2025 14th International Conference on Networks, Communication and Computing (ICNCC 2025)

Fukuoka, Japan
10-12 December 2025

IEEE Catalog Number: CFP250BA-POD
ISBN: 979-8-3315-5823-9

IEEE Advancing Technology for Humanity

Copyright © 2025, 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:	CFP250BA-POD
ISBN (Print-On-Demand):	979-8-3315-5823-9
ISBN (Online):	979-8-3315-5822-2

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

Developing a Virtual Reality Serious Game to Preserve the Hunting Culture of the Puyuma Tribe 1
Chih-Wei Shiu, Qi-Hui Tian

RF-Skeleton: A Dual-Channel Approach to RF-Based Human Pose Estimation 7
Xin-Min Pan, Sirajudeen Gulam Razul, Alex C. Kot

A Comprehensive Review on Automated Data-Centric AI in Computer Vision and its Applications in Healthcare Imaging 13
Saif Saeed Alhebsi, Rabiah Al-Qudah

Optimizing Memory and Device Synchronization for Checkpoint-Based Fault-Tolerant Virtual Machines 19
Da-Wei Chiang, Kai-Chien Yang, Ching-Cheng Tsai, Deron Liang, Wei-Jen Wang

Research on Tourism Industry Prosperity Monitoring Based on LSTM: Using CSI Tourism Thematic Index as a Proxy Indicator 25
Yu Gao, Hanlong Xie, Haoze Li, Yanji Piao

Design and Validation of a Blockchain E-Voting Prototype 30
Erwin, Pujianto Yugopuspito

Optimizing Long-Term PM2.5 Modeling through Time Series Analysis 36
Gordon Hung, Julio Jerison E. Macrohon

Comparative Study on Sentiment Classification of Chinese Hotel Reviews by Prompt BERT vs. ERNIE 42
Haoze Li, Jiawen Wu, Yanji Piao

Game Theory-Based Explicit Rate Congestion Control Method in Data Center Networks 47
Zhijie Han, Xiaoyang He, Yanxiang Zhao

A Theoretical Framework for Edge-Native URLLC Traffic Classification: Bridging AI Models and Real-World Constraints 53
Osama AlQahtani

Characterization of Traffic Flows in a Low-Resource Community Wireless Network 59
Emmanuel Ackerson, Keegan White, Josiah Chavula

Towards Generating Synthetic Protocols and Packets 67
Alex Rohl, Matthew Roughan, Martin White, Alexander Chambers

Zero-Premise Genesis: Redefining Intrusion Detection—Is IDS Possible Without Any Prior Data? 77
Kabid Hassan Shibly, Ryoichi Isawa, Takahiro Kasama

Energy-Aware TinyML for Intrusion Detection in IoT Networks 85
Leonardo Falanga, Massimo Ficco, Antonio Guerriero, Francesco Palmieri, Gennaro Pio Rimoli Giovanni Maria Cristiano, Salvatore D'Antonio

Does TCP BBR in Ns-3 Network Simulator Work Correctly ? 90
Toshihiko Kato, Takahiko Kato, Ryo Yamamoto, Satoshi Ohzahata

Enhancing Privacy and Security in Federated Learning for IoT: the SecureIoT-FL Framework 96
Victor Obarafor, Mandi Qi, Leishi Zhang

Integration of Cisco ISE-Based AAA Framework into Quantum-Secure Cloud Access Architecture 103
Edgars Rencis, Rihards Balodis, Edgars Celms, Elīna Kalniņa, Sergejs Kozlovičs, Ināra Opmane Krišjānis Petručeņa, Juris Vīksna

Scalable RAN-Sharing Moran Architecture Via LEO Satellites: A Comparative Study Against Traditional Backhaul in Rural Zones of Peru 108
Joel Aragón, Valeria Calderon, Manuel García, Alessandro Defilippi

Formal Specification and Verification of Smart Contract–Based SLA and Routing in LEO Satellite Networks with TLA$^+$ 115
SeongHo Yoon, Jin-Young Choi

Energy-Efficient Routing Optimization in 5G/6G Networks Using an Enhanced Bee Algorithm: Balanced Search and Adaptive Parameter Tuning 121
Hiteshkumar M. Nimbark, Hansiniba P. Jadeja

A Compact Direction-Finding System for Counter-Drone Operations 127
Hanqing Gu, Zhuo Yang, Min Zhang, Qi Zhou, Peng Zhang, Xiaowen Wen

MAC Protocol for IRS-Assisted Hybrid Near- and Far-Field Communication Links 132
Yijun Piao, Tae-Jin Lee

Image Rejection and Interference Sensitivity Testing via BER Degradation of Digital Transceivers 136
Attila Hilt, Andrea Farkasvölgyi

A Survey on Metaheuristics Applied to Resource Allocation in B5G/6G Heterogeneous Networks 145
Victor A. A. Cruz, Yarisley Peña Llerena, Paulo R. L. Gondim

Fusion Manifold Optimization for Downlink SIM-Aided MISO System 156
Dione Wan Yun Goh, Sirajudeen Gulam Razul, Erry Gunawan

Experimental Investigation of Turbulence and Attenuation Effects on Free-Space-Optical-Communication (FSOC) with Different Fiber-Coupled Receivers 162
Pai-Li Chiu, Yu-Han Lin, Jun-Hao Yu, Wei-Lin Chen, Yin-He Jian, Chi-Wai Chow

Inter-Network Interference in Automated Frequency Coordination Controlled Wi-Fi 6E Networks 167
Ali Seymen Alkara, Yalcin Sadi, Onur Ergen, Mustafa Ergen

Comparing Model Compression Techniques for MCU-Based Federated TinyML 173
Massimo Ficco, Gennaro Pio Rimoli, Antonio Guerriero, Francesco Palmieri

Programming Energy-Efficient Edge AI Systems Based on Self-Adaptive Approach 179
Hao-Ying Cheng, Yung-Li Hu, Chien-Hsun Wu, Jiann-Liang Chen, Yennun Huang

Integrated Energy Prediction, Adaptive Duty Cycling, and Clustering Framework for Solar Energy Harvesting Wireless Sensor Networks 185
Zühal Bingöl, Nuray At

IoT-Based Real-Time Water Consumption Monitoring and Forecasting Using Machine Learning 191
Robert Jhun V. Lagang, Jaymer M. Jayoma

A Comparative Analysis of Malware Detection Techniques in Encrypted Network Traffic 198
Hessa Almazrouei, Shaikha Alzaabi, Yaser Khamayseh

Optimal Session Configuration for the Licklider Transmission Protocol in Deep-Space Communication Networks 204
Xirui Shen, Yingxiang Han, Lei Yan, Suzhi Cao

Mapping the Emotional and Rational Triggers of Device Replacement: Evidence From Perceived Smartphone Obsolescence 212
Indrawati, Giri Refi Rifaldi Windya, Ramantoko Gadang, Widarmanti Tri

Predicting Buying Latent Variables Using Facial Emotions Recognition Tracking During Buying Process 223
Indrawati, Ramantoko Gadang, Widarmanti Tri

Design of Dense Fiber-Wireless System with Load Consideration 235
Mahfida Amjad Dipa, Syamsuri Bin Yaakob, Fadlee Rasid, Faisul Arif Ahmad, Azwan Bin Mahmud