

2023 10th International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2023)

**East Sarajevo, Bosnia and Herzegovina
5-8 June 2023**



**IEEE Catalog Number: CFP23UWD-POD
ISBN: 979-8-3503-0712-2**

**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:	CFP23UWD-POD
ISBN (Print-On-Demand):	979-8-3503-0712-2
ISBN (Online):	979-8-3503-0711-5

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

SymPyCAP: Software for Symbolic Analysis of Electric Circuit	1
<i>Matija Dodovic, Katarina Stankovic, Nikola Ilic, Jelena Bakic</i>	
Performance Analysis of Wireless Sensor Network Node Based on Thermoelectric Generator Using SPICE Model.....	6
<i>Miloš Marjanovic, Aneta Prijic, Dejan Milic, Zoran Prijic</i>	
Methods for Determining and Analyzing Cut-Off Frequency of Photoacoustic Signal	12
<i>Neda Stanojevic, Dragana Markushev, Sanja Aleksic, Dragan Markushev, Dragan Pantic, Aleksandar Pantic</i>	
Neural Model of the Slotted Circular Microstrip Patch Antenna	16
<i>Ksenija Pešic, Nebojša Doncov, Olivera Pronic-Rancic, Zoran Stankovic</i>	
Data-Driven and Physics-informed Muscle Model Surrogates for Cardiac Cycle Simulations	22
<i>Bogdan Milicevic, Milos Ivanovic, Boban Stojanovic, Miljan Milosevic, Vladimir Simic, Milos Kojic, Nenad Filipovic</i>	
Human Motion Behavior Evaluation: The Possibility of Improving Human-Robot Collaboration	25
<i>Emilija Stankovic, Jelena Kljajic, Jovan Šumarac, Marija Radmilovic</i>	
Network Traffic Capturing in Open-Source 5G Core Network Platform	31
<i>Branislava Živkovic, Zoran Cica</i>	
Application of Conductive Tapes and Foils in Textile Electronics	35
<i>Dušan Nešic</i>	
Web Ontology Design for Data and Services in CLIMOS Project.....	46
<i>Nenad Gligoric, Milan Dordevic, Daniel San Martin, Stevan Jokic, Ivan Jokic</i>	
Surface Crack-Specific Knowledge Localization in Pretrained Convolutional Neural Networks.....	50
<i>Savo Icgagic, Dražen Draškovic, Boško Nikolic, Goran Kvašcevic</i>	
One Implementation of SVM in EC 6 Compliant Wall Compressive Strength Classification	55
<i>Nenad Kojic, Bojan Milošević, Natalija Vugdelija, Marija Zajeganovic, Milanko Kragovic</i>	
Combination of Digital Second-Order Linearization Technique and DPD Compensation Technique - Concept and Results.....	61
<i>Aleksandar Atanaskovic, Djuradj Budimir, Nataša Maleš-Ilic, Aleksandra Đoric, Biljana P. Stošic</i>	
Performance Comparison of Different Hypervisor Versions of the Type-2 Hypervisor VirtualBox	66
<i>Borislav Dordevic, Saša Gucunja, Nenad Kraljevic, Nikola Davidovic</i>	
Improvement of Education in the Field of Marine Engineering at the Faculty of Maritime Studies Kotor.....	72
<i>Lazar Mrdovic, Nemanja Pudar, Ilija Knežević, Martin Calasan, Sead Cvrk, Tatijana Dlabac</i>	
Advances in Contemporary Soft Magnetic Materials – a Review.....	78
<i>Mariusz Najgebauer</i>	
FPGA Digital Circuit for Actuator and Sensor FDI of DC Motor with an Amplifier.....	88
<i>Sanja Antic, Marko Rosic, Vanja Lukovic, Uroš Pešovic</i>	

The Impact of Virtual Reality Technologies on the Modernization of the Curricula of Western Balkan Universities in the Field of Renewable Sources.....	93
<i>Lučiana Toti, Nadezhda Kunicina</i>	
On Efficient Hardware Realizations of Fixed-Point Complex Number Magnitude and Its Logarithms.....	99
<i>Marija L. Petrovic, Vladimir M. Milovanovic</i>	
Transfer Learning for Fuzzy Control of Two-Mass Drive System Using State Variables Feedback.....	104
<i>Piotr Derugo</i>	
A Survey on the Current State of Time-Sensitive Networks Standardization	110
<i>Želimir Maletic, Milan Mladen, Miloš Ljubojevic</i>	
Tree Object Detection and Classification Algorithms – Review	116
<i>Milan Grujev, Aleksandar Milosavljevic, Aleksandra Stojnev Ilic, Miloš Ilic, Petar Spalevic</i>	
Damper Winding Resistance Impact on Synchronous Machine Transients – Case Study.....	122
<i>Gojko Joksimovic, Aldin Kajevic</i>	
Application of Point-In-Domain Algorithms in Near Field Calculations for Geometries with Bilinear Surface Patches.....	127
<i>Branislav Ninkovic, Miodrag Tasic</i>	
Image-Based Questionnaires on Mobile Devices – User Interaction Design	133
<i>Helena Anišic, Dinu Dragan, Dušan B. Gajic, Veljko B. Petrovic</i>	
Fullerene-Filtered Light and Its Application in Biomedicine	138
<i>Lidija Matija, Ivana Stankovic, Milica Milicic, Javorka Markovic Delic, Branislava Jeftic, Aleksandra Dragicevic</i>	
Performance Analysis of Land Mobile Satelliteterrestrial Systems with Selection Relaying	143
<i>Jovan Milojkovic, Predrag Ivaniš, Vesna Blagojevic, Srdan Brkic</i>	
Quality Inspection of Titanium-Dioxide Blocking Layers for Efficient Dye Sensitized Solar Cells Photoanode	149
<i>Evgenija Milinkovic, Vladislav Jovanov, Katarina Cvetanovic, Jelena Stevanovic, Marko Bockovic, Dana Vasiljevic-Radovic</i>	
Probabilistic Power Flow Calculation in Asymmetric, Unbalanced and Distorted Distribution Networks	153
<i>Miloš Milovanovic, Jordan Radosavljevic, Bojan Perovic, Jovan Vukašinovic</i>	
A Hybrid Approach to Interaction Detection in Robotics.....	159
<i>Zaviša Gordic, Kosta Jovanovic</i>	
Realization of Software System for Collaboration of Specialist Proposed Therapy and Physician Accepted Therapy.....	164
<i>Aleksandar Veljanovski, Aleksandar Milenkovic, Marija Veljanovski, Petar Rajkovic, Dragan Jankovic</i>	
Inverse Reading of ITU-P P. 1546 Propagation Curves for the Broadcast Transmitter EM Field Level for the Transmitting Antenna Height Parameter Less than 10 M	169
<i>Milos Radojkovic, Zlatica Marinkovic, Marija Milijic</i>	
Comparative Analysis of Pretrained Deep Neural Networks for Anomalies Detection	173
<i>Ivana Halfpap, Željko Đurovic</i>	

Reinforcement Learning-Based Collision Avoidance for UAV	177
<i>Đorđe Jevtic, Zoran Miljkovic, Milica Petrovic, Aleksandar Jokic</i>	
Clustering and Visualization of Network Security-Related Data Using Elastic Stack	183
<i>Vladimir Ciric, Marija Milosevic, Luka Mladenovic, Ivan Milentijevic</i>	
A SymPy Derivation of Branin’s Solution of Uniform Lossless Transmission Lines	188
<i>Katarina Stankovic, Milka Potrebic Ivaniš, Ana Tatovic, Dejan Tošic</i>	
The Analysis of the Most Appropriate Wind Speed Distribution Models for the Locations in Libya	193
<i>Sulaiman Milad, Srdjan Milicevic, Vladimir Katic</i>	
Cybersecurity Issues in Motion Control – an Overview of Challenges.....	199
<i>Živana Jakovljevic, Dušan Nedeljkovic</i>	
Comparative Electromagnetic Modeling of Typical Antenna Transmission/Reception Scenarios Using Method of Moments and Finite Element Method	205
<i>Aleksandar Z. Golubovic, Milan M. Ilic</i>	
Evaluation of the Use of Incoherent Light Sources in Fibre Grating Sensing for Applications in Non-Invasive Medical Diagnostics	210
<i>Milica Dragaš, Jelena Kršic, Katarina Đordevic, Nikola Stojanovic, Jovana Petrovic</i>	
Application of Security Algorithms to the Database of the Civil Sector Innovators of the Republic of Srpska.....	214
<i>Ana Lojic, Muzafer Saracevic</i>	
ADALM-Pluto SDR as a Tool for S-parameter Estimation: A Comparative Study of Various System Identification Procedures	218
<i>Filip Neškovic, Nikola Basta, Milka Potrebic Ivaniš</i>	
Implementing Cache Coherence Protocols in the VivioJS Environment: An Experience Report	223
<i>Miloš Nastic, Marko Mišic</i>	
Blockchain Infrastructure and Services for Biomedical Applications	229
<i>Zorica Bogdanovic, Aleksandra Labus, Marijana Despotovic-Zratic, Danijel Bjelica, Artur Bjelica</i>	
Sentiment Analysis Using Optimal Transport Loss Function.....	237
<i>Jelena Lazic, Aleksandra Krstic, Sanja Vujnovic</i>	
N-Way Gysels Modeling Using Transmission Line-based Wave Digital Framework.....	242
<i>Biljana P. Stošic, Marin Nedelchev</i>	
Surface Crack Detection Using Image Processing and Support Vector Machine.....	248
<i>Natalija Đordevic, Nenad Džamic, Željko Đurovic</i>	
Innovations in Sustainable Electronic Circuit Design to Reduce Negative Impacts on the Environment	252
<i>Miljana Milic, Aleksa Mladenovic, Jelena Milojkovic</i>	
Optimization of Reaction Parameters for Preparation of MXene-Based Polymer Nanocomposites.....	257
<i>Ivan Pešic, Milena Rašljic Rafajilovic, Dana Vasiljevic Radovic, Sanja Ostojic, Miloš Petrovic, Vesna Radojevic, Marija V. Pergal</i>	

Mixed Spearman's Correlation Suitability for Sine-Shaped Independent Variables in Natural Sciences.....	262
<i>Miodrag Malovic, Vera Vukanic, Darko Jevremovic, Ljiljana Brajovic</i>	
Comparison of Time Domain Methods for Alignment of RR Signals Acquired by Different Sensor Systems.....	267
<i>Tanja Boljanic, Jovana Malešević, Sanja Vujnovic, Milica M. Jankovic</i>	
Non-Adversarial Robustness of Deep Learning Methods for Computer Vision	271
<i>Gorana Gojic, Vladimir Vincan, Ognjen Kundacina, Dragiša Miškovic, Dinu Dragan</i>	
Machine Learning Approach to QoS Adjustment Leveraging LCR in Mobile Networks Limited by Beaulieu-Xie Fading and Co-Channel Interference.....	280
<i>Dragana Krstic, Suad Suljovic, Nenad Petrovic, Goran Nestorovic, Dejan Milic</i>	
Dual Polarized Crossed Slot Antennas Proposed for IoT Applications	286
<i>Marija Milijic, Branka Jokanovic</i>	
Machine Learning-Based Run-Time DevSecOps: ChatGPT Against Traditional Approach.....	292
<i>Nenad Petrovic</i>	
The Emergence of Memristive Devices in Microwave Circuits: A Review of Progress and Potential Application	297
<i>Ivo Markovic, Milka Potrebic Ivaniš, Dejan Tošić</i>	
Method for Noise Subspace Determination in HFSWR's High-Resolution Range-Doppler Map Estimation.....	306
<i>Dragan Golubovic, Nenad Vukmirovic, Miljko Eric, Mirjana Simic-Pejovic</i>	
Wettability of Electrodeposited Copper Films and Correlation with Morphology and Surface Chemistry	312
<i>Ivana Mladenovic, Marija Vuksanovic, Marko Obradov, Vladislav Jovanov, Miloš Vorkapic, Nebojša D. Nikolic, Dana Vasiljevic-Radovic</i>	
A Fully Automated Approach to Preprocessing and Segmentation of Coronary Arteries in X-Ray Angiography Images	318
<i>Ognjen Pavic, Lazar Dašić, Tijana Geroski, Nenad Filipovic</i>	
PAM Actuators Applications in Robotics: Rapid Review	323
<i>Dragana Oros, Marko Pencic, Maja Cavic, Marko Orošnjak, Dijana Cavic, Zhenli Lu</i>	
A Novel Nonlinear Approach for State of Health Estimation of Li-Ion Batteries Based on the Hammerstein-Wiener Model	329
<i>Gökhan Yükses, Alkan Alkaya</i>	
Comparison of Two Deep Learning Models for the Recognition of Parkinson's Disease Gait Patterns	334
<i>Vladislava Bobic, Milica Đuric-Jovicic, Nataša Dragašević-Miškovic, Vladimir S. Kostic, Goran Kvašcevic</i>	
Implementation of a Unified Modern Interface for Executing Hardware Simulation, Synthesis, and Verification Processes of VLSI Systems	339
<i>Aleksa Srbljanovic, Matija Dodovic, Marko Micovic, Aleskandar Rikalo, Saša Stojanovic</i>	
Implementation of the Verification Process with Universal Verification Methodology in the Computer Systems for the VLSI Course	344
<i>Matija Dodovic, Aleksa Srbljanovic, Marko Micovic, Aleskandar Rikalo, Saša Stojanovic</i>	

Comparative Analysis of Wind Speed Distribution Models: A Case Study of Libya.....	349
<i>Sulaiman Milad, Srdan Milicevic, Vladimir A. Katic</i>	
Impact of Band Nonparabolicity and Interface Broadening Effects on Electronic Structure and Rabi-Coupling Frequency in THz Quantum Cascade Lasers	355
<i>Novak Stanojevic, Aleksandar Demic, Nikola Vukovic, Dragan Indin, Jelena Radovanovic</i>	
Performance of Mixed Shadowed Ricean/TWDP Relayed Assisted Link	360
<i>Goran T. Djordjevic, Nenad Milosevic, Jaroslaw Makal, Bata Vasic, Predrag Ivanis</i>	

Author Index