmingham City University, UK), and Khalid Ismail (Birmingham City University, UK)</i>	
VMaaS - Virtual Monotonic Counters as a Service	226
<i>Gabriel Fernandez (Technische Universität Dresden, Germany), Julius Wenzel (Technische Universität Dresden, Germany), and Christof Fetzner (Technische Universität Dresden, Germany)</i>	
iAnomaly: A Toolkit for Generating Performance Anomaly Datasets in Edge-Cloud Integrated Computing Environments	236
<i>Duneesha Fernando (The University of Melbourne, Australia), Maria A. Rodriguez (The University of Melbourne, Australia), and Rajkumar Buyya (The University of Melbourne, Australia)</i>	
CarbonOracle: Automating Energy Mix & Renewable Energy Source Forecast Modeling for Carbon-Aware Micro Data Centers	246
<i>Moysis Symeonides (University of Cyprus), Nicoletta Tsiopani (University of Cyprus), Georgios Maouris (University of Cyprus), Demetris Trihinas (University of Nicosia), George Pallis (University of Cyprus), and Marios D. Dikaiakos (University of Cyprus)</i>	
Performance Evaluation of Blockchain Systems: Parameters, Criteria and Modeling Techniques.....	256
<i>Madhav Ajwalia (Charotar University of Science and Technology, India) and Parth Shah (Charotar University of Science and Technology, India)</i>	

Federated Learning, Task Scheduling, and Hardware Design

G-TRETA a Novel Multi-Objective Task Scheduling Algorithm in Cloud Computing	259
<i>K.M.S.U. Bandaranayake (University of Moratuwa, Sri Lanka) and Sunimal Rathnayake (University of Moratuwa, Sri Lanka)</i>	
Experimental Analysis of Data Protection, Efficiency and Effectiveness of Federated Learning Methods	268
<i>Furkan Gedikoglu (Rhine-Waal University of Applied Sciences, Germany) and Patrick-Benjamin Bök (Rhine-Waal University of Applied Sciences, Germany)</i>	
A Passkey Based Recovery Mechanism for Blockchain Hardware Wallets	276
<i>Varun Deshpande (Samsung Research, India), Atharva Vijay Khade (Samsung Research, India), Harish J (Samsung Research, India), Gandhi Kishor Addanki (Samsung Research, India), and Srivatsan Deenadayalan (Samsung Research, India)</i>	
Hierarchical Federated Learning for Natural Disaster Management	282
<i>Mark Adrian Gambito (University of Messina, Italy), Lorenzo Carnevale (University of Messina, Italy), Mohammad Reza Jabbarpour (Swinburne University of Technology, Australia), Bahman Javadi (Western Sydney University, Australia), and Massimo Villari (University of Messina, Italy)</i>	
Enabling Flower for Federated Learning in Web Browsers in the Cloud-Edge-Client Continuum ...	290
<i>Mario Colosi (University of Messina, Italy), Alessio Catalfamo (University of Messina, Italy), Marco Garofalo (University of Messina, Italy; University of Pisa, Italy), and Massimo Villari (University of Messina, Italy)</i>	
AI-Powered Federated Task Scheduling and Self-Healing Framework in Dynamic Cloud Systems .	300
<i>Umit Demirbaga (Bartın University, Türkiye), Omer Rana (Cardiff University, United Kingdom), Ashiq Anjum (University of Leicester, United Kingdom), and Gagangeet Singh Aujla (Durham University, United Kingdom)</i>	
Efficient Federated Learning for Heterogeneous Data: A Client Selection and Adaptive Knowledge Distillation Approach	306
<i>Aissa H. Mohamed (Universidade Estadual de Campinas (UNICAMP), Brazil), Joahannes B. D. da Costa (Federal University of Sao Paulo (UNIFESP), Brazil), Allan M. de Souza (Universidade Estadual de Campinas (UNICAMP), Brazil), Leandro A. Villas (Universidade Estadual de Campinas (UNICAMP), Brazil), and Julio C. Dos Reis (Universidade Estadual de Campinas (UNICAMP), Brazil)</i>	

AI-Driven Routing and Network Optimization

A Unified Framework for the Optimizability of Non-Isotonic Routing Metrics	316
<i>Mohamed Saad (University of Sharjah, UAE) and Saeed Abdallah (University of Sharjah, UAE)</i>	

Advanced Edge Computing Architecture for AI-Driven Automation and Slicing in Beyond 5G 321

Elli Kartsakli (Barcelona Supercomputing Center (BSC), Spain), Oriol Sallent (Universitat Politècnica de Catalunya (UPC), Spain), Joan Pujol Roig (Samsung R&D Institute, United Kingdom), Jordi Pérez-Romero (Universitat Politècnica de Catalunya (UPC), Spain), Irene Vilà (Universitat Politècnica de Catalunya (UPC), Spain), Nikolaos Bartzoudis (Telecommunications Technological Center of Catalonia (CTTC), Spain), Utku Gülen (Ericsson Research, Turkey), Semiha Kosu (Turkcell Technology, Turkey), Oluwatayo Kolawole (Samsung Electronics, UK), Xin Tao (Ericsson Research, Sweden), Swarup Kumar Mohalik (Ericsson Research, Sweden), Angelos Antonopoulos (Nearby Computing S.L., Spain), Charalampos Kalalas (Telecommunications Technological Center of Catalonia (CTTC), Spain), and Eduardo Quiñones (Barcelona Supercomputing Center (BSC), Spain)

Quantum Federated Learning: Bridging Quantum Computing and Distributed AI 327

Tariq Qayyum (United Arab Emirates University, UAE), M. Waqas Haseeb Khan (United Arab Emirates University, UAE), Asadullah Tariq (United Arab Emirates University, UAE), Mohamed Adel Serhani (University of Sharjah, UAE), Farag M. Sallabi (United Arab Emirates University, UAE), Zouheir Trabelsi (United Arab Emirates University, UAE), and Ikbal Taleb (Zayed University, UAE)

TRANSITIVE: Optimising Network Transfer and Plans in Multi-Cloud Environments 336

Afiq Wafi (Lancaster University, United Kingdom), Abdessalam Elhabbash (Lancaster University, United Kingdom), and Yehia Elkhatib (University of Glasgow, United Kingdom)

Serverless Computing and Workflow Automation

Input-Based Ensemble-Learning Method for Dynamic Memory Configuration of Serverless Computing Functions 346

Siddharth Agarwal (The University of Melbourne, Australia), Maria A. Rodriguez (The University of Melbourne, Australia), and Rajkumar Buyya (The University of Melbourne, Australia)

Serverless Snapshot-Resume Performance in the Real-World 356

Weikang Weng (Leiden University), Yuxuan Zhao (Leiden University), Rob van Nieuwpoort (Leiden University), and Alexandru Uta (DFINITY, Zürich)

Towards a Scalable and Cost Efficient Serverless Scheduler for Dask 366

Carlos Eduardo Millani (Institute of Computing - Unicamp), Carlos A. Astudillo (Institute of Computing - Unicamp), and Edson Borin (Institute of Computing - Unicamp)

Adaptive and Fault-Tolerant Systems

Algorithmic Fault Impact Evaluation in Mobile Computation Offloading 372

Marzieh Ranjbar Pirbasti (Toronto Metropolitan University, Canada) and Olivia Das (Toronto Metropolitan University, Canada)

Fault Tolerance Infrastructure for Mission-Critical Mobile Edge Cloud Applications 382

Nayereh Rasouli (Umeå University, Sweden), Cristian Klein (Umeå University, Sweden), and Erik Elmroth (Umeå University, Sweden)

QMConn: A Self-Healing Controller for Microservices using Q-Learning and Markov Decision Processes	389
<i>Areeg Samir (UiT - The Arctic University of Norway, Tromsø), Håvard Dagenborg (UiT - The Arctic University of Norway, Tromsø), and Dag Johansen (UiT - The Arctic University of Norway, Tromsø)</i>	
Semantic SLAs for Describing and Sustaining QoS in the Cloud-Edge Continuum	399
<i>Simos Veloudis (The University of York Europe Campus, Greece), Evangelos Barmpas (The University of York Europe Campus, Greece), and Iraklis Paraskakis (The University of York Europe Campus, Greece)</i>	

Workshop: 3rd Blockchain for Smart Cyber-Physical Systems Workshop (BlockCPS)

A Blockchain-Based Predictive Maintenance Scheme for Smart Agriculture	405
<i>Mohil Patel (Nirma University, India), Sudeep Tanwar (Nirma University, India), Anish Jindal (University of Durham, United Kingdom), Naif Alshammari (Lancaster University, UK), Haris Pervaiz (University of Essex, UK), and Hassan Ahmed (Lancaster University, UK)</i>	
SignRecogGAN: Enhanced DCGAN for Traffic Sign Recognition Cyber-Physical Vehicular Systems.....	411
<i>Nisha Thakur (Thapar Institute of Engineering and Technology, India), Nahla J. Abid (Taibah University, KSA), Smita Agarwal (Thapar Institute of Engineering and Technology, India), and Neeraj Kumar (Thapar Institute of Engineering and Technology, India)</i>	
SecureFed: Blockchain-Based Defence for Data Poisoning Attack in Federated Learning	417
<i>Ahmad A Alsharidah (Newcastle University, UK), Devki Nandan Jha (Newcastle University, UK), Bo Wei (Newcastle University, UK), Ellis Solaiman (Newcastle University, UK), and Rajiv Ranjan (Newcastle University, UK)</i>	
A Comparative Survey of Blockchain-Based Security Mechanisms for OTA Updates in CAVs ..	423
<i>Zeeman Memon (University of Windsor, Canada) and Ikjot Saini (University of Windsor, Canada)</i>	
SafeGuardHer: Blockchain and Ensemble Learning Based CPS Framework for Women's Safety using Wearable Devices	429
<i>Akshat Vaja (Nirma University, India), Aarchi Dholakia (Nirma University, India), Man Patel (Nirma University, India), Keyaba Gohil (Nirma University, India), Rajesh Gupta (Taylor's University, Malaysia), Sudeep Tanwar (Nirma University, India), and N.Z. Jhanjhi (Taylor's University, Malaysia)</i>	
A Multi-Modal Bio-Medical Data Analysis Framework: A Case Study for Pandemic Preparedness .	435
<i>Aaisha Makkar (University of Derby, UK), Myra Conway (University of Derby, UK), Farid Meziane (University of Derby, UK), Vinaytosh Mishra (Gulf Medical University, UAE), and Ashutosh Kumar Singh (Indian Institute of Information Technology, India)</i>	

Workshop: 6th Cloud, IoT and Fog Systems and Security Workshop (CIFS)

A Performance and Cost Evaluation of Homomorphic Encryption in the Cloud	441
<i>Greg Guillot (Johns Hopkins University), Andy Nguyen (Johns Hopkins University), Malvika Sriram (Johns Hopkins University), and Joel Coffman (Johns Hopkins University; United States Air Force Academy)</i>	
SDN Traffic Flows in a Serverless Environment: A Categorization of Energy Consumption	447
<i>Abdulaziz Alhindi (University of Leeds, UK; Qassim University, KSA) and Karim Djemame (University of Leeds, UK)</i>	
Analyzing Ridership Trends in Dubai Metro: A Statistical Approach	453
<i>Sara Abdulla Alblooshi (University of Sharjah, U.A.E), Malek Masmoudi (University of Sharjah, U.A.E), Ali Cheaitou (University of Sharjah, U.A.E), and Khaled Hamad (University of Sharjah, U.A.E)</i>	
Optimizing TLS/SSL for IoT Devices: Performance Enhancements and Security Considerations	458
<i>Mohammed El-Hajj (Arab Open University, Lebanon) and Lalande Lucas Lev Michel (University of Twente, Netherlands)</i>	
Multi-Drone Path Reconstruction and Mapping: Enhancing Accuracy and Efficiency	466
<i>Shahana Shahana (Digital University of Kerala, India), Krishnapriya Krishnapriya (Digital University of Kerala, India), and Sumedha Sumedha (Nirma University, India)</i>	
Vision-Based Consumer Behavior Analysis System for Retail Optimization	472
<i>Thittaporn Ganokratanaa (King Mongkut's University of Technology Thonburi, Thailand), Mahasak Ketcham (King Mongkut's University of Technology North Bangkok, Thailand), Patiyuth Pramkeaw (King Mongkut's University of Technology Thonburi, Thailand), Narumol Chumuang (Muban Chombueng Rajabhat University, Thailand), and Worawut Yimjam (Phetchaburi Rajabhat University, Thailand)</i>	
Occupancy Detection for HVAC Systems using IoT Edge Computing and Vision-Based Image Processing	477
<i>Tariq Akhtar (University of East London, United Kingdom), Shaheen Khatoon (University of East London, United Kingdom), and Azhar Mahmood (University of East London, United Kingdom)</i>	

Workshop: 13th Cloud and Edge Computing, and Applications Management Workshop (CloudAM)

Vector Search Performance Enhancements on Limited-Memory Edge Devices	483
<i>Sergio Mathurin (The University of the West Indies, Trinidad and Tobago), Kris Manohar (The University of the West Indies, Trinidad and Tobago), and Patrick Hosein (The University of the West Indies, Trinidad and Tobago)</i>	
Optimizing Cloud and IoT Resource Utilization: A Proactive, Application-Agnostic Auto-Scaling Technique using Machine Learning	489
<i>Ahmad Reshad (York University, Canada) and Manar Jammal (York University, Canada)</i>	
Configuration Management in Kubernetes Environments: A GitOps Approach	497
<i>Raju Shrestha (Oslo Metropolitan University (OsloMet), Norway) and Ali Abdi Nur Ali (Oslo Metropolitan University (OsloMet), Norway)</i>	

Workshop: 4th Distributed Machine Learning for the Intelligent Computing Continuum Workshop (DML-ICC)

Minimizing Communication Overhead via Wavelet-Based Model Compression in Federated Learning	503
<i>Rômulo W. C. Bustincio (Universidade Estadual de Campinas (UNICAMP), Brazil), Jorge L. Diaz Calle (Universidade de São Paulo (USP), Brazil), Joahannes B. D. da Costa (Federal University of São Paulo (UNIFESP), Brazil), Luis F. G. Gonzalez (Universidade Estadual de Campinas (UNICAMP), Brazil), Allan M. de Souza (Universidade Estadual de Campinas (UNICAMP), Brazil), and Luiz F. Bittencourt (Universidade Estadual de Campinas (UNICAMP), Brazil)</i>	
Federated Learning-Based Approach for Heterogeneous Task Scheduling in Edge Computing Environments	509
<i>Latifah Alsalem (University of Leeds, UK; Shaqraa University, K.S.A) and Karim Djemame (University of Leeds, UK)</i>	
On Assessing Heterogeneity Management Solutions in Federated Learning Systems	517
<i>Luciano Baresi (Politecnico di Milano, Italy), Tommaso Dolci (Politecnico di Milano, Italy), and Iyad Wehbe (Politecnico di Milano, Italy)</i>	

Workshop: Trustworthy and Secure Cloud Services Workshop (TSCS)

A Robust Multiparty Authentication Testbed Architecture for the Industrial Internet of Things	523
<i>Hussain Al-Aqrabi (Higher Colleges of technology, United Arab Emirates), Ahmed Manasrah (Higher Colleges of technology, United Arab Emirates), Richard Hill (University of Huddersfield, United Kingdom), Lu Liu (University of Exeter, United Kingdom), Mohammad Sh. Daoud (Al Ain University, United Arab Emirates), and Hani Al-Aqrabi (Cisco Company, Saudi Arabia)</i>	
Adversarial Learning for Robust Cloud-Based Intrusion Detection Systems	529
<i>Ahmed Almohammed (KFUPM, SA)</i>	
Architecture for Secure Data Distribution using Cloud-Based Digital Twins	535
<i>Turki Alhazmi (King Fahd University of Petroleum and Minerals, Saudi Arabia)</i>	
Energy-Efficient Leader Election in IoT Networks: A Cloud Storage Perspective	541
<i>Ahcene Bounceur (University of Sharjah, UAE), Saadat M. Alhashmi (University of Sharjah, UAE), Foudil Mir (University of Bejaia, Algeria), and Kara Mostefa (KFUPM, KSA)</i>	
Distributed Trust Management for Secured Localization Systems in Mobile Cloud Services	547
<i>Farouq Aliyu (King Fahd University of Petr. & Min., Saudi Arabia), Mustafa Ghaleb (King Fahd University of Petr. & Min., Saudi Arabia), Saud Mohammad Mostafa (King Fahd University of Petr. & Min., Saudi Arabia), Sani Umar (Khalifa University, UAE), and AbdalRahman Aburakhia (King Fahd University of Petr. & Min., Saudi Arabia)</i>	
Towards Enabling Secure Data Transmission in Cloud-Based Environment	554
<i>Ibraheem Al-Hejri (Onaizah Colleges, Saudi Arabia) and Abdullah M. Alnajim (Qassim university, Saudi Arabia)</i>	

Author Index	561
---------------------------	------------