

2023 6th International Conference on Advanced Communication Technologies and Networking (CommNet 2023)

**Rabat, Morocco
11-13 December 2023**



**IEEE Catalog Number: CFP23N84-POD
ISBN: 979-8-3503-2940-7**

**Copyright © 2023 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:	CFP23N84-POD
ISBN (Print-On-Demand):	979-8-3503-2940-7
ISBN (Online):	979-8-3503-2939-1
ISSN:	2771-7399

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

Implementing and Evaluating a P4-Based Access Gate Function on a Tofino Switch	1
<i>El Mehdi Makhroute; Mohammed-Ayoub ElHartj; Vincent Brouillard; Yvon Savaria and Tarek Ould-Bachir</i>	
Outage Analysis of Dual-Hop UAV-Assisted Links Considering Orientation Fluctuations	8
<i>Rayyan Al-Khattab; Saud Althunibat; Abdullah Alhasanat; Khalid A. Qaraqe</i>	
A Survey on IoT and Blockchain Integration Security: Challenges and Solutions	16
<i>Amnah Hmoud, Ghada Ali, Elaf Almushiti; Rawabi Alanz and Salim El khediri</i>	
Performance Prediction and Optimization of Flying Base Station During Emergency Scenarios	26
<i>Yara El-Shqeirat; Heba Yaser; Saud Althunibat; Mazen Omar Hasna; Khalid A. Qaraqe</i>	
Performance Optimization of Low-Altitude Platform over Crowded Areas - Souq Waqif as a Case Study	31
<i>Heba Yaser; Yara El-Shqeirat; Saud Althunibat; Mazen Omar Hasna; Khalid A. Qaraqe</i>	
MCS Adaptation and Its Role in Improving MAC Scheduling for Variable Packet Sizes in NR-V2X	35
<i>Brian McCarthy and Aisling O'Driscoll</i>	
Bandwidth Optimization Techniques in Heterogeneous 5G Networks Using DUDe	42
<i>Konstantinos Tsachrelias; Chrysostomos Athanasios Katsigiannis; Vasileios Kokkinos; Apostolos Gkamas; Christos J Bouras and Philippos Pouyiouta</i>	
Pre-Trained Models for Intent Classification in Chatbot: Comparative Study and Critical Analysis	48
<i>Adhane Souha; Charaf Ouaddi; Lamya Benaddi; Jakimi Abdeslam</i>	
UWB Transparent Patch Antenna for 5G Millimeter -Wave Applications	54
<i>Omar Ourahou; Hind Abbaoui; Fatima Ez-zaki; Raefat Jalila El bakouchi; Belahrach Hassan; Abdelilah Ghammaz</i>	
A Hardware Validation Framework for a Networked Dynamic Multi-Factor Security Protocol	59
<i>Cheng-Yen Lee; Kyler R. Scott; Sunil Khatri; Ali Ghayeb</i>	
Enhancement in Quality of Routing Service in Vehicular Ad-Hoc Networks Based on the MPR Selection Algorithm of the OLSR Protocol	66
<i>Oussama O Sbayti, S; Said Ouhmi; Brahim Es-sousy; Khalid Housni</i>	
RRI Adaptive: A Standards Compliant Approach for Equitable and Stable Congestion Control in C-V2X Networks	72
<i>Brian McCarthy and Aisling O'Driscoll</i>	

Security of Digital Agriculture Networks: A Review and Bibliometric Analysis	80
<i>Marfoun-Dini Ahmed Soumaya; Honfoga Anne-Carole; Patrick Sotindjo</i>	
Developing Mask R-CNN Framework for Real-Time Object Detection	89
<i>Oussama Hmidani and El Mehdi Ismaili alaoui</i>	
Evaluating LoRaWAN Performance in Intentional and Unintentional DoS Attacks by Legacy 900MHz Network Devices	97
<i>Seokhyeon Bang; Junyoung Jang; Minju Ro; Yuseon Choi; Doyong Kwon; Kangyeon Lee and Anthony Smith</i>	
Improving IoT Botnet Detection Using Ensemble Learning	104
<i>Youssra Baja; Khalid Choug dali; Abdellatif Kobbane</i>	
Fractal Analysis to BEMD's IMFs: Application CT-Scan	111
<i>Fatima Ghazi; Benkuider Aziza; Fouad Ayoub; Mohamed Zraid; Khalil Ibrahim</i>	
Enhancing Forensic Analysis Using a Machine Learning-Based Approach	118
<i>Samira Benkerroum and Khalid Choug dali</i>	
A Proposed 5G MIMO Antenna Design for Ultra-Wideband THz Applications	124
<i>Amin Al Ka'bi</i>	
David and Goliath: Asymmetric Advantage in MIIoT	130
<i>Gabriele Oligeri; Savio Sciancalepore; Alireza Sadighian</i>	
A New Architecture for Diagnosing Pulmonary Thorax Diseases (Covid-19, Pneumonology, Normal) Using Deep Learning Technology	138
<i>Djalal Rafik Hammou; Yasmine Feddag Zoulikh ; Samira Benadane</i>	
Backstepping Control of a Double-Stage Photovoltaic System Connected to the Tree-Phase Grid Under Partial Shading Conditions	148
<i>Khadija Sabri; El Maguiri Ouadia; Abdelmajid Farchi</i>	
Workload Allocation in Fog Environment Using Multi-Objective Evolutionary Algorithms for Internet of Things	155
<i>Hafsa Raissouli; Alauddin Bin Ariffin; Samir Brahim Belhaouari</i>	
Optimized Energy Management with Fuzzy Clustering for Heterogeneous Fog-Mist-IoT Network	163
<i>Salah Eddine Essalhi; Mohamed Janati Idrissi; Mohammed Raiss El Fenni; Houda Chafnaji</i>	
A New IoT Power-Limited Wireless Sensor Networks Routing Protocol Utilizing Computational Intelligence	171
<i>Reem Riyad Elyyan and Khalid A. Darabkh</i>	
Channel Impulse Response Peak Clustering Using Neural Networks	178
<i>Petr Horky; Ales Prokes; Radek Zavorka; Josef Vychodil; Jan M. Kelner; Cezary Ziótkowski; Aniruddha Chandra</i>	
Point Cloud Streaming over HTTP/2	185

Analysis of Inter-Mean-Opinion-Score (iMOS) and QoS Metrics for 5G Voice over LTE (VoLTE) and Voice over New Radio (VoNR) Services over IP-Multimedia-Subsystem (IMS) in 5G Mobile Networks	190
<i>Jussif Junior Abularach Arnez; Caio Bruno Bezerra de Souza</i>	
An Intelligent Routing Algorithm Based on Energy-Efficient Progressive-Recursive Clusters for Wireless Sensor Networks	197
<i>Adil Hilmani; Moahmmmed Koundi; Siham Aouad; Abderrahim Maizate; Yassine Sabri; Fouad Ayoub</i>	
Drone Remote Identification System Using Different Wireless COTS Radios: A Benchmarking Study	205
<i>Govind Singh; Ravi Ashok Pashchapur; Anshul Pandey; Aravindaraja Puthiyavinayagam</i>	
Navigating the Complexities of the Cloud-Native World: A Study of Developer Perspectives	212
<i>Ayush Bhardwaj</i>	
Optimizing Network Performance in 5G Systems with Downlink and Uplink Decoupling	218
<i>Charalampos Chatzigeorgiou; Christos J Bouras; Vasileios Kokkinos; Apostolos Gkamas; Philippos Pouyioutas</i>	
Solving the Real Cubic Truncated Moment Problem in the Singular Case	224
<i>El boukili Abdelaziz; Amar Rhazi; Bouazza El Wahbi</i>	
Time Estimation in Port Terminals: The Key Role of Automation Revealed by Data Analysis with Deep Learning.....	231
<i>Ayoub El idrissi and Abdelfatteh Haidine</i>	
Early Malware Characterization Based on Online Social Networks	237
<i>Alireza Sadighian; Ines Abbes; Gabriele Oligeri</i>	
Secrecy Performance of Uplink MIMO-NOMA with Antenna Selection in a Mixed RF-FSO System	245
<i>Amani A. F. Osman; Jules M. Moualeu; Fambirai Takawira</i>	
Performance Analysis of Vehicle to Infrastructure Network.....	251
<i>Mbanzabugabo Ndukebukwa Opel; Charles Kabiri; Kayalvizhi Jayavel Jayavel; Louis Sibomana</i>	
Efficient Brain Tumor Classification on Resource-Constrained Devices Using Stacking Ensemble and RadImageNet Pretrained Models	257
<i>Nihal Remzan; Karim Tahiry; Abdelmajid Farchi</i>	
Exploiting Direct Link in Dual-Hop AF Relaying for THz Wireless Systems	264
<i>Suneel Yadav; Radhika Gour; Devendra Singh Gurjar; Anshul Pandey</i>	
An Evaluation of High-Definition Voice Calls over IMS Throughout Handover Procedures Network	270
<i>Renata Kellen Gomes Dos Reis; Jussif Junior Abularach Arnez; Caio Bruno Bezerra de Souza;</i>	

Maria Lima Damasceno; Wederson Medeiros Silva

Comparison Between Emergency Calls over VoLTE and VoWiFi Using IMS	276
<i>Maria Lima Damasceno; Jussif Junior Abularach Arnez; Walmir Acioli E Silva; Caio Bruno Bezerra de Souza; Renata Kellen Gomes Dos Reis; Lucas B. C. Tribuzy</i>	
Innovative Model for Predicting Soil Impact on Patch Antenna Directivity	283
<i>Mounir Elmejjatti and Ahmed Habbani</i>	
Scaling a Blockchain System with Layered Architecture.....	289
<i>Fahad Rahman; Chafiq Titouna; Farid Nait-Abdesselam; Ahmed Serhrouchni</i>	
Email Filtering Based on Artificial Neural Network: Activation Functions and Learning Rate Analysis	295
<i>Abdelmoujoud Assabir and Abdelkhalek Assabir</i>	
Scalable Blockchain Through Prioritised Sharding	300
<i>Fahad Rahman; Chafiq Titouna; Farid Nait-Abdesselam; Ahmed Serhrouchni</i>	
Optimal DU Placement in an O-RAN Multi-Band System	306
<i>Amath Ndao; Xavier Lagrange; Nicolas Huin; Geraldine Texier; Loutfi Nuaym</i>	
Using SDN to Enhance Load Balancing in Cloud Computing: An Overview and Future Directions	313
<i>Hicham Yzzogh and Hafssa Benaboud</i>	
A Scalable SDN In-Band Control Protocol for IoT Networks in 6G Environments	319
<i>David Carrascal; Elisa Rojas; Diego Lopez-Pajares; Nicolas Manso; Emma Gutierrez</i>	
A Novel Millimeter-Wave Miniaturized UWB Antenna Developed for 5G Applications Using Four L-Shaped and SRR Slots	326
<i>Youssef Frist; Mourad Elhabchi; Mohamed Nabil Srfi</i>	
An Improved Routing Protocol for IoT Sensors Utilizing Clustering Techniques and Optimization Methods	332
<i>Khalid A. Darabkh and Muna R. Al-Akhras</i>	
A Novel Frequency Reconfigurable Antenna for X, Ku, and K Bands Applications	338
<i>Youssef Frist; Mourad Elhabchi; Mohamed Nabil Srfi</i>	
A Low-Profile Dual-Band Eight-Port MIMO PIFA Antenna for 5G/WLAN Sub-6 GHz Mobile Terminal	343
<i>Rachida Boufouss and Abdellah Najid</i>	
Enhanced Object Localization Using a Beamsteering mmWave Communication System ...	350
<i>Ekaterina Sedunova; Nebojsa Maletic; Darko Cvetkovski; Eckhard Grass</i>	
Study of Spiking Neural Network-Based Regressor on Applications in Digital Predistortion for Power Amplifiers	356
<i>Yongtao Wei; Siqi Wang; Farid Nait-Abdesselam; Aziz Benlarbi-Delai</i>	

Quantum Codes over F_q from $\alpha+\beta u+\gamma v+\delta uv+\eta u^2+\theta v^2+\lambda u^2 v+\mu uv^2+\nu u^2 v^2$ Constacyclic Codes	363
<i>Sabiri Mohammed and Bassou Aouijil</i>	
Enhancing PAPR in OFDM System Using Polar Codes and μ-Law Companding with Adaptive Modulation and Coding Rates	367
<i>Brahim Bakkas; Hassan Silkhi; Hussain Ben-azza; Idriss Chana</i>	
Performance Assessment of Intelligent Reflective Surfaces-Aided Network with Residual Hardware Impairments	373
<i>Elmehdi Illi and Marwa Qaraqe</i>	
Power Normalization and Precoding for Massive MIMO in Outdoor-To-Indoor mmWave Relaying	377
<i>Nawal Bounouader; Houda Chafnaji; Mustapha Benjillali</i>	
Enhanced Signal Transmission Performance Based on Multitap Equalization in Optical FBMC Burst	384
<i>Mohammed S. Bahaelden Bahaelden; Beatriz Ortega; Rafael Perez-Jimenez; Vicenc Almenar</i>	
Mimicking DH Key Exchange over a Full Duplex Wireless Channel via Bispase Blind Deconvolution	390
<i>Gerhard Wunder; Axel Flinth; Daniel Becker; Benedikt Groß</i>	
Automating the Creation of Graph-Based NoSQL Databases in the Context of Big Data	398
<i>Fouad ELotmani; Redouane Esbai; Mohamed Atounti</i>	
Analysis of Blockchain Integration in the e-Healthcare Ecosystem	403
<i>Abdellah Ouaguid; Mohamed Hanine; Zouhair Chiba; Noredine Abghour; Hassan Ghazal</i>	
DoS Attack Detection with NIDS in Docker Environment	411
<i>Nadia El ghabri; Elmostafa Belmekki; Mostafa Bellafkih</i>	
Construction of New Finite Geometry Non-Binary Ldpc Codes with Reduced Alphabets	417
<i>Zakaria M'rabet; Fouad Ayoub; Mostafa Belkasmi; Faissal El Bouanani</i>	
Enhanced MPR Selection Algorithm Based on Metrics for the OLSR Routing Protocol	425
<i>Younes Hamzaoui; Mohammed Chekour; Mohamed Amnai</i>	