

2024 15th International Conference on Communications (COMM 2024)

**Bucharest, Romania
3-4 October 2024**



**IEEE Catalog Number: CFP2441J-POD
ISBN: 979-8-3503-5596-3**

**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:	CFP2441J-POD
ISBN (Print-On-Demand):	979-8-3503-5596-3
ISBN (Online):	979-8-3503-5595-6
ISSN:	2641-0818

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

Battery-Free Wireless Sensors for IoT Applications	1
<i>Alexandru Takacs, Gael Loubet, Taki Djidjekh, Lamoussa Sanogo, Daniela Dragomirescu</i>	
A Synchronization Front-End for LoRa Self-Jamming Operation on SDR Platforms	7
<i>Clément Demeslay, Roland Gautier, Philippe Rostaing, Cristina Despina-Stoian</i>	
Graphene-Based Nanostructured Sensors and Antennas	16
<i>Deepak Arun, Barkha Rani, Sourav Ghosh, David Jenkins</i>	
Signal Processing Using Phase Diagram Analysis - New Perspectives in Understanding Transient Features in Data Science	23
<i>Cornel Ioana, Denis Stanescu, Dragoş Nastasiu, Cristina Despina, Angela Digulescu</i>	
Deep Learning-Based Sound Classification Algorithms for Enhanced Service Robots Audio Capabilities	31
<i>Lorena Muscar, Toma Telembici, Corneliu Rusu</i>	
Maximum Iterations Criterion for OMP in FMCW RADARs	37
<i>Ionela-Cristina Voicu, Filip Rosu</i>	
Pipe Leaks Detection and Localization Using Non-Intrusive Acoustic Monitoring.....	41
<i>Marius Nati, Dragoş Nastasiu, Denis Stanescu, Angela Digulescu, Cornel Ioana</i>	
Movement Characterization of Multicopter UAV Based on Their Acoustic Signature	46
<i>Dragos Nastasiu, Cristina Despina-Stoian, Angela Digulescu, Cornel Ioana, Denis Stanescu</i>	
Analyzing Different Models for Driver Behavior Detection Using EEG Data	51
<i>Sama Hussein Al-Ghuri, Kanar Alaa Al-Sammak, Ion Marghescu, Claudia Cristina Oprea, Khattab M. Ali Alheeti, Nadia Ali Abbas Almosa</i>	
Robust and Hardware Agnostic EEG Signal Processing Tool	56
<i>Dan Curăvale, Cristina Andronache, Ana Neacşu</i>	
Generation of Power Quality Disturbances Using a Programmable Arbitrary Waveform Generator.....	62
<i>Gabriel Gasparesc</i>	
Multiband Dynamics Compressor with Automatic Parameter Learning	66
<i>Horia Sebastian Ioniţă, Victor Popa, Bogdan Moroşanu</i>	
Real-Time DSP-Based Waveform Generator for Brainwave Entrainment.....	70
<i>Costin Dămăşaru, Leontin Tuţă, Georgiana Roşu, Mircea Nicolaescu, Marius Nati, Alexandra Buzducea</i>	
A Malware Study Using Static and Dynamic Analysis	74
<i>Maria-Mădălina Andronache, Alexandru Vulpe, Corneliu Burileanu</i>	
Deployment of a Security Solution for Cloud	80
<i>Alexandru Chiş, Titus-Constantin Bălan, Petru-Adrian Coţfas, Daniel-Tudor Coţfas</i>	
SEARCH: Symmetric Encryption Algorithm Research and Characteristic Hunting	86
<i>Teodora-Georgiana Banu, Mihai Togan</i>	

Results on the Impact of GNSS Spoofing Attack on GNSS Sensors Using RINEX Data	92
<i>Alexandru-Gabriel Romaniuc, Vlad-Cosmin Vasile, Monica-Elena Borda, Banica Alexandru</i>	
Digital Signatures Long-Term Preservation Services, IPFS and Blockchain Are a Good Match.....	98
<i>Ștefan-Ciprian Arseni, Emil Bureacă, Iulian Aciobăniței</i>	
Hybrid Chaotic Hash Function Based on HAIFA Structure	104
<i>Florin Haralambie, Cristian-Iulian Rîncu, Răzvan Bărtușică, Mihai-Virgil Nichita</i>	
FPGA Cryptosystem by Using RSA Algorithm for Enhanced Security in Controller Area Networks.....	110
<i>Ilie-Sergiu Pîrvu, Lucian-Andrei Perișoară, Cosmin-Răzvan Dănișor</i>	
Development of a Modular Sensor Battery Integrated with a Data Collection Platform for Alcohol Level Detection and Driver Geolocation	115
<i>Mihaela Gavrilă, Mădălina Giorgiana Murariu, Delia Elena Bărbuță, Daniela Tărniceriu</i>	
Enhancing Battery Management Systems with Machine Learning and 5G Connectivity Beyond Maritime Transport Software Architectures	121
<i>Constantin-Laurentiu Paraschiv, Larisa Mihaela Tufeanu, Marius-Constantin Vochin</i>	
Development of a Self-Stabilized 3-Axis Platform Using Ansys SCADE	127
<i>Alexandru-Dragoș Adam, Nirvana Popescu, Jair Gonzalez, Cosmin Andrei Popa, Cristiana Gabriela Lăzărescu, Cosmina Elena Barbu</i>	
Realtime Devices Manager: Arduino Based Automatic System.....	132
<i>Cosmin Alioanei</i>	
Access Management in IoT: Implementing a Secure Access Control System.....	138
<i>Răzvan-Sebastian Neculai, Ioana-Corina Bogdan, Marian Alexandru, Dan-Nicolae Robu</i>	
A Machine Learning-Based Model with Feature Fusion for Biometric Data Processing.....	144
<i>Sorin Soviany, Cristina-Gabriela Gheorghe, Virginia Săndulescu, Maria Gheorghe-Moisii, Dragoș Nicolau</i>	
Digital Twin Architecture Based on Services Interoperability	150
<i>Eugen Pop, Miruna-Elena Iliuță, Mihnea Alexandru Moisescu</i>	
NTP Spoofing Attack Detection on Time Servers with GNSS Sensors Based on Long Short-Term Memory Algorithm.....	156
<i>Alexandru-Gabriel Romaniuc, Vlad-Cosmin Vasile, Monica-Elena Borda, Banica Alexandru</i>	
Dietary Analysis Among Diabetic Patients Using Gradient Boosting Over Decision Tree.....	162
<i>Yennam Sreeja, J Joselin Jeya Sheela</i>	
Intelligent System for Monitoring Skin Lesions from Dermatoscopic Images	166
<i>Maria Oniga, Alina Elena Sultana, Olgața Anca Orzan</i>	
Testing the Robustness of Deepfake Detectors.....	171
<i>Andrei Radu, Ana Neacșu</i>	
Automatic Segmentation of Cervical Cancer Vascular Anatomy from 3D Power Doppler Ultrasound Images.....	177
<i>Mihaela Miron, Anisia-Luiza Culea-Florescu, Bogdan Ioan Ștefănescu</i>	
Image Denoising Algorithm for IoT Based on Compressive Sensing Principle and Blackfin Microcontrollers	184
<i>Sorin Zoican, Roxana Zoican, Dan Galatchi</i>	

Multi-Factor Secure Authentication Method Used for Accessing Sensitive Data Bases	188
<i>Petrică Ciofîrnae, Daria Anton</i>	
Advancing Neurodegenerative Disease Management: The NeuroPredict Platform Integrating IoT, AI, and Cloud Technologies	194
<i>Marilena Ianculescu, Dragoş Nicolau, Cristian Petrache, Ana Vasilevschi</i>	
Prototyping a 5G-Enabled IoT Gateway Using Off-The-Shelf Components and Open Source Software	200
<i>Otilia Popescu, Andrew Grow, Dimitrie C. Popescu, Murat Kuzlu</i>	
Efficient Framework for Supply Chain Digitization Using Blockchain and IoT	204
<i>Paul Cioloca, Alexandru Aloman, Alexandru Bratu, Iulian Aciobăniţei</i>	
Dual Optical Notch/Comb-Notch Filter with Tunable Wavelength Based on the Integrated Michelson and Gires-Tournois Interferometers	210
<i>Shadi A. Alboon</i>	
A Parametric State-Space Network for Global Impairments Compensation in Optical Systems	214
<i>Alexandru Frunză, Vincent Choqueuse, Flavius Miron, Stéphane Azou</i>	
Reliability and Capacity Evaluation for Vehicle-To-Vehicle VLC	220
<i>Rasha Al Hasnawi, Ion Marghescu, Alexandru Rusu-Casandra</i>	
Architectural Challenges for Optical Transmission Network Nodes	226
<i>Mihai Bănică, Victor Croitoru</i>	
Influence of Channel Modeling and Atmospheric Conditions on the Reliability and Capacity of V2V-VLC Systems	230
<i>Rasha Al Hasnawi, Nicolae Militaru, Alexandru Rusu-Casandra</i>	
Generation of the Plane-Of-Symmetry Vertical Profile for a Double-Curved Reflector Antenna with $\text{Cosec}^2 \cdot \text{Cotan}^{1/2}$ Directivity Characteristic, Illuminated by a Cos^2 Pattern Beam Radiation Source	236
<i>Petru Mazăre, Anton Muraru, Camelia Mazăre, Sorin Lazăr, Simona Halunga, Maria Sîrbu-Drăgan, Octavian Fratu</i>	
3D Localization Algorithms for Freehand Indoor SAR Focusing	240
<i>Adrian Focsa, Stefan-Adrian Toma, Bogdan Sebacher, Lucian Grigore, Mihai Coca</i>	
Detection of TEMPEST Audio Compromising Signal Using Artificial Intelligence	246
<i>Alexandru-Mădălin Vizitiu, Lidia Dobrescu, Cristian Molder, Bogdan Sebacher, Bogdan Cătălin Trip, Vlad Florian Butnariu</i>	
Determine Electronic Devices Vulnerabilities Using Artificial Intelligence	252
<i>Alexandru-Mădălin Vizitiu, Lidia Dobrescu, Cristian Molder, Bogdan Sebacher, Bogdan Cătălin Trip, Vlad Florian Butnariu</i>	
Secure V2I Communications for Traffic Management in an Intersection	258
<i>Octavian Catrina, Silvia-Ioana Stanciu</i>	
End-To-End QoS Management Solution for 5G NTN Mega-Constellations	264
<i>Marius Corici, Hauke Buhr, Hemant Zope, Pousali Chakraborty, Thomas Magedanz</i>	
Fast Prototyping and Testing of Network Security Solutions Using Virtualization and Ansible	270
<i>Gabriela Craiu, Octavian Catrina</i>	

Increasing the Robustness of the Time Reference Distribution Equipments Using Multimodal Security Methods Based on Blockchain Implementations	275
<i>Petrică Ciotirnae, Adrian Florin Păun</i>	
An Experimental Study of Power Consumption in Narrowband IoT Devices	281
<i>Kanar Alaa Al-Sammak, Sama Hussein Al-Gburi, Ion Marghescu, Ana Maria Drăgulinescu, Cristina Marghescu, Nawar Alaa Hussein Al Sammak</i>	
Attention Based Framework for Traffic and Collision	287
<i>Constantin-Bogdan Popescu, Corneliu Florea</i>	
Emotion Recognition from Contextualized Speech Representations Using Fine-Tuned Transformers	291
<i>George Cioroiu, Anamaria Radoi</i>	
Multimodal Emotion Recognition System Based on X-Vector Embeddings and Convolutional Neural Networks.....	296
<i>Florian Enrico Garaiman, Anamaria Radoi</i>	
Exploring Fusion Techniques for Multimodal Emotion Recognition.....	302
<i>Alexandru-Lucian Georgescu, Gheorghe-Iulian Chivu, Horia Cucu</i>	
A Deep Learning Approach for Semantic Segmentation of Images with Burned Skin	308
<i>Bianca Andrei, Laura Florea</i>	

Author Index