2026 9th International Balkan Conference on Communications and Networking (Balkancom 2026)

Ulcinj, Montenegro
16-19 June 2026

IEEE Catalog Number: CFP26M50-POD
ISBN: 979-8-3195-4807-8

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:	CFP26M50-POD
ISBN (Print-On-Demand):	979-8-3195-4807-8
ISBN (Online):	979-8-3195-4806-1

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



TABLE OF CONTENTS

Visual Signatures of Suboptimal Sampling in Constellation-Based AMC with CNNs 1
Alexander Gros, Véronique Moeyaert, Patrice Mégret

EBChain: Blockchain-Based Peer-to-Peer Energy Bartering System 7
Abdulrezzak Zekiye, Ouns Bouachir, Öznur Özkasap, Moayad Aloqaily

Dynamic Clustering and Sensor Exclusion for Prolonging Network Lifetime in CRSNs 13
Alcides Mário Joaquim Tomás, José Marcos Camara Brito

Design and Ground-Based Validation of a Dual-Band Communication Subsystem for the Istanbul 1P PocketQube Satellite 19
Saeed Nourizadeh Azar, Suleyman Altinisik, Mikail Erdem, Khalid Qaraqe

Non-Uniform Codebook Design for Optical IRS-Assisted VLC Systems 25
Rashid Iqbal, Dimitrios Bozanis, Dimitrios Tyrovolas, Christos K. Liaskos, Muhammad Ali Imran George K. Karagiannidis, Hanaa Abumarshoud

Average Redundancy Masks Worst-Case Vulnerability in an Operational Urban LoRaWAN 31
Kemal Akcay

SCD: Segment-CNN-Decision for Signal Detection in Wideband Spectrum with Unknown Interference 36
Tianyi Zhao, Connor Steigerwald, Johnny Zhang, Danijela Cabric

LLM-Driven Network Management Reliability: Case of System Outage Probability in AF Relay Networks under Conditions of Different Types of Fading 41
Suad Suljović, Dragana Krstić, Nenad Petrović, Siniša Minić, Jovan Vujić

SceneSense: Scene-Conditioned Generative AI for RF Channel Prediction 47
Rudhra Joshi, Sean B Johnson, Zubair Hafeez, Silvija Kokalj-Filipovic, Predrag Spasojevic

RFLAM: Generative Modeling of Time-Varying Massive MIMO Channels for Factory-of-the-Future Environments 53
Zubair Hafeez, Sean B Johnson, Silvija Kokalj-Filipovic, Predrag Spasojevic

Machine Learning-Aided Channel Estimation and Hybrid Combining for Ultra-Massive MIMO THz UAV Communications 59
Iana Shapoval, Wolfgang H. Gerstacker, Ozgur Gurbuz, Akhtar Saeed

RL-Assisted RAT Layer Management for Energy-Efficient Disaster Recovery in O-RAN 65
Sümeyye Baş, Uzay Bengi, Gökhan Kalem, Sina Alp, Cicek Cavdar

Secure Authentication and Privacy-Preserving Localization for V2X Communications in Next-Generation Vehicular Networks 71
Muhammad Jamil, Adnan Kavak, Sema Bayraktar, Günay Aslan, Cansu Canbolat

Federated Learning vs. Centralized Approaches for Lesion Detection in Mammography Images 77
Nemanja Petrović, Nikša Jakovljević, Dragana Bajović, Ivan Lazić, Milan R. Rapaić Tatjana Loncar-Turukalo

Towards an Integrated CRC Risk Prediction using Machine Learning - Driven Digital Twin Framework 83
Gordana Gardašević, Milana Grbić, Maša Ždralević, Andrej Mihailovic

A Privacy-Preserving Searchable Encryption Scheme for Distributed Electronic Medical Records 89
Asude Gülçiçek, Burcu Sönmez Sarıkaya, Gürkan Gür, Şerif Bahtiyar

A Computer Vision–Based System for Automated Counting of Surgical Supplies 95
Jovana Gavrilović, Bojan Božić, Milan Dobrić, Milovan Bojić, Tatjana Loncar-Turukalo

Structuring Clinical Heart Failure Data with Locally Deployed OpenSource LLMs 101
Georgios Nikolaos Tsakonas, Athanasios Samaras, Alexandra Kosvyra, George Giannakoulas Ioanna Chouvarda

Privacy-Conscious WiFi Traffic Classification Using non-DPI Features 107
Süleyman Onur Doğan, Öykü Han Batum, Ali Sonmez, H. Birkan Yilmaz

Entropy-Based Linking Mechanisms for Browser Fingerprinting 113
Mert Karaçavuşoğlu, Elif Ecem Şamlıoğlu, Albert Levi

Graph-Based Trust Assessment for Secure Service-Oriented 6G Network Architectures 119
Alessandro Carrega, Franco Davoli, Mohammaderfan Shahabi

FedVAE-KD: A Privacy-Preserving Federated Learning Framework for Scalable Wireless Network Intrusion Detection 125
Muhammet Anil Yagiz, Amira Benamara, Zeynep Deniz, Polat Goktas

ChainJam: Receiver-Chain-Aware Protocol-Aware Jamming in DVB-S2 131
Mustafa Armagan Topcu, Hakan Ali Cirpan

A Self-Healing Digital Twin Framework for Autonomous IoT Node Management 138
Adnan Grbešić, Marko Dogan

Adaptive Phase and Amplitude Imbalance Correction in Digital SSB Transceivers Using Blind Estimation Algorithms 143
Osman Ensar Karahan, Ahmet Faruk Karahan, Orhan Gazi

Model Predictive Control (MPC)–Based Modulator-Less Digital SSB Switching Method 148
Ahmet Faruk Karahan, Osman Ensar Karahan, Orhan Gazi

Physical Layer Security with Chaos-Based Frequency Modulation 153
Emir Daşdağ, Mehmet Salih Arslan, Furkan Nail Erciyes, Orhan Gazi

Joint Channel Prediction and Power Allocation Under Feedback Delay Using Deep Learning for High-Speed Railway OFDM Systems 158
Aphitchaya Siriwanitpong, Kosuke Sanada, Hiroyuki Hatano, Kazuo Mori, Pisit Boonsrimuang

Pilot Allocation for Multi-Hop Over-the-Air Neural Inference under Imperfect CSI 164
Tolga Girici, Meng Hua, Deniz Gündüz

Hybrid Deep Learning for 5G Positioning: Integrating Map-Derived Environmental Features with GAT-GRU-Attention 170
Cemre Sude Akdag, Berkay Bayramoglu, Efekan Celik, Enes Dasci, Mert Ficici, Rukiye Savran Kiziltepe Murat Karakus, Fatih Cogen, Gokhan Kalem

CSI-Assisted Edge SLAM Testbed Platform for 5G Connected Unmanned Autonomous Vehicles 176
Boris Radovanovic, Sasa Talosi, Srdjan Sobot, Dejan Vukobratovic

Intent-Driven Optimization of MANET Routing Using a Large Language Model 182
Yusuf Emre Baysal, Hakan Ali Cirpan, İbrahim Hokelek

A Simple Analytical Ergodic Capacity Approximation for Sub-Terahertz Band Drone-to-Ground Communication 188
Mikail Erdem, Mazen Omar Hasna, Khalid Qaraqe

Implications of Incumbent Radar Operations on 5G-NR Link Integrity: An Experimental Analysis in the Citizens Broadband Radio Service Band 193
Sharzeel Saleem, Miguel López-Benítez

Coexistence of Wi-Fi 6E and 5G NR-U: Experimental Performance Analysis and Novel Interference Detection Model 199
Sharzeel Saleem, Miguel López-Benítez

Energy-Aware Design of UAV-mounted Active RIS for Maritime Communications 205
Kyriakos Ioannou, Dimitrios Tyrovolas, Alexandros Papadopoulos, Antonios Lalas Panagiotis Diamantoulakis, Sotiris Ioannidis, Christos Liaskos, George Karagiannidis

Performance Evaluation of Conventional and AI-Aided Detectors for AmBC in Multi-Tap Channels 211
Alperen Arslan, Muhammad Sohaib J. Solaija, Muhammad Bilal Janjua, Adnan Kavak

Constant-Envelope Phase Embedding for Radar-First Dual-Function Systems 217
Ceren Çelik, Mustafa Bora Çelik, Orhan Gazi

Doppler-Based Position Estimation in LEO Satellite Links 222
Orkun Güldali, Gökce Düzyol, Ali Emre Pusane

Subcarrier-Level OFDM Waveform Optimization for Integrated Sensing and Communications 227
Nazmi Eren Varilci, Murat Temiz

Opportunistic Environmental Sensing via 5G ISAC in Emerging Networks: A Framework for Resource-Constrained Urban Deployments 232
Vullnet Laniku, Enver Hamiti, Mimoza Ibrani, Bujar Krasniqi

Semantic Decision Reliability of Foundation Model-Based Network Control Under Corrupted Semantic State in 6G 237
Nefise Alimusaj, Vullnet Laniku, Bujar Krasniqi

From Prediction to Policy: An Agentic AI Framework for Telecom Churn with XAI-Driven Validation 242
Sumeyye Bas

Handover Volume Forecasting in Cellular Networks: A Comparison of Temporal and Spatio-Temporal Models 248
Sumeyye Bas, Fatih Cogen

Pre-Launch Validation of 5G Site Prioritization Decisions Using PCA and Autoencoder Models 254
Fatih Cogen, Alpaslan Gokcen, Berkay Benli, Gunes Kesik, Saliha Sezgin Alp

Learning Energy-Efficient Modular Arrays under Hardware Non-linearities 260
Özlem Tuğfe Demir, Alva Kosasih

Intent-Based Resource Scheduling with Time Negotiation 266
Manh Cuong Nguyen, Nagham Hachem, Éric Renault