

2024 34th International Conference Radioelektronika (RADIOELEKTRONIKA 2024)

**Zilina, Slovakia
17-18 April 2024**



**IEEE Catalog Number: CFP2485B-POD
ISBN: 979-8-3503-6217-6**

**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:	CFP2485B-POD
ISBN (Print-On-Demand):	979-8-3503-6217-6
ISBN (Online):	979-8-3503-6216-9
ISSN:	2993-2165

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

1	Authors: V. STOFANIK, P. KUBINEC, E. COCHEROVA, J. PUCK Title: Design of Mode-Separation Filters for Dual-Mode Oscillator with SC Quartz Resonator Operat-ing at Elevated Temperatures.....	1
2	Authors: M. KNYVA, D. GAILIUS, P. KUZAS, G. BALCIUNAS, A. MESKUOTIENE, J. DOBILIENE Title: Automated Testing and Conformity Assessment for Smart Meters User Interface.....	5
3	Authors: B. ADAMEC, J. MACHAJ, P. BRIDA Title: Advanced RF Module to Reduce Interference Between the Current DVB-T2 Broadcasting and 5G/LTE Networks.....	9
4	Authors: D. MASLAR, M. SOKOL, P. GALAJDA, P. JURIK Title: Robust Low-Power Sensor Network Based on the BLE protocol for IoT applications.....	14
5	Authors: T. TAPTIK, M. HRASKA, J. PAPAN, M. JANOVEC Title: Comparison Of Basic SDN Controllers.....	20
6	Authors: E. KUPCOVA, P. ZELENAK, M. PLEVA, M. DRUTAROVSKY Title: Optimization of Ristretto255 Group Implementation for Cortex-M4 based Cryptographic Applications.....	24
7	Authors: M. HUTAR, P. BRIDA, J. MACHAJ Title: Performance of MLP NN Using CSI and Different Standard IEEE 802.11 with Variable Channel Width.....	29
8	Authors: S. MATUSKA, R. HUDEC, S. SUCHALOVA Title: Proof of Concept of Self-hosted IoT solution.....	34
9	Authors: J. MACHAJ, P. BRIDA, B. ADAMEC Title: Effect of Radio Map Interpolation on Performance of Rank-Based Fingerprinting Algorithm.....	39

10 **Authors:** R. HALUSKA, M. PLEVA, J. SEDLAK, M. KOCTUROVA, S. ANDRECIC, L. OVSENIK
Title: Facial Liveness Detection for Biometric User Identification.....44

11 **Authors:** N. KURKINA, J. PAPAJ
Title: C-MANET with enhancement of routing techniques using KNN and fitness function.....48

12 **Authors:** O. KOLAR, J. KRAL, M. NOVAK, A. POVALAC
Title: Wireless Network Simulator for Advanced LoRa Applications.....52

13 **Authors:** J. MACHAJ, P. BRIDA, B. ADAMEC
Title: Effect of Wi-Fi Access Points Spoofing on Fingerprinting Localization.....56

14 **Authors:** S. ONDAS, J. STAS, R. SEVC
Title: Speech recognition as a supportive tool in the speech therapy game.....61

15 **Authors:** M. HARAHUS, Z. SOKOLOVA, M. PLEVA, J. JUHAR, D. HLADEK, J. STAS, M. KOCTUROVA
Title: Evaluation of Datasets Focused on Grammatical Error Correction Using the T5 Model
in Slovak.....65

16 **Authors:** A. HILT
Title: Feasibility of D-band Fixed Radio Links for 5G and Beyond Access Networks.....71

17 **Authors:** J. KRCHNAK, M. DZURIS, R. HARTANSKY, A. KLIUCHKA, M. STIBRANY
Title: Towards an Identification of Faulty Antenna in Large Antenna Systems using Vertical
Flight Pattern Quadcopter Measurements.....77

18 **Authors:** B. BRITNIK, D. MATOUSEK
Title: A Special Way of Solving the Field Emitted by the Huygens Source.....81

19 **Authors:** J. KRŠKA, V. NAVRATIL
Title: Improving UWB Positioning Accuracy by Fusion With Pedestrian Dead-Reckoning.....86

20 **Authors:** A. HILT, A. FARKASVOLGYI, M. L. IVANYI
Title: Experimental Verification of Transmittance and Harmonics in External Optical Intensity Modulation.....92

21 **Authors:** J. DUBOVAN, J. LITVIK, M. DADO, D. BENEDIKOVIC
Title: Mitigation of Polarization Mode Dispersion Using In-Band System Reservation Model...97

22 **Authors:** O. FISER, K. POTUZNIKOVA, L. REJFEK, C. POTUZNÍK, A. ZIKESOVA, M. M. KOVALCHUK
Title: Comparison of three generalised moment methods for raindrop size distribution modelling.....102

23 **Authors:** J. ORAVEC, L. OVSENIK, S. ANDREJCÍK
Title: An Approach to Standardize Keys Used in Image Encryption Algorithms.....106

24 **Authors:** M. B. GIBRIL, R. AL-RUZOUQ, J. BOLCEK, A. SHANABLEH, R. JENA
Title: Building Extraction from Satellite Images Using Mask R-CNN and Swin Transformer....111

25 **Authors:** M. SPISIAK, M. JAKUBEC, R. JARINA, P. KASAK
Title: Efficient Low-Complexity Speaker Identification based on a SpeakerGAN Approach....116

26 **Authors:** A. STECH, R. HUDEC, P. KAMENCAY, L. POLAK, A. DHAKA
Title: Comparative Analysis of 3D Object Scanning Devices for Scientific Applications.....121

27 **Authors:** J. STAS, D. HLADEK, A. KOPNICKY
Title: Detecting Dementia from Transcribed Speech in Slovak using Pre-trained BERT Models.....127

28 **Authors:** R. HLAVATA, P. KAMENCAJ, P. SYKORA, R. HUDEC, M. RADILOVA
Title: Recognition of Dangerous Objects using Deep Learning.....133

29 **Authors:** R. HLAVATA, P. KAMENCAJ, P. SYKORA, R. HUDEC, J. STUREKOVA
Title: Recognition of Abnormal Behavior from a Thermal Camera using Deep Learning.....137

30 **Authors:** J. STUREKOVA, P. KAMENCAJ, R. HLAVATA
Title: The Comparison of Neural Networks for Contactless BPM Estimation.....141

31 **Authors:** O. KRYVOSHEI, P. KAMENCAJ, A. STECH
Title: Server Implementation Design for Adaptive 3D Video Streaming.....146

32 **Authors:** Y. SINGH, P. SWAMI, V. BHATIA, P. BRIDA
Title: Channel Estimation in 5G and Beyond Networks Using Deep Learning.....152

33 **Authors:** M. A. ALI, R. MARSALEK
Title: Dynamic People Counting from Delay-Doppler Images in Challenging Scenarios:
Enhancing Model Performance.....157

34 **Authors:** S. SUCHALOVA, R. HUDEC, S. MATUSKA
Title: Effects of Brain Signal Preprocessing on Visual Object Stimulation.....163

35 **Authors:** J. SVATON, J. SYKORA, F. VEJRAZKA, K. ULOVEC, D. SKOPEC, J. SPACIL, J. ROHAC, J. SKALLOUD,
M. TOMIS
Title: Indoor-Positioning in DVB-T/T2 Single-Frequency Networks Using Inverse Passive Radar
Approach.....168

36 **Authors:** S. ANDREJCIK, L. OVSENIK, J. ORAVEC, R. HALUSKA
Title: Resistance to attack on the covering medium using various steganographic
techniques.....174

37 **Authors:** R. MUNIRATHINAM, S. VITEK
Title: Sound Source Localization and Classification for Emergency Vehicle Siren Detection Using Resource Constrained Systems.....179

38 **Authors:** M. NOVOTNY, K. FLIEGEL, M. SIMKA, L. POLAK, J. KUFA
Title: Eye-Tracking Data Extension for Omnidirectional Image Quality Assessment Database (OM-NIQAD).....184

39 **Authors:** M. KOCTUROVA, Z. SOKOLOVA, J. JUHAR
Title: Comparative Study of EEG-based Speech Detection with Novel Feature Set.....188

40 **Authors:** M. SAKOVA, P. JURIK, P. GALAJDA, M. SOKOL
Title: Bee Hive Acoustic Monitoring and Processing Using Convolutional Neural Network and Ma-chine Learning.....193

41 **Authors:** Z. M. AHMED, H. AL-AMAIREH, Z. KOLLAR
Title: Active Constellation Extension with Enlipping Technique for PAPR Reduction in FBMC-OQAM Systems.....198

42 **Authors:** Z. KOLLAR, M. ALRWASHDEH, L. LEITOLD
Title: Performance analysis of FBMC signals in the presence of DACs with limited range and resolution.....203
