

2020 International Symposium on Electronics and Telecommunications (ISETC 2020)

**Timisoara, Romania
5 – 6 November 2020**



**IEEE Catalog Number: CFP2003L-POD
ISBN: 978-1-7281-9514-8**

**Copyright © 2020 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:	CFP2003L-POD
ISBN (Print-On-Demand):	978-1-7281-9514-8
ISBN (Online):	978-1-7281-9513-1
ISSN:	2475-787X

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

Artificial Intelligence and Computer Vision

Deep CNN for Contrast-Enhanced Ultrasound Focal Liver Lesions Diagnosis	3
Cristina Laura Sîrbu, Georgiana Simion, Cătălin Daniel Căleanu	
Color fractal texture image complexity estimation using a convolutional neural network.....	7
Mihai Ivanovici, Cosmin Hatfaludi, Radu-Mihai Coliban	
Advanced Quantization Methods for CNNs	11
Norbert Mitschke, Michael Heizmann	
People Detection in a Depth Sensor Network via Multi-View CNNs trained on Synthetic Data	15
Johannes Wetzel, Samuel Zeitvogel, Astrid Laubenheimer, Michael Heizmann	
Head Gesture Recognition based on 6DOF Inertial sensor using Artificial Neural Network.....	19
Ionut-Cristian Severin, Dan-Marius Dobrea	
A survey on outlier detection methods applied on air quality data	23
Iuliana-Andreea Stroia-Vlad, Gabriel Mihail Danciu	
Analyzing parking lots vacancy detection algorithms using Mask R-CNN implementations.....	27
Razvan Vilceanu, Mihai Onita, Andrei Ternauciu	
TeLU: a new activation function for Deep Learning	31
Marina Adriana Mercioni, Stefan Holban	
ARM Embedded Low Cost Solution for Implementing Deep Learning Paradigms.....	35
Ioan Lucan Orășan, Cătălin Daniel Căleanu	
P-Swish: Activation Function With Learnable Parameters Based on Swish Activation Function in Deep Learning	39
Marina Adriana Mercioni, Stefan Holban	
Face Recognition Using Tensors and Gradient Descriptors.....	43
Claudia Cristina Oprea, Laura Maria Dogariu	
Deep Learning based Eye Gaze Tracking for Automotive Applications	47
Adrian Bublea, Cătălin Daniel Căleanu	
Smart Mirror for Skin Type Identification.....	51
Ademona Dragomir, Georgiana SIMION, Iasmina Ermalai	
Generative Adversarial Networks for Total Electron Content Prediction	55
Cristian Damian, Daniela Coltuc	
RD-CNN: A Compact and Efficient Convolutional Neural Net for Sound Classification.....	59
Radu Dogaru, Ioana Dogaru	
End-to-End Computer Vision Framework	63
Ciprian ORHEI, Muguras Mocofan, Silviu Vert, Radu Vasii	

Intention prediction of car drivers at inner city junctions	67
Hannes Weinreuter, Nadine-Rebecca Strelau, Barbara Deml, Michael Heizmann	
Disease detection on medical images using light-weight Convolutional Neural Networks for resource constrained platforms	71
Alin Cococi, Daniel Armanda, Iulian Felea, Radu Dogaru	
Efficient analysis of digital systems' supplied data	75
Alexandru Dinu, Gabriel Mihail Danciu, Petre Lucian Ogruțan	

Advances on Intelligent Electronic Systems

Time-multiplexed 10Gbps Ethernet-based Integrated Logic Analyzer for FPGAs	81
Stefan Popa, Mihai Ivanovici, Radu Coliban	
Automation of water meter testing using stepper motors.....	85
Fabian-Manuel Butean, Marius Adrian Jucut, Ioan Lie	
Communication and Verification for Radar Sensors in the Context of Driver Assistance Systems ..	89
Loredana Lavinia Staicu, Robert Valentin Puiu, Razvan Bogdan, Mihaela Crișan-Vida, Marius Marcu	
About the possibility to use the model based testing for system test automation	93
Cristina Georgiana Haiducu, Septimiu Lica, Ioan Lie	
Security System with High Autonomy of Operation	97
Lorant Andras Szolga, Ionut Pavelea	

Instrumentation and Measurement

LTE Band Filtering Applications of a Fractal Based Frequency Selective Surface.....	103
Adrian-Petru Buta, Andrei-Marius Silaghi, Aldo De Sabata, Ladislau Matekovits	
EMC Simulation of an Automotive Ethernet Interface	107
Andrei-Marius Silaghi, Aldo De Sabata	
Virtual Instrumentation based Prototype for Evaluation of the Cardiac Systolic Function.....	111
Liliana Mățiu-Iovan, Valentin Ordodi, Raul Ionel, Daniel Bonciog	
Parameter Monitoring and Logging of a Thermo-Electric Hybrid Solar System.....	115
Roland Szabo	
A practical implementation for an instrument to measure displacement of pendulum wire	119
Ioan Ciascai, Adrian Mocan	
Experimental and Analytical Study of the Electric Potential using Lagrange Polynomials	123
B Arvinti, D Toader, D Vesa, M Costache	

Modified Langendorff vibrating fluid column device for improved rat heart decellularization experiments	127
Daniel Dumitru Bonciog, Mihaela Ruxandra Lascu, Liliana Mățiu - Iovan, Raul Ionel, Caius Alexandru Burian, Valentin Laurențiu Ordodi	
An Application of Automation Solutions in Dynamically Water Supply Networks	131
Calin Ciufudean, Corneliu Buzduga	
Modelling an OPC UA client application for predictive maintenance support	135
Ligia-D. Chiorean, Mircea-F. Vaida, Horia Hedesiu	
EMC Characteristics of Helical Antennas used in Automotive Testing	139
Andrei-Ovidiu Neiconi, Octavian-Teodor Pacurar, Aldo De Sabata	
Spectrum Occupancy Measurements in the Wi-Fi Band with a PCB Antenna	143
Octavian-Teodor Pacurar, Cornel Balint, Cora Iftode, Andrei-Marius Silaghi, Aldo De Sabata	
Accurate Measurement of the rms of a Sine-wave by Means of Low-Cost rms-to-dc Converters	147
Daniel Belega, Gabriel Gasparesc	

Open Education and Emerging Technologies

Auto-Generative Learning Objects for Learning Linked Lists Concepts	153
Felicia Mirabela Costea, Ciprian Bogdan Chirila, Vladimir Ioan Cretu	
Security threats in IoT	157
Octavia Georgiana Dorobantu, Simona Halunga	
Education 4.0: Smart Blended Learning Assisted by Artificial Intelligence, Biofeedback and Sensors	161
Monica Ioniță Ciolacu, Paul Svasta, Daniela Hartl, Stefanie Görzen	
Online versus On-site e-Assessment in Medical Education: are we ready for the change?	165
Romeo Minodoru Cosnita, Anca Maria Cimpean, Marius Raica	
Student cluster analysis based on Moodle data and academic performance indicators	169
Marian Bucos, Bogdan Dragulescu	
To “paint“ with Human Tissues and Modern Technology: This is Art in Histology Gamification .	173
Anca Maria Cimpean, Romeo Minodoru Cosnita, Marius Raica	
Augmenting Learning through VR Storytelling	177
Roxana Ticala, Aurelia Ciupe, Serban Meza, Bogdan Orza	
Helios - an integrated platform for e-education	181
Cosmin Strilechi, Mircea-Florin Vaida	

Power Electronics

Power source of sinusoidal voltage and variable frequency	187
Florin Lucian Morgos, Nistor Daniel Trip, Traian Adrian Burca, Cornelia Emilia Gordan, George Ciprian Gal, Adriana Maria Cuc	
Automotive Lead-Acid Battery Supplied DC-DC Power Converter with Variable Output Voltage	191
Tibor G. Fodor, Helga M. Silaghi, Alexandru M. Silaghi	
Soft Switched Multiphase Converter with Parallel Resonant DC-Link Circuit.....	195
Wensong Shen, Folker Renken, Dan Lascu	
A New Multiphase ZVT-PWM Synchronous Buck Converter	199
Wensong Shen, Folker Renken, Dan Lascu	
A New Buck Converter with Hybrid Switching	203
Evelyn-Astrid Lovasz, Dan Lascu	
A Novel Single Switch Step-Up Converter with High Conversion Ratio	207
Delia Botila, Dan Lascu	
A New Step-Up Watkins-Johnson Derived Converter.....	211
Cristian Ionici	
A New Quadratic Step-Down Converter.....	215
Ioana-Monica Pop-Calimanu, Alexandru-Adrian Cauc, Marius Pop-Calimanu	
A New Step-Up Converter with Coupled Inductor	219
Ioana-Monica Pop-Calimanu, Madalina-Gabriela Jude, Renken Folker	
Fourth-Order Buck-Boost Converters Exhibiting Minimum Phase by Reverse Inductor Coupling	223
Bianca Lazar, Dan Lascu	
A Generalized Model for Single-Switch Stacked Step-Down Converters.....	227
Septimiu Lica, Ioan Lie, Alexandru-Nicolae Wegner, Ioana Monica Pop-Călimanu	
Structuring, Controlling and Protecting the DC Grid	231
Peter J. van Duijsen, Diëgo C. Zuidervliet	

Signal Processing

A Forensics System for Live-Audio Watermarking.....	237
Valentin-Adrian Nita	

Color quotient based mask detection	241
Ioan Buciu	
Improved 3D Co-Occurrence Matrix for Texture Description and Classification	245
Stefania Ramona Barburiceanu, Romulus Terebes, Serban Meza	
Spectral Component Analysis of Magnetically Unshielded Magnetocardiograms	249
Beatrice Arvinti, Ronny Stolz, Marius Costache	
Comparison of Two Compressive Sensing Algorithms for Automotive Radar	253
Corina Nafornta, Alexandru Isar, Teodor Dehelean, Ioan Nafornta	
Wavelet Based Adaptive Detection of Automotive Radar Single Target with Low SNR	259
Alexandru Isar, Corina Nafornta, Adrian Macaveiu, Georgiana Magu	
Integrating Service Robots into Everyday Life Based on Audio Capabilities	265
Toma Telembici, Lacrimioara Grama, Corneliu Rusu	
Preconditioned K-SVD for ECG Anomaly Detection	269
Nicolae Cleju, Iulian Ciocoiu	
A Regularized RLS Algorithm for the Identification of Third-Order Tensors	273
Camelia Elisei-Iliescu, Constantin Paleologu, Jacob Benesty, Cristian Stanciu, Cristian Anghel	
Aspects of Time Series Analysis with Entropies and Complexity Measures	277
Dorel Aiordachioaie, Theodor Dan Popescu	
A Novel VLSI Algorithm for a Low Complexity VLSI Implementation of DCT Based on Pseudo Circular Correlation Structures	281
Doru Florin Chiper, Laura-Teodora Cotorobai	
Object classification using frequency analysis	285
Cristinel Pop, Gabriel Mihail Danciu	
LMS Algorithms for Multilinear Forms	289
Laura-Maria Dogariu, Constantin Paleologu, Jacob Benesty, Cristina Oprea, Silviu Ciochina	
Cross-correlation based automatic segmentation of medial phonemes_resubmission	293
Emilian-Erman Mahmut, Stelian Nicola, Vasile Stoicu-Tivadar	
Image encryption algorithm using wavelet packets and multiple chaotic maps	297
Corina Macovei, Mircea Raducanu, Octaviana Datcu	
About the positivity of trigonometric polynomials with positive samples	301
Corneliu Rusu, Jaakko Astola	
Compressive sensing based watermarking as a security layer for computational imaging applications	305
Cristina Popa, Daniela Coltuc	
Local binary patterns and Fourier transform based hyperspectral image classification	309
Andraia Miclea, Romulus Terebes, Serban Meza	
Keeping the subthreshold all along the transients. The WTA unbounded domain case	313
Ruxandra Costea, Corneliu Marinov	

On Using ReSpeaker Mic Array 2.0 for speech processing algorithms	317
Septimiu Mischie, Gabriel Găspăresc	
Multiple Radar Targets Tracking and Trajectories Fitting	321
Georgiana Magu, Radu Lucaciu	
An innovative algorithm for data differencing	325
Sabin Belu, Daniela Coltuc	
Cascaded adaptive filters in a bilinear approach for system identification	329
Alexandru George Rusu, Silviu Ciochina	
Contrasts Comparison of Same Cases of Chest Pathologies for Radiography and Tomosynthesis .	333
Oleksandra Miroshnychenko, Sergii Miroshnychenko, Andrii Nevgasymyi, Yurii Khobta	

Telecommunications

Monopulse Secondary Surveillance Radar antenna theory	339
Gheorghe Munteuan, Tudor Palade	
Containerized Application for IoT Devices: Comparison between balenaCloud and Amazon Web Services Approaches	343
Robert Botez, Vlad Strautiu, Iustin-Alexandru Ivanciu, Virgil Dobrota	
The Design of a Crowd Density Checker App in Android with People Localization Using the GPS from the Mobile Device	347
Roland Szabo	
Couchbase Server in Microsoft Azure Cloud: A Docker Container Approach	351
Calin-Marian Iurian, Iustin-Alexandru Ivanciu, Virgil Dobrota	
IoT Based Intelligent Building Applications in the Context of COVID-19 Pandemic	355
Cristina Stolojescu-Crisan, Bogdan-Petru Butunoi, Calin Crisan	
Network Self-Similar Traffic Generator with Variable Hurst Parameter	359
Adrian Savu-Jivanov, Alexandru Isar, Cristina Stolojescu-Crisan, Janos Gal	
Performance evaluation of sub-band MVDR beamforming for IEEE 802.11ac wideband signals ..	363
Rares Buta, Cristian Codau, Andra Pastrav, Tudor Palade, Paul Dolea, Emanuel Puschita	
Simulation of Automotive MIMO Radar	367
Bogdan Tudoroni, Dorina Isar	
Extending the libtins library with SIP and RTP classes	371
Adrian Costin, Daniel Zinca	
IoT Applications based on MQTT Protocol	375
Maria Salagean, Daniel Zinca	

Traffic Engineering and QoS in a Proposed MPLS-VPN.....	379
Ema-Maria Galeş, Victor Croitoru	
Novel Software Defined Radio Testbed for Spectrum Occupancy Measurements	383
Alexandru Martian, Calin Vladeanu, Ion Marghescu	
Correlating electrical and process parameters for yield detractors' detection.....	387
Ingrid Kovacs, Marina Țopa, Ciprian Pop, Elena-Diana Șandru, Andi Buzo, Georg Pelz	
Dynamic Spectrum Sharing for LTE-NR Downlink MIMO Systems.....	391
Gordana Barb, Marius Otesteanu, Marius Roman	
Smart Illumination for Large Area Buildings Using RF Communication.....	395
Lorant Andras Szolga, Mihai Boca	
First Fresnel Ellipse Evaluation.....	399
Calin Simu, Andy Vesa	
Single Tier Heterogeneous Traffic Generator based on Traffic Statistics	405
Alexandru Bobaru, Georgeta Budura, Cornel Balint	
An Overview of Sign-On Risks and Solutions	409
Luminita Scripcariu, Florin Mocanu	
Volumetric Distributed Denial-of-Service and Session Replay Attacks-Resistant AAA-RADIUS Solution Based on EAP and LDAP	413
Gabriel-Catalin Cristescu, Victor Croitoru	