2026 22nd International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT 2026)

Reykjavik, Iceland
22-24 June 2026

Pages 1–685

IEEE Catalog Number: CFP26DCO-POD
ISBN: 979-8-3315-4671-7

IEEE Advancing Technology for Humanity

Copyright © 2026, IEEE

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:	CFP26DCO-POD
ISBN (Print-On-Demand):	979-8-3315-4671-7
ISBN (Online):	979-8-3315-4670-0
ISSN:	2325-2936

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

TABLE OF CONTENTS

Collaborative Processing for Multi-Tenant Inference on Memory-Constrained Edge TPUs 1
Nathan Ng, Walid A. Hanafy, Prashanthi Kadambi, Balachandra Sunil, Ayush Gupta, David Irwin Yogesh Simmhan, Prashant Shenoy

Chord: Multi-Tone Carrier-Assisted Querying for Analog Backscatter Systems 9
Madhushanka Padmal, Dilushi Piumwardane, Thiemo Voigt

Task-Driven Diffusion Denoising for Robust Multimodal Behavioural Biometrics 19
Duc Van Le, Smayan Gupta, Fariza Rashid, Rahat Masood, Gustavo Batista, Suranga Seneviratne Aruna Seneviratne

AdaptHub: an Adaptive, User-Centric, and Privacy-Driven Smart Home Hub 29
Tina Rezaei, Suzan Bayhan, Etienne Rivière, Andrea Continella, Roland van Rijswijk-Deij

ORION: Olfactory and RF Multimodal Sensing for UAV-Based Localization of Disaster Victims 37
Guillermo Benito-Calvino, Ahmed Boubrima, Alessandro Renzaglia, Hervé Rivano, Zhambyl Shaikhanov

Anonymous Command Authorization for IoT Devices Using Zero-Knowledge Proofs 46
Mohammad Mahdi, Ahmad Alqattan, Ameer Mohammed

Can a Classifier Replace the Human? Box-Level Surrogates for Low-Annotation Object Detection 56
Francesco Betti Sorbelli, Papiya Das, Lorenzo Palazzetti, Cristina M. Pinotti

Modeling and Performance Evaluation of DNN Splitting and Intelligent Offloading for AI-based IoT Video Analytics 64
Weiyang Qian, Rodolfo W. L. Coutinho, Azzedine Boukerche

SwarmIT: Turn Your Collection of Robots into a Robust and Programmable Swarm Testbed 72
Alexandre Abadie, Filip Maksimovic, Geovane Fedrecheski, William Takeshi-Pereira, Mališa Vučinic Danny Hughes, Roderich Groß, Thomas Watteyne

Kissan-Dost: Bridging the Last Mile in Smallholder Precision Agriculture with Conversational IoT 80
Muhammad Saad Ali, Daanish Uddin Khan, Laiba Intizar Ahmad, Umer Irfan, Maryam Mustafa Naveed Anwar Bhatti, Muhammad Hamad Alizai

Reliable Unreliability in Edge Deployments 88
Animesh Dangwal, Ria Singh, Shruthi Unnithan, Karen Yuan, Emily Zheng, Chandra Krintz, Rich Wolski

At the Edge of the Heart: ULP FPGA-Based CNN for On-Device Cardiac Feature Extraction in Smart Health Sensors for Astronauts 96
Kazi Mohammad Abidur Rahman, Davis Rakhshan, Philipp Lütke, Laura Harms, Ulf Kulau

uAMBIT: Byte-Budgeted Update Compression with Error-Feedback for Federated Learning 105
Emad Hammami, Peiyuan Guan, Amir Taherkordi

Configuring Industrial Wireless Mesh Network via Dual-Mind Reasoning 113
Aitian Ma, Dongsheng Luo, Ali Maatouk, Rex Ying, Mo Sha

RoutineShield: Routine-Level Privacy for Smart Homes via Semantic DP Traffic Shaping 121
Chun Yin Chiu

Leveraging LLMs to Close Simulation-to-Reality Gap in Wireless Mesh Network Configuration 129
Jean Tonday Rodriguez, Dipan Sadekeen, Mo Sha, Mohammad Ashiqur Rahman

Co-Scheduling of Charging and Transmission in Supercapacitor Powered IoT 137
Aakriti Jain, Venkata Prashant Modekurthy, Abusayeed Saifullah, Marco Brocanelli

PoHAR: Understanding Hyperlocal Human Activities with Pollution Sensor Networks 145
Prasenjit Karmakar, Karthik Reddy, Sandip Chakraborty

Using Geodata for Improved Path Loss Estimation: Insights from a LoRaWAN Field Study 153
Daniel Szafranski, Moosa Sharafeldin, Andreas Reinhardt

Flexible Distributed Particle Filtering for the Internet of Things via Aggregate Computing 161
Angela Cortecchia, Davide Domini, Giovanni Ciatto, Roberto Casadei, Danilo Pianini, Mirko Viroli

Eco-NeRF: Energy-Aware Cloud-to-Edge Training and Deployment of Neural Radiance Fields for Satellite IoT 169
Kriti Ghosh, Braveenan Sritharan, Lakshmish Ramaswamy, In Kee Kim, Suchendra M. Bhandarkar Deepak Mishra, Aditya Joshi, Nancy O'Hare

Towards High-Level Declarative Infrastructure Description for the IoT-Edge-Cloud Continuum 177
Marlon Etheredge, Juan Aznar Poveda, David Gstir, Stefan Pedratscher, Thomas Fahringer

Heterogeneous Ensemble Learning for Fault Diagnosis in Smart Manufacturing 185
Farzana Haque Chowdhury, John Violos, Aris Leivadeas

treVM: Tiny Rust Embedded Virtual Machines with WASM on Variable Resource-Constrained Hardware 193
Antoine Lavandier, Bastien Buil, Chrystel Gaber, Emmanuel Baccelli

BEAVER: Battery-Free Edge AI for Visual Environmental Recognition 201
Yinze Li, Van Vu Bui, Samer Nasser, Henrique Duarte Moura, Ritesh Singh, Sam Michiels, Jeroen Famaey Danny Hughes

A Low-Power Dual-Processor Platform for Snapshot GNSS with Edge-Based GPU Acceleration 210
Chen Jiang, Chien-Chia Huang, Gia Bao Thieu, Yitao Tang, Guillermo Payá Vayá, Andres Gómez

Cybersecurity Simulation and Testing of Border Checkpoint Operations Using Digital Twin Technology 218
Rohith Prakash, Naghmeh Moradpoor, Leandros Maglaras

Improving Zero-shot ADL Recognition with Large Language Models through Event-based Context 223
Michele Fiori, Gabriele Civitarese, Marco Colussi, Claudio Bettini

Trust-Aware Routing for Distributed Generative AI Inference at the Edge 228
Chanh Nguyen, Erik Elmroth

Delta-Based Compression and Multicast Synchronization for Efficient LoRaWAN FUOTA 238
Andrea De Simone, Giovanna Turvani, Mariagrazia Graziano, Fabrizio Riente

SAOKD: Server-Assisted Oblivious Key Distribution for Resource-Constrained, Post-Quantum IoT Devices 246
Ahmad Alqattan, Mohammad Mahdi, Tassos Dimitriou

OASIS: Occlusion Aware Semantic Inference and Sensing for Fused UAV-Satellite Driven Disaster Damage Assessment 255
Md Tahmid Rashid, Md Jawad Siddique, Abdus Shaqur

Schema-Grounded Agents for Enabling Emergent Multi-Device Reasoning in Smart Environments 263
Victor Romero, Tomokazu Matsui, Yuki Matsuda, Hirohiko Suwa, Keiichi Yasumoto

Virtual Space Switching: Fast Mobility Handoffs for Situated Intelligence 268
Muthucumaru Maheswaran

LEAP: An Adaptive Transmission Strategy for Energy-efficient Positioning in LoRaWAN Networks 276
Juan Aznar Poveda, Stefan Pedratscher, Abolfazl Younesi, Miriam Leitner, Laura Acosta Garcia Thomas Fahringer, Antonio Javier Garcia Sanchez, Joan Garcia Haro

Recognizing Construction Vehicle Activity in Low-Frequency Surveillance Imagery and Its Association with Local Air Quality 285
Dan-Cristian Ploeşteanu, Arda Satıcı, Deepak Yeleshetty, Rob Bemthuis

Self-Supervised Federated Learning for Zero-Day Intrusion Detection in Heterogeneous Industrial IoTs 290
Shagufta Henna, Kathy Bannigan

High-Fidelity Network Management for Federated AI-as-a-Service: Cross-Domain Orchestration 297
Merve Saimler, Mohaned Chraiti, Ozgur Ercetin

Towards A Protocol-Agnostic Universal Middleware For IoT With Edge Intelligence 302
Hasan MA Islam, Md MR Maharaz, F Ahmed, Mahir FH Dipto, Md MH Shafin, Michael Georgiades

(POSTER) From Sensors to Insight: Rapid, Edge-to-Core Application Development for Sensor-Driven Applications 307
Komal Thareja, Anirban Mandal, Ewa Deelman

(POSTER) Impact of Training Data Contamination on Unsupervised Time Series Anomaly Detection 310
Thomas Strametz, Müslüm Atas, Fatima Jammoul, Olga Saukh, Joachim Schauer

(Poster) Explainable Clustered Federated Learning for Multivariate Residential Load Forecasting 313
Ivonne Nuñez, Eric Samikwa, Torsten Braun, Carlos Rovetto

(POSTER) Adaptive Placement Policies for Delay-Sensitive Applications in Multi-access Edge Computing 316
David Schuster, Volker Gruhn

(POSTER) Intent Reasoning from User Locale Data using Tiny Recursive Models 319
Swayamprava Satpathy, Akash Sahoo, Rabi Mahapatra, Amita Sahoo

(POSTER) Formation-Guided Hierarchical Reinforcement Learning for UAV Swarm-Assisted MEC 322
Larry Garcia, Junfei Xie

(Poster) Benchmarking YOLO11, YOLO26, and RT-DETR for Person Detection in UAV Imagery 325
Andreea Anghelescu, Loretta Ichim, Dan Popescu

(POSTER) Optimal Placement of Affective Digital Twins with Reusable AI Models at the Edge 328
Marica Amadeo, Salvatore Serrano, Claudia Campolo, Giuseppe Ruggeri

(POSTER) Multi-Agent Framework for Decentralized Digital Twins 331
Mengbing Zhou, Zhiming Zhao

(DEMO) TITAN: Tiny Inference and Training for Transformer Models on FPGA-Based Edge Nodes 334
Isuru Tennakoon, Chamara Sandeepa, Isuru Pinto, José Cano, Shen Wang, Madhusanka Liyanage

Edge-Based Multimodal Driver Monitoring System on Raspberry Pi 337
Haoxiang Chen, Yan Li, Yifan Chen, Shuyang Zhong, Shuyu Zheng

(POSTER) VarDiag: Precise Fault Localization for Resource-Constrained IoT Sensor Nodes 340
Saurabh Band, Shadi Attarha, Anna Förster

(POSTER) From Lab to Farm: Characterizing UWB-based TDOA Localization Reliability for Dairy Cattle Monitoring 343
Harshit Sharma, Hao Zhang, Lawrence Jones, Jakub Krzych, Asif Salekin, Sucheta Soundarajan

(POSTER) Beyond RFF - Context Integrity Monitoring via Image-Based RF Analysis 346
Ingrid Huso, Tom Udding, Savio Sciancalepore, Gabriele Oligeri

(DEMO) Luxor: A Batteryless Deterministic IoT Sensing Node for Long-Term Indoor Deployment 349
Leonor Carvalho, Diogo Gonçalves, Miguel Roque Soares, Waldir Moreira, Vítor Tavares

(DEMO) CollabXR: Real-Time Collaborative Medical XR Training over 5G O-RAN and mmWave Networks 352
Vidura Ravihansa, Greg Agriopoulos, Eleni Mangina, Madhusanka Liyanage

Poster: Carrier-assisted Querying of Analog Backscatter Tags 355
Dilushi Piumwardane, Madhushanka Padmal, Thiemo Voigt

(POSTER) Auditable Access Control for Physical AI Agents in Multi-Organisation Spaces 358
Akash Lanard, Muthucumaru Maheswaran

(DEMO) Real-Time Bird Detection with a Modular Acoustic Sensing Platform 361
Davis Rakhshan, Lucas Bublitz, Ulf Kulau

POSTER: Discrete Wavelets as Zero-Parameter Front-End for Near-Sensor Cardiac-Interval Estimation from Seismocardiography 364
Kazi Mohammad Abidur Rahman, Lutfi Khary, Ulf Kulau

(POSTER) Point-Wise vs. Cumulative Forecasting of Photovoltaic Energy Production 367
Tommaso Ruga, Ester Zumpano, Luciano Caroprese, Camilla Lops, Sergio Montelpare
Mariano Pierantozzi, Maira Aracne

(POSTER) Towards Edge-Based Small Language Models for Automated Network Management via Two-Stage Adaptation 370
Zine El Abidine Kherroubi, Monika Prakash, Tirth Master, Kavin Thangadorai, Michael Baddeley
Jean-Pierre Giacalone

A novel Serverless Peer-to-Peer End-to-End Encrypted Messaging System 373
Hamish Alsop, Leandros Maglaras, Naghmeh Moradpoor

Attention-Bound Access Control for Mobile IoT Edge Endpoints 383
Nida Zeeshan, Naghmeh Moradpoor, Luigi La Spada

From Correlation to Causation in Intrusion Detection Systems: A Double Machine Learning Approach for IoT Network Behaviour Analysis 391
Michael Georgiades, Charalambia Varnava, Andreas Gregoriades, Iacovos Ioannou, Lakis Christodoulou
Hasan Mahmood Aminul Islam, Kin-Hon Ho, Yun Hou

Cross-Domain Inference for Human Localization: Applying Wi-Fi RSSI Data to CSI-Trained Models 399
Ariel Duschanek-Myers, Thomas Welsh, Helmut Neukirchen

UltraSecure: An Ultralightweight LCD Code-Based Authentication Protocol for Telecare Medicine Information Systems 407
Pramod Kumar Maurya, Haradhan Ghosh, Satya Bagchi

Adding a cybersecurity dimension to supplier assurance in aerospace supply chains 415
Nubio Vidal, Naghmeh Moradpoor, Michael Robinson, Leandros Maglaras

Comparative Analysis of Secure Microcontroller Provisioning Using a Production Authority Model 422
Philipp Schubaur, Marco Kleiner, Dominik Merli

A Security and Experimental Analysis of IoT Communication Protocols 431
Dimitris Koutras, Vangelis Malamas, Panayiotis Kotzanikolaou

Throughput Optimization in Bitcoin-based Public IoT Networks via Intelligent Peer Selection 438
Mohd. Saalim Jamal, Himank Gupta, Jennifer Simonjan, Enrico Natalizio

Hybrid Heuristic and Semantic Classification for Risk Assessment of Exposed MQTT Traffic 446
Sebastian Hamza, Iulia Stamatescu, Grigore Stamatescu, Emil Pricop

Onion CoAP: Enabling Onion Routing for the IoT 454
Rikard Höglund, Marco Tiloca, Christian Amsüss, Simon Bouget, Shahid Raza

ThreadFuzzer: A Fuzzing Framework for the Thread Protocol 464
Ilja Siroš, Jakob Heirwegh, Dave Singelée, Bart Preneel

A Practical Workflow for Synthetic Energy Time-Series Generation and Evaluation for Smart-Energy Forecasting 473
Mia Pham, Georgios Tsoumplekas, Vladislav Li, Yannis Spyridis, Barbara Villarini
Georgios Th. Papadopoulos, Thomas Lagkas, Panagiotis Sarigiannidis, Vasileios Argyriou

Can Wi-Fi 7 Meet the Latency and Reliability Demands of Time-Sensitive IIoT Networks? 481
Prince Jose, Sowmiya Sukumaran, Marie-Theres Suer, Lars Wolf

Reference Architecture for Safe Reconfiguration in Smart Factories/Industry 4.0 489
Mateus Molina, Peter Liggesmeyer

Embedded Rust or C Firmware? Lessons from an Industrial Microcontroller Use Case with Ariel OS 497
B. Thapa, D. Alfonso, L. Bini, L. Mapelli, K. Schleiser, R. Fouquet, E. Baccelli

Benchmarking blockchain technologies for agricultural applications 505
George Michoulis, Kyros Tsourdinis, Konstantinos Kyranou, Charis Eleftheriadis
Eleftheria Maria Pechlivani, Panagiotis Christakakis, Thomas Lagkas, Vasileios Argyriou
Panagiotis Sarigiannidis

Contactless Respiratory Monitoring on Heterogeneous Mobile Robots: A Multimodal Edge-Computing Framework 513
Milind Rampure, Shadman Sakib, Haley Patel, Zahid Hasan, Nirmalya Roy

Edge-Cloud Offloading for Real-Time Perception of Resource-Constrained AMR in IIoT Environments 521
Mihai-Daniel Pavel, Matteo De Marchi, Grigore Stamatescu

Secure Artificial Intelligence with Lightweight Post-Processing Defense against Adversarial Attacks 529
Dimitrios-Christos Asimopoulos, Vasileios Vitsas, Panagiotis Radoglou-Grammatikis
Antonios Sarigiannidis, Thomas Lagkas, Christos Xenakis, Evangelos K. Markakis
Panagiotis Sarigiannidis

Efficient Hierarchical Federated Learning with Dynamic Cluster Formation for IoT Wearable Analytics 537
Nipuna Senanayake, Barbara Villarini, Tamas Kiss, Francesco Tusa

A Hybrid Wi-Fi–ESB Communication Architecture for Scalable Distributed Counter-Unmanned Aircraft Systems 545
Md Sadman Siraj, Khalid Azeez Syed, Aisha B Rahman, Maria Diamanti, Eirini Eleni Tsiropoulou

Quantum Machine Learning versus Machine Learning for Intrusion Detection in 5G Environments 553
Ioannis D. Leonidas, Panagiotis Radoglou-Grammatikis, Evangelos K. Markakis
Michail-Alexandros Kourtis, Thomas Lagkas, Georgios Th. Papadopoulos, Vasileios Argyriou
Panagiotis Sarigiannidis

SENTRYNet: A User Centric Privacy Preserving IoT Alerting Architecture for Deaf & Hard of Hearing 561
Miss Jade McDonald, Jims Marchang, Caroline F Dalton, Ning Wang

From Drones to Labels: A Semi-Automated Pipeline for Efficient Livestock Segmentation Annotation 568
Lorenzo Palazzetti, Kuan-Ling Chen, Enrico Casella

Crop and Weed Segmentation by an Ensemble of Distilled Models 574
Andrei Vicol, Dan Popescu, Loretta Ichim

Blockchain based UAV MarketPlace with Machine Learning for Livestock Health Prediction 580
Khouloud Hwerbi, Ichrak Amdouni, Cedric Adjih, Anis Laouiti, Leila Azouz Saidane

Fault Tolerance for MAVLink-based Mission Programs Using Checkpointing and Logging 586
Aggelos Tzikas, Manos Koutsoubelias, Spyros Lalis

Automatic Landing and Battery Charging of a Multicopter Using an Intelligent Solution 593
Marius Adrian Dima, Dan Popescu, Andrei Vicol, Loretta Ichim

Data Fusion Platform for UAV-based Situational Awareness Using LiDAR Processing and 3D Reconstruction 599
Rajitha Manellanga, Xenios Theodorou, Michalis Demetriou, Konstantinos Manousakis, Georgios Ellinas
Panayiotis Kolios

3D- and Geospatial-Aware Placement of Fixed Urban Sensing Infrastructure: A Focused Review 605
Elena Kakoulli, Venetis Kanakaris

Spatial, Temporal and Environmental Effects on LoRa Link Characteristics: Evidence from a Sustainable Sensor Network in London 613
Dongyi Ma, Huanfa Chen, Martin De Jode, Andrew Hudson-Smith, Mo Sha

Temporal Loss Correlation and Its Impact on Energy Efficiency in Large-Scale LoRaWAN Deployments 621
Spyros Lavdas, Ala F. Khalifeh, Wassim El-Hajj, Zinon Zinonos

Urban Green Space Classification from Satellite Imagery: A Robustness Evaluation 627
Antonio Iyda Paganelli, Patrick Nigri Happ, Adriano Branco, Luca Mottola

A Privacy-Preserving Digital Twin Framework for Smart Car Parking in Smart Buildings 635
Rizouan Ur Rashid, Naghmeh Moradpoor, Leandros Maglaras, Nubio Vidal

DRL-based Position-Aided Beam-Management in RIS-Enabled Indoor Environments 643
Iacovos Ioannou, Marios Raspopoulos, Michael Georgiades, Christophoros Christophorou, Ala' Khalifeh Vasos Vassiliou

Graph-Temporal Intrusion Detection for IoT: A Heterogeneous Ensemble Approach 653
Iacovos Ioannou, Michael Georgiades, Konstantinos Katzis, Katerina Papanikolaou, Marios Raspopoulos Christophoros Christophorou, Michalis Savva, Vasos Vassiliou

Unsupervised Machine Learning for Anomaly Detection in Thread IoT Networks 663
Varshani Varshani, Yuxiang Huang, Haoxiang Li, Yichao Wang, Calvin Brierley, Budi Arief George Oikonomou, James Pope

Federation Is Not Enough: Knowledge Distillation Warm-Up and Federated Training 672
Milena Mazza, Alfonso Esposito, Ivan Zyrianoff, Francesco Restuccia, Marco Di Felice

Loss Sensitivity Index-Based Loss-Aware Energy Management Framework for DC Microgrids with Seasonal Analysis 680
Saher Javaid, Iacovos I. Ioannou, Sadiq Muhammad, Yasuo Tan

PRIoTP: Towards Context-Aware Partial Reliable Application-Layer IoT Protocol with Edge Intelligence 686
MR Maharaz, Mi Ohi, MAU Zaman, A Sajid, Sadia Fi, P Akibuzzaman, MD Masum, SMN Shahriar NR Aurna, Hasan MA Islam, Michael Georgiades

AI-Assistance for LoRaWAN Simulators 694
Dimitrios Zorbas, Saida Tulebayeva

Ariel-ML: Embedded Rust Leveraging Multicore for Neural Networks on Heterogeneous Microcontrollers 702
Zhaolan Huang, Kaspar Schleiser, Gyungmin Myung, Emmanuel Baccelli

SKIPNAS: Designing Layer-Skipping Networks via Compute-Aware Neural Architecture Search 710
Lucas van Middendorp, Saeed Khalilian, Nirvana Meratnia

TWIST: Trains under Weather, Illumination, and Seasonal Time 719
Momin Ali, Andre Stenger, Til Arkenberg, Laura Harms, Olaf Landsiedel

Steering Uncertainty: Mean-Field-Augmented Physics-Informed Reinforcement Learning for AUV Swarm Coordination in Underwater IoT 726
Mandana Mahgoli, Ian F. Akyildiz, Teresa Sofia Giesta Da Silva, Sigurdur Thor Jonsson, Kristinn Andersen Saemundur E. Thorsteinsson

Conditional Adversarial Residual Training for Cloud Removal and High-Fidelity Image Reconstruction in Satellite IoT-Based Coastal Monitoring 734
Kathy Bannigan, Shagufta Henna, Stephen Seawright, Salem Gharbia

Federated Keyword Spotting on Constrained IoT Devices over Thread and CoAP 742
Juan F. Gutiérrez, Bilel Mejri, Negar Halakou, Chien-Chia Huang, Andres Gomez

A Comparative Study of Federated Learning Aggregation Strategies under Homogeneous and Heterogeneous Data Distributions 750
Antonios Makris, Christos Dousis, Emmanouil Kritharakis, Stavros Bouras, Konstantinos Tserpes

An IoT-Enabled RGB-D Approach for Weight Prediction in Turkey Production 758
Lorenzo Palazzetti, Mireia Molins, Enrico Casella

Evaluation of Adaptive Fuzzy Logic-based IDS (AFLIDS) for the Detection of Jamming Attacks in Vehicular Wireless Networks 766
Michael Savva, Iacovos Ioannou, Vasos Vassiliou

TinyDéjàVu: Smaller RAM and Faster Inference with Neural Networks on MCUs for Sensor Data Streams 775
Zhaolan Huang, Emmanuel Baccelli

Trickle Timer in G3-PLC Networks: Performance Evaluation of LOADng Flooding with ns-3 784
Matthieu Silard, Anne-Cécile Orgerie, Nicolas Montavont, Georgios Z. Papadopoulos

Energy-Aware LoRaWAN Design for Long-Lived Agricultural Sensing: Insights from a Multi-Year Deployment and Controlled Platform Comparison 792
Carl Dickinson, Shishir Nagaraja, Chuadhry Mujeeb Ahmed

Explainable Bluetooth DoS Detection in IoMT Networks Using a Protocol-Aligned Concept-Supervised SENN-Style Model 800
Michael Georgiades, Artemis Kontou, Charalambia Varnava

Cyber Resilience supported by AI in CBDC systems: scenarios, applications and limitations 808
Andrea Tundis, Claudio Savaglio

spaPS: Spatially-Aware Publish-Subscribe Middleware for IoT Systems 814
Philipp Ungrund, Kurt Rothermel, Sukanya Bhowmik

Collective Signals and Truth Perception in AI-Generated Multimedia 822
Roberto Cavicchioli, Marco Furini, Giacomo Tagliani

Distributed Collective Learning on Mobile Devices: A Real-Hardware FedAvg Evaluation 828
George-Alexandru Tudor, Radu-Ioan Ciobanu, Ciprian Dobre

Exploiting Platooning Dynamics to Improve Urban Intersection Throughput 834
Giacomo Cabri, Manuela Montangero, Filippo Muzzini

Collective Semantic Intelligence for Vehicular Crowdsensing over Named Data Networking 840
Marica Amadeo, Giuseppe Ruggeri, Antonella Molinaro, Salvatore Serrano

What Evolutionary Algorithm(s) Should We Use? Towards Preliminary Guidelines from an Exploratory Analysis of Foraging Problems 846
Paolo Pagliuca, Alessandra Vitanza

A Lightweight Architecture for Collective Coordination Across Isolated Edge Systems over LPWAN 852
Javier Prades, Erika Rosas, Juan-Luis Posadas-Yagüe, José M. Cecilia, Pietro Manzoni

Human-Cognitive Buildings Interaction through Smart Gloves 858
Hindred Arturo Peña Rodriguez, Franco Cicirelli, Emilio Greco, Antonio Guerrieri, Md Babul Islam Irfanullah Khan, Carlo Mastroianni, Ermelinda Oro, Andrea Vinci

Informational Nudging and Collective Cooperation under Flood Risk: An Agent-Based Study 864
Alessandro Sapienza, Fabio Paglieri, Marco Marini, Sebastiano Munini, Anna Gerna, Rino Falcone

Distributed Intelligence in Smart Agriculture Through Cognitive Tree Modeling 870
Franco Cicirelli, Francesco D'Amore, Antonio Francesco Gentile, Emilio Greco, Gianluca Godino Antonio Guerrieri, Gabriella Lo Feudo, Luca Lombardo, Carlo Mastroianni, Massimo Micieli Ermelinda Oro, Andrea Vinci, Samanta Zelasco

Named Data Networking (NDN) for Collective Network Intelligence: a Smart Museum case study 877
Rafiq Ul Islam, Vincenzo Barbuto, Claudio Savaglio, Raffaele Gravina

Mining Distributed Collective Intelligence for Accessible Urban Mobility 883
Mirko Franco, Salvatore Gatto, Matteo Noro, Lorenzo Perinello, Claudio E. Palazzi

An Architectural Approach for Multimodal Robot Control 889
Franco Cicirelli, Antonio Francesco Gentile, Antonio Guerrieri, Md Babul Islam, Qimeng Li Ermelinda Oro, Luigi Rizzo, Andrea Vinci, Paolo Zicari

Towards Self-Adaptive Embryonic Systems 893
Thomas Welsh

GPS-Free Self-Healing Drone Networks via Virtual Spring-Dampers 897
Federico Corò, Riccardo Fabbian, Claudio E. Palazzi

Leveraging Collective Intelligence Signals for Early Misinformation Detection on the Web 901
Carmela Comito, Liliana Martirano

A Three-Pillar Methodology for Identifying Generic Business Models for Digital Product Service System Passports 905
George Alexandris, Ana Teresa Correia, Styliani Stavroulaki, Ioannis Basdekis

From Confusion to Compliance: A Deployment-Ready Mobile Application for Harmonising Recycling Guidance Across UK Local Authorities 910
Chloé Greenstreet, Anastasia Vayona, Jane Henriksen-Bulmer

Micro-Credential Ecosystem for Digital Circular Economy: The 3D-CIRCULAR Approach 916
Anastasia Vayona, Ioannis Basdekis, Sofia Alexaki

Revisiting Traditional Wireless Operations Through the Lens of Large Synthetic Datasets 923
Theofanis P. Raptis, Rafayel Mkrtchyan, Hrant Khachatrian

Efficient Waste Sorting for Circular Economy: A Confidence-guided comparison between One-Vs-All and One-Vs-Rest Classification Strategies with Human-in-the-Loop for Automated Waste Sorting 930
Mohammed Fahad Ali, Dominique Briechle, Marit Briechle-Mathiszig, Tobias Geger, Andreas Rausch

Performance Evaluation of Low-Power Wireless Networks for Indoor Localization 938
Thomas Spachos, Petros Spachos

Ontology as Distributed Coordination Infrastructure for the Circular Economy 944
Cynthia E. Reynolds

AI-enhanced Situational Awareness for Smart Circular Economy Infrastructures: A Cyber Range-based Approach 952
Amalia Damianou, Antonis Voulgaridis, Konstantinos Votis, Dimitrios Tzovaras

Flexible Distributed Particle Filtering for the Internet of Things via Aggregate Computing 959
Angela Cortecchia, Davide Domini, Giovanni Ciatto, Roberto Casadei, Danilo Pianini, Mirko Viroli

Oracle-Ready Evidence Batching for Concurrent Medical IoT Sensor Writes on a Move Blockchain 967
Tariq Naeem, Massimiliano Pirani, Luca Spalazzi

From Sound to Species: A Modular Acoustic Sensor for Biodiversity Monitoring 975
Davis Rakhshan, Lucas Bublitz, Ulf Kulau

Exploring Privacy in Smart Digital Wallets for CBDC Payments 981
Andrea Tundis, Francesco Cauteruccio

PoE-OPR: Predictive-Responsive Operational Policy Conflict Resolution for CPS/IoT Systems 988
Jared Hall

PoE-DC: Predictive Conflict Detection for CPS/IoT Systems 994
Jared Hall

Information-Theoretic Limits of Minimal Disclosure in IoT-Enabled Digital Food Product Passports 1000
Spyridon Evangelatos, Amalia Ntemou, Paraskevas Bourgos, Nikoleta Tsampanaki, George Bardas
Nikos Kefalakis, Pantelis Lappas

Swarm Learning for Fault Detection in Heterogeneous Multi-Robot PCB Assembly 1006
George Bardas, Nikos Kefalakis, John Soldatos, Grigoris Antonopoulos

The GenAI Spike: Proposal Submission Trends and Competition in Horizon Europe (2021-2026) 1014
Tiago Teixeira, Salviano Pinto Soares, Pedro Maló, John Soldatos, Bruno Almeida, Marcio Mateus

Persistent and Conversational Multi-Method Explainability for Trustworthy Financial AI 1022
Georgios Makridis, Georgios Fatouros, John Soldatos, George Katsis, Dimosthenis Kyriazis

Agentic Climate Intelligence: A Multi-Agent Architecture for Human-Centered Climate-Resilient Smart Cities 1027
Vangelis Malamas, Panagiotis Giannopoulos, Dimitris Koutras

Reality (AR), Virtual Reality (VR), Mixed Reality (MR) and eXtended Reality (XR) Integration in Artificial Intelligence (AI) Software Systems 1035
Argyro Mavrogiorgou, Andriana Prentza, Michael Filippakis, Maurizio Megliola, Nikolaos Tousert
Athanasios Kiourtis

CyberAId: AI-Driven Cybersecurity for Financial Service Providers 1043
George Fatouros, Georgios Makridis, John Soldatos, Dimosthenis Kyriazis, Pedro Malo
George Kousiouris, Giannis Ledakis, Louiza Kachrimani, Panagiotis Rizomiliotis, Bruno Almeida
Despina Tomkou, Kostas Metaxas, Konstantinos Ilias, Christos Gkizelis, Ernstjan de Gooyert
Amin Babazadeh, Kostis Mavrogiorgos, Pepi Paraskevoulakou, Christos Xenakis, Giannis Chouchoulis
Konstantina Tripodi

An Explainability Framework For Systems Fusing Base Black Boxes 1051
Ioannis T. Christou, Konstantinos Chasapas, Charalampos Marantos, Chrysovalanto-Aggeliki Vourtsani
Pantelis Lappas, John Soldatos

An Organization-Scoped LLM Agent Runtime Architecture for Regulated Cybersecurity Operations 1059
George Fatouros, Georgios Makridis, George Kousiouris, John Soldatos, Dimosthenis Kyriazis

Native Explainability for Bayesian Confidence Propagation Neural Networks: A Framework for Trusted Brain-Like AI 1067
Georgios Makridis, Georgios Fatouros, John Soldatos, George Katsis, Dimosthenis Kyriazis

Providing Semantic Interoperability Services in IIoT Environments 1075
João Rosas, Filipe Moutinho, Afonso Fernandes-Oliveira, Carolina Lagartinho-Oliveira, Paulo Pinheiro Pedro Maló

DESCANT: Human-Robot Collaborative Inline Quality Control for Acoustic Sensor Production 1083
Francisco Marques, André Lourenço, Pedro Silva, Fábio Querido, Bruno Almeida, Pedro Maló

Curated Uncertainty Exchange: A Deployment Pattern for Trustworthy AI in Expertise-Curated Environments, Motivated by a Heritage-Viticulture Re-Analysis 1091
Francisco Marques, André Lourenço, Pedro Silva, Marcio Mateus, Daniel Fernandes, Nuno Ferreira Salviano Pinto Soares, Diana Augusto, Tiago Teixeira

FedRAPS: Joint Client Selection and Adaptive Pruning for Resource-Aware Federated Learning 1099
Amir Dodangeh, Eric Samikwa, Torsten Braun

From Equality to Proportionality: Contribution-aware Proportional Fairness in Multi-Model Federated Learning 1107
Cláudio G. S. Capanema, Fabrício A. Silva, Leandro A. Villas, Antonio A. F. Loureiro

LIFT: Client-Shared Latent Space for Federated Learning in Heterogeneous Environments 1115
Alfonso Esposito, Ivan Zyrianoff, Milena Mazza, Marco Di Felice

FedAdaptSparse: A Sparse Federated Learning Approach to Reduce Communication Overhead in Emotion Detection Systems 1123
Gustavo Alonso Ccama Marron, Alvaro Henry Mamani-Aliaga, Rómulo W. C. Bustincio Wellington Viana Lobato Junior, Luiz F. Bittencourt

Are federated and centralized models alike? A comparative study via XAI 1131
Antonio V. O. Borssato, Daniel R. Trindade, Giovanni V. Comarela, Eduardo Zambon, Vinícius F. S. Mota Diego R. C. Dias

A Federated Learning Approach for Distributed Alzheimer's Disease Diagnosis Using Brain MRI 1139
João Vítor De Freitas Scarlatelli, Vitória Símil Araújo, Nagib Alexandre Verly Borjaili Vitor Dias Britto Militão, Yasmin Cassemiro Viegas, Henrique Cota De Freitas Felipe Domingos Da Cunha

The Cost of Going Bigger: Performance–Efficiency Trade-offs in Federated Learning for Urban Computing 1147
Weld L. Cunha, Luis F. G. Gonzalez, Daniel L. Guidoni, Leandro A. Villas

CA-SparseFL: Context-Aware Sparse Federated Learning for Energy-Efficient Urban Air-Quality Intelligence 1155
William E. Arcaya-Coaquira, Edgar Sarmiento-Calisaya, Weld L. Cunha, Alvaro Henry Mamani-Aliaga Rómulo W. C. Bustincio, Luiz F. Bittencourt

Counterfactual-based Recommendations for Driving Efficiency in Fleet Operations 1163
Miguel Francisco, Carnot Braun, Bruno Bigatto, Eduardo Martinho, Leandro A. Villas, Allan M. De Souza

Double DQN for Traffic Signal Control in a Data-Driven Scenario: Evaluation with Inductive Loop Detector Data from Campinas-SP 1171
Wellington Lobato, Guilherme Maia, Milton Marcelini, Leandro Villas

Classifying Urban Venue Popularity Patterns: A Cross-Country Study of Time Series Methods 1179
Carolina Idehama, Alexandre Amorim, Rodrigo Minetto, Thiago H. Silva

Stable Behavior, Limited Variation: Persona Validity in LLM Agents for Urban Sentiment Perception 1187
Neemias B Da Silva, Rodrigo Minetto, Daniel Silver, Thiago H Silva

V-SUMM: Vehicular-Node Data Summarization to Reduce Communication Overhead in VANETs 1195
Luis Fernando Castilho Maschi, Edivaldo Pastori Valentini, Geraldo Pereira Rocha Filho, Roger Immich Rafael Lopes Gomes, Rodolfo Ipolito Meneguette

Characterizing the Supply Chain for South America: A Data-Driven Approach to Maritime Logistics 1203
Edgar S. Oliveira, Clayson Celes, Bruno Santos, Paulo H. L. Rettore, Rodolfo Meneguette

Beyond dashboards: Promoting urban data visualization for citizens 1211
Marcela Almeida, Liziane O. Jorge, Vinícius F. S. Mota

Luxor: A Perpetual Batteryless Sensing Device Targeting Real-world Long-life Applications 1219
Leonor Carvalho, Diogo Gonçalves, Miguel Roque Soares, Waldir Moreira, Vítor Tavares

Stochastic Demand Generation and Predictive Rebalancing for Shared Autonomous Fleets 1227
Harun Mohamed Huka, Ibrahim Tamim, Manar Jammal

Towards Location Privacy Protection in the Internet of Drones: Lessons from VANETs 1235
Nathanael Lascoux, Saadi Boudjit, Samia Bouzefrane, Jean-Marc Montenot

FlowMIA: Membership Inference Attack on Generative Network Flow Models 1243
Guilherme S.G. Brotto, Iran F. Ribeiro, Giovanni Comarela, Idilio Drago, Diego R. C. Dias Vinícius F. S. Mota

Enhancing the Security of LoRaWAN-Based Radiation Detection Systems Using Hardware Security Module 1251
Arshia Mortazavinezhad, Mehmet Yavuz Yağci, Khalil El-Khatib, Glenn Harvel

Deep Learning-Based Convolutional Neural Networks for Oral Lesion Diagnosis 1259
Gabriel Lucas S. Moura, Felipe D. Cunha

Neural Architecture Search for Traffic Prediction: A Survey of Methods, Challenges, and Future Directions 1267
Truong Giang Vu, Li Yang, Richard W. Pazzi

A Hybrid Agent-based Navigation System with Semantic Reasoning 1275
Carnot Braun, Gabriel U. Talasso, Joahannes B. D. Da Costa, Leandro A. Villas, Allan M. De Souza

From Friction to Dropout: Visual Multi-Agent Simulation of Adaptive Socratic Friction in Smart Urban Furniture 1282
Karina Flor Condori-Bustincio, Eloisa Lizeth Paredes-Cayllahua, Rómulo W. C. Bustincio Wellington Viana Lobato Junior, Luiz F. Bittencourt

Location-Aware Online Multi-Camera Vehicle Tracking 1290
Rihards Krišlauks, Teodors Eglītis, Andris Vāravs

Real-World 5G NR Performance Characterization for Aerial IoT Deployments: Throughput Dynamics, Stability Analysis, and the Energy–Throughput Trade-Off 1299
Michail Alexandros Kourtis, George Xilouris

Sustainable 6G Architecture: A Hexa-X-II Perspective 1304
Ozgur Umut Akgul, Vasileios Tsekenis, Sokratis Barmpounakis, Panagiotis Demestichas
Panagiotis Charatsaris, Maria Diamanti, Symeon Papavassiliou, Jaap van de Beek, Amirreza Moradi
Payal Gupta, Panagiotis Botsinis, Antonio Varvara, Sameh Eldessoki, Marcin Ziółkowski, Halina Tarasiuk
Karol Kuczyński, Hasanin Harkous, Pere Garau Burguera, Mårten Ericson, Stefan Wänstedt
Bahare M. Khorsandi

MoniKube: Infrastructure Discovery Model 1312
Jason Diakoumakos, Maria Belesioti, Ioannis Chochliouros, George Lyberopoulos

Implementing End–to-End Zero Trust Architecture in the AIoT-Edge-Cloud Continuum: The CyberNEMO Approach 1318
Maria Belesioti, Jason Diakoumakos, Ioannis P. Chochliouros, Theodore Zahariadis, Andreas Papadakis

5GAutoConf: A Rapid Data-Driven Autoconfiguration Tool for 5G Base Stations 1325
Niels Hendrik Fliedner, Florian Klingler, Henning Trsek

Software-Defined Radio Testbed for Distributed Power Control in Over-the-Air Computation Systems 1329
Dipanjan Adhikary, Aruzhan Sabyrbek, Sri Likhita Chillakoori, Eirini Eleni Tsiropoulou

A Modular O-RAN Testbed Based on SRS Open Source O-CU/O-DU and Massive Beams Modular O-RU 1337
Fabian Göttsch, Oriol Font-Bach, Andreas Benzin, Dennis Osterland, Andre Puschmann
Felix-Christopher Lutz, Wilhelm Keusgen, Giuseppe Caire

Low-Complexity Wireless Modulation Technique Enabled by In-Memory Computing 1344
Mojtaba Mahdavi

Enhancing Spectral-Spatial-Temporal Efficiency of NOMA: Challenges and Design Considerations 1352
Maria Diamanti, Panagiotis Charatsaris, Haya Al Kassir, Michail Karavolos, Nikolaos Nomikos
Tugce Kobal, Matthew Andrews, Daniel Dinis, Risto Wichman, Sofia Barkatsa, Symeon Papavassiliou

Pi5G: A lightweight 5G Testbed on a Raspberry Pi5 1360
Rajendra Paudyal, Rajendra Upadhyay, Al Nahian Bin Emran, Brienne Douglas, Lisa Donnan
Duminda Wijesekera