

# Contents

<b>Conference Information</b>	<b>iii</b>
<b>Organizing Committee Members</b>	<b>v</b>
<b>Technical Programme Committee Members</b>	<b>vi</b>
<b>Preface</b>	<b>x</b>
<b>Contents</b>	<b>xi</b>
Cultural Heritage Monitoring via GPR Enhanced by Microwave Tomography <i>Ilaria CATAPANO, Gianluca GENNARELLI, Giovanni LUDENO, Luigi CAPOZZOLI, Francesco SOLDOVIERI</i>	1
$\pm 1$ Highly Undetectable Stegosystem Model Using Digital Still Images <i>Vladimir KUSTOV, Ekaterina SILANTEVA</i>	6
Synthetic Speech Evaluation by 2D GMM Classification in Pleasure-Arousal Scale <i>Jiri PRIBIL, Anna PRIBILOVA, Jindrich MATOUSEK</i>	10
A Multichannel Recursive Least-Squares Algorithm Based on a Kronecker Product Decomposition <i>Camelia ELISEI-ILIESCU, Constantin PALEOLOGU, Jacob BENESTY, Cristian STANCIU, Cristian ANGHEL, Silviu CIOCHINA</i>	14
Feasibility of OFDM and FHSS in a Single Home Automation and Security Network <i>Tomas JAKUBIK, Jiri JENICEK</i>	19
Microwave-Based Moisture Estimation by Scanning for Paddy Inspection <i>Seksan JIRASUWAN, Kosin CHAMNONGTHAI, Navapadol KITTIAMORNKUL</i>	23
Synchronous Evacuation for Dual Virtual Machines Under Disaster Risks <i>Ning-Hai BAO, Subhadeep SAHOO, Ming KUANG, Guo-Ping LI, Tomas HORVATH</i>	27
Deep Receiver Design for Multi-carrier Waveforms Using CNNs <i>Yasin YILDIRIM, Sedat OZER, Hakan A. CIRPAN</i>	31
4G/5G: A Comparative Study and Overview on What to Expect from 5G <i>Gordana BARB, Marius OTESTEANU</i>	37
Automatic Detection of Cow/Calf Vocalizations in Free-Stall Barn <i>Stavros NTALAMPIRAS, Andrea PEZZUOLO, Silvana MATTIELLO, Monica BATTINI, Marta BRSCIC</i>	41
Wavelength Division Multiplexing Method Using Camera with CMOS Image Sensor for Visible Light Communication <i>Ken AKUTSU, Akihito OTANI</i>	46

A Secure and Lightweight Authenticated Key Agreement Protocol for Distributed IOT Applications <i>Pierre ABI-CHAR, Patrick NADER, Sandy MAHFOUZ</i>	50
Temperature Acquisition and Logging in an Online SQL Database Used in a Photovoltaic System <i>Radu-Stefan RICMAN, Roland SZABO, Andrei BURTA</i>	57
Vacuum Pressure Online Logging Software Creation for a Solar Collector <i>Radu-Stefan RICMAN, Roland SZABO, Andrei BURTA</i>	61
Polynomial Based Kalman Filter Result Fitting to Data <i>Georgiana MAGU, Radu LUCACIU, Alexandru ISAR</i>	65
GPON Traffic Analysis with TensorFlow <i>Vaclav OUJEZSKY, Adrian TOMASOV, Martin HOLIK, Vladislav SKORPIL, Tomas HORVATH, Michal JURCIK</i>	69
Analysis of Radiated Immunity of an Automotive Display by Means of Testing and Simulation <i>Andrei-Marius SILAGHI, Aldo DE SABATA</i>	73
Storage for Traffic from xPON Networks <i>Martin HOLIK, Tomas HORVATH, Vaclav OUJEZSKY, Petr MUNSTER, Zdenek VAIS</i>	77
Sharpening Minimum-Phase FIR Digital Filters Using Paired Prototypes <i>Gerald D. CAIN, Anush YARDIM, Fredric J. HARRIS</i>	81
Compromising Emanations From VGA Interface <i>Leszek NOWOSIELSKI</i>	88
Antenna to Portable Terminal Working in the 5G System <i>Rafał PRZESMYCKI, Marek BUGAJ</i>	93
Shielding Effectiveness Measurement of the Anechoic Chamber <i>Rafał PRZESMYCKI, Marek BUGAJ</i>	97
Possibilities of Recognizing Depression with Convolutional Networks Applied in Correlation Structure <i>Attila Zoltán JENEI, Gábor KISS</i>	101
Wireless Channels Topology Invariant as Mathematical Foundation of Neural Network Channel Estimation Transfer Learning Properties <i>Usatyuk VASILIIY</i>	105
Power Consumption and Radiation Trade-offs in Phased Arrays for 5G Wireless Transport <i>Steven CAICEDO MEJILLONES, Matteo OLDONI, Stefano MOSCATO, Alessandro FONTE, Michele D'AMICO</i>	112
Ergodic Capacity Performance of D2D IoT Relay NOMA-SWIPT Systems with Direct Links <i>Ashish RAUNIYAR, Paal ENGELSTAD, Olav N. ØSTERBØ</i>	117
FPGA Implementation of a Novel Dual - BRAM Processor Architecture <i>Cristian IGNAT, Paul FARAGO, Sorin HINTEA</i>	124
Investigation of the Accuracy of Depression Prediction Based on Speech Processing <i>Gábor KISS, Attila Zoltán JENEI</i>	129

Real-Time 3D Model Reconstruction and Mapping for Fashion <i>Ilya MAKAROV, Daniil CHERNYSHEV</i>	133
Reliability Evaluation Using a Clustering Technique Based on Tie-set Method <i>Indrit MYDERRIZI, Musaria Karim MAHMOOD</i>	139
A Minimum Average-Delay Configuration Algorithm for Relay-Assisted HARQ Transmissions <i>Vasile BOTA, Mihaly VARGA</i>	143
CAMVC: Stable Clustering Algorithm for Efficient Multi-hop Vehicular Communication on Highways <i>Hasanain ALABBAS, Arpad HUSZAK</i>	149
Application of Ellipsoid Parameters for Evaluation of Nystagmus Evoked During Rotational Chair Test <i>Petr VOLF, Jan HEJDA, Patrik KUTÍLEK, Jakub KONDELÍK, Jiří HOZMAN, Rudolf ČERNÝ</i>	153
Cournot Equilibrium in an Owner-Renter Model for 5G Networks under Flat-Rate Pricing <i>Marta FLAMINI, Maurizio NALDI</i>	158
A Software-Defined Networking Solution for Rural Connectivity <i>Benjamin KONÉ, Ahmed Dooguy KORA, Adama NANTOUME</i>	162
Flicker Free Optical Camera Communication for Cameras Capturing 30 Frames per Second <i>Alina-Elena MARCU, Robert-Alexandru DOBRE, Marian VLĂDESCU</i>	166
Smart Parking with Computer Vision and IoT Technology <i>Madhur DIXIT, Srimathi C, Robin DOSS, Seng LOKE, M.A. SALEEMDURAI</i>	170
Expectation Propagation and Transparent Propagation in Iterative Signal Estimation in the Presence of Impulsive Noise <i>Anoush MIRBADIN, Armando VANNUCCI, Giulio COLAVOLPE</i>	175
A Novel Smart-Shoe Architecture for Podiatric Monitoring <i>Paul FARAGO, Mihaela CIRLUGEA, Sorin HINTEA</i>	180
MATLAB-Based PHY Simulators for Performance Study of the IEEE 802.11ah/af Systems <i>Ladislav POLAK, Petr JURAK, Jiri MILOS</i>	184
Quaternion Orthogonal Designs with Full Diversity and Maximal Data Rates <i>Sajid ALI</i>	188
An Iterative Wiener Filter for the Identification of Multilinear Forms <i>Laura-Maria DOGARIU, Silviu CIOCHINĂ, Constantin PALEOLOGU, Jacob BENESTY, Cristina OPREA</i>	193
Combination of Approximate $L_0$ -Norm Regularized Multiple Adaptive Lattice Filters in Sparse Cognitive Radio Channel Identification <i>Mehmet Tahir OZDEN</i>	198
Empirical Evaluation of Activation Functions in Deep Convolution Neural Network for Facial Expression Recognition <i>Muhammad KHALID, Junaid BABER, Mumraiz Khan KASI, Maheen BAKHTYAR, Varsha DEVI, Naveed SHEIKH</i>	204

Copy Move Forgery Detection with Quadtree Decomposition Segmentation <i>Gul MUZAFFER, Guzin ULUTAS, Beste USTUBIOGLU</i>	208
Statistical Study of Small Business Customers using Facebook Ads and Google Analytics <i>Mihaela CIRLUGEA, Paul FARAGO, Sorin HINTEA</i>	212
Sparse and Cosparse Audio Dequantization Using Convex Optimization <i>Pavel ZÁVIŠKA, Pavel RAJMÍČ</i>	216
Design of Operational Amplifier Based Fractional-Order Controller for a MAGLEV System <i>Panagiotis BERTSIAS, Themis KAMILARIS, Costas PSYCHALINOS, Jerzy BARANOWSKI, Waldemar BAUER, Pawel PIATEK, Andrzej TUTAJ</i>	221
Wi-Fi Based Indoor Positioning System with Using Deep Neural Network <i>Selda GÜNEY, Alperen ERDOĞAN, Melih AKTAŞ, Mert ERGÜN</i>	225
Structure of V2X-IoT Framework for ITS Applications <i>Karolis KIELA, Marijan JURGO, Romualdas NAVICKAS</i>	229
Testing of Python Models of Parallelized Genetic Algorithms <i>Vladislav ŠKORPIL, Vaclav OUJEZSKY, Martin TULEJA</i>	235
FOMCONpy: Fractional-Order Modelling and Control Library for Python <i>Tobechukwu ONYEDI, Aleksei TEPLJAKOV, Eduard PETLENKOV</i>	239
Transient Behaviour of a Network Router <i>Tadeusz CZACHORSKI, Erol GELENBE, Godlove Suila KUABAN, Dariusz MAREK</i>	246
Daphnet Freezing Recognition with Gait Data by Using Machine Learning Algorithms <i>Selda GÜNEY, Büşra BÖLÜK</i>	252
Heuristic Design of Feedback Active Noise Control for Automotive Applications <i>Alessandro OPINTO, Marco MARTALÒ, Carlo TRIPODI, Alessandro COSTALUNGA, Luca CATTANI, Riccardo RAHELI</i>	256
A Lifetime Extension Framework for Wireless Sensor Networks <i>Georgios TSOUMANIS, Nikolaos GIANNAKEAS, Alexandros TZALLAS, Evripidis GLAVAS, Eleftherios STERGIOU, Konstantinos OIKONOMOU, Constantinos ANGELIS</i>	260
3D Interference Mapping for Indoor IoT Scenarios <i>Antoni IVANOV, Viktor STOYNOV, Kliment ANGELOV, Radostin STEFANOV, Dimitar ATAMYAN, Krasimir TONCHEV, Vladimir POULKOV</i>	265
A Two-Stream Context-Aware ConvNet for Pavement Distress Detection <i>Roland LŐUK, Aleksei TEPLJAKOV, Andri RIID</i>	270
Digital Twins in Extended Reality for Control System Applications <i>Stanislav JERŠOV, Aleksei TEPLJAKOV</i>	274
NSNN Algorithm Performance with Different Neural Network Architectures <i>Marin PAMUKOV, Vladimir POULKOV, Vasil SHTEREV</i>	280
Modeling and Identification of an Industrial Hot Water Boiler <i>Maksimilian TARASEVICH, Aleksei TEPLJAKOV, Eduard PETLENKOV, Vitali VANSOVITŠ</i>	285

Composite Sharpening of FIR Digital Filters <i>Gerald D. CAIN, Anush YARDIM, Fredric J. HARRIS</i>	291
Experimental Validation of a Novel RLL Code for Visible Light Communication <i>Muhammed Yaser YAGAN, Rifat KISACIK, Tufan ERKINACI, Ali Emre PUSANE, Murat UYSAL, Tuncer BAYKAS, Gunhan DUNDAR, Arda Deniz YALCINKAYA</i>	297
Towards Extending Real-Time EMG-Based Gesture Recognition System <i>Cristina ANDRONACHE, Marian NEGRU, Ana NEACSU, George CIOROIU, Anamaria RADOI, Corneliu BURILEANU</i>	301
Temporal Aggregation of Audio-Visual Modalities for Emotion Recognition <i>Andreea BIRHALA, Catalin Nicolae RISTEA, Anamaria RADOI, Liviu Cristian DUTU</i>	305
A Performance Evaluation of TCP BBRv2 Alpha <i>Jose GOMEZ, Elie KFOURY, Jorge CRICHIGNO, Elias BOU-HARB, Gautam SRIVASTAVA</i>	309
On the Limitations of GPS Time-Spoofing Attacks <i>Mehmet Özgün DEMIR, Güneş KARABULUT KURT, Ali Emre PUSANE</i>	313
An Envelope-based Feature for NDA SNR Estimation <i>Muhammed Ceyhun KARDAŞ, Ali Emre PUSANE</i>	317
A Bluetooth Low Energy DCO in 28nm FDSOI <i>Orfeas PANETAS-FELOURIS, Spyridon VLASSIS, George SOULIOTIS, Vasileios PANAGIOTOPOULOS</i>	321
Wave-based Digital Model of Substrate-Integrated- Waveguide (SIW) Filters for K band <i>Marin NEDELICHEV, Biljana STOSIC, Ilia ILIEV, Ana ILIEVA, Nebojsa DONCOV</i>	325
Prospecting an Archaeological Site by GPR: The Case Study of the Buried Necropolis Laurentina <i>Luca BIANCHINI CIAMPOLI, Nikos ECONOMOU, Roberta SANTARELLI</i>	329
PAELib 2.0: Power&Area Aware Modeling of CMOS Digital Circuits in VHDL <i>Botond Sandor KIREI, Calin Adrian FARCAS, Marina Dana TOPA</i>	333
Secure Cattle Stock Infrastructure for the Internet of Things using Blockchain <i>Lucas LEME, Arthur MEDEIROS, Gautam SRIVASTAVA, Jorge CRICHIGNO, Rubens FILHO</i>	337
Pet Immunity for PIR Sensors Using Deep Learning <i>Karel PALECEK, Josef CHALOUPKA</i>	342
Forest Monitoring Using Forest Sound Identification <i>Svetlana SEGARCEANU, Elena OLTEANU, George SUCIU</i>	346
Duplicated Audio Segment Detection with Local Binary Pattern <i>Büşranur KÜÇÜKUĞURLU, Beste USTUBIOGLU, Guzin ULUTAS</i>	350
Deep Learning Based Automatic Modulation Classification in the Case of Carrier Phase Shift <i>Ramazan YILMAZ, Ali Emre PUSANE</i>	354
Open Source FaaS Performance Aspects <i>David BALLA, Markosz MALIOSZ, Csaba SIMON</i>	358

Handwritten Signature Verification System Using Sound as a Feature <i>Mustafa Semih SADAK, Nihan KAHRAMAN, Umut ULUDAG</i>	365
Application of Oscillation-Based Self-Testing Systems for Higher Order Active RC Low-Pass Filters <i>Leonid KLADOVŠČIKOV, Romualdas NAVICKAS</i>	369
Low-complexity Chebyshev High-pass Filter based on OTA-C <i>Natapong WONGPROMMOON, Apinat TIAMSUPHAT, Pipat PROMMEE</i>	373
Performance Analysis of Relayed D2D Communications under Power Control <i>Farah YASSINE, Oussama BAZZI, Youssef NASSER</i>	377
Efficient Physical Layer Spoofing Detection with an Autoregressive Model <i>Oğuzhan Kubilay ÜLGER, Mehmet Özgün DEMİR, Ozan Alp TOPAL, Güneş KURT, Ali Emre PUSANE</i>	382
Automatic Annotation of Speech Corpora using Approximate Transcripts <i>Cristian MANOLACHE, Alexandru-Lucian GEORGESCU, Alexandru CARANICA, Horia CUCU</i>	386
Evolution of Mobile Networks and C-RAN on the Road Beyond 5G <i>Plamen SEMOV, Pavlina KOLEVA, Krasimir TONCHEV, Vladimir POULKOV, Todor COOKLEV</i>	392
Real time and post-processing flight inspection by Drone: A Survey <i>Sékou TOGOLA, Sountongnoma Martial Anicet KIEMDE, Ahmed Dooguy KORA</i>	399
Vein-based Biometric Verification using Transfer Learning <i>Rıdvan Salih KUZU, Emanuele MAIORANA, Patrizio CAMPISI</i>	403
Keystroke Dynamics for Biometric Recognition in Handheld Devices <i>Himanka KALITA, Emanuele MAIORANA, Patrizio CAMPISI</i>	410
Machine Learning-based Frequency Resource Demand Prediction for a Mobile Satellite Network <i>Benjamin APPLEBY</i>	417
Role of Anti-Squeezing Noise in Continuous-Variable Quantum Cryptography <i>Vladyslav USENKO, Akash nag ORUGANTI</i>	421
GPR Data Collection and Processing Strategies for Railway Ballast Evaluation <i>Luca BIANCHINI CIAMPOLI, Alessandro CALVI, Fabrizio D'AMICO, Fabio TOSTI</i>	426
The Pursuit of NB-IoT Transmission Rate Limitations by Real-life Network Measurements <i>Gabor SOOS, Pal VARGA, Daniel FICZERE</i>	430
Implementing Fractional PID Control for MagLev with SoftFRAC <i>Waldemar BAUER, Jerzy BARANOWSKI, Andrzej TUTAJ, Paweł PIĄTEK, Panagiotis BERTSIAS, Stavroula KAPOULEA, Costas PSYCHALINOS</i>	435
Towards the Identification of the Possible Security Issues of the 464XLAT IPv6 Transition Technology <i>Ameen AL-AZZAWI, Gabor LENCSE</i>	439
On Motion Analysis of Multiple Time-Variant Objects in Video Sequences <i>Veronica MATTIOLI, Davide ALINOVİ, Riccardo RAHELI</i>	445

A Reflectivity-Based GPR Signal Processing Methodology for Mapping Tree Root Systems of Street Trees <i>Livia LANTINI, Iraklis GIANNAKIS, Fabio TOSTI, Dale MORTIMER, Amir M. ALANI</i>	449
Assessing the Internal Structure of Hollow Trees Using GPR and Microwave Tomography <i>Fabio TOSTI, Gianluca GENNARELLI, Livia LANTINI, Ilaria CATAPANO, Lilong ZOU, Francesco SOLDOVIERI, Amir M. ALANI</i>	453
Leveraging SONiC Functionalities in Disaggregated Network Switches <i>Ali ALSABEH, Elie KFOURY, Jorge CRICHIGNO, Elias BOU-HARB</i>	457
A Blockchain-based Method for Decentralizing the ACME Protocol to Enhance Trust in PKI <i>Elie KFOURY, David KHOURY, Ali ALSABEH, Jose GOMEZ, Jorge CRICHIGNO, Elias BOU-HARB</i>	461
A Combination of Deterministic Regularizations and Genetic Algorithms in Two-dimensional Inverse Scattering Problems <i>Yangqing LIU, Francesco SOLDOVIERI, Danilo ERRICOLO</i>	466
Modeling and Design of Microstrip Coupled Resonator Filters based on ANNs <i>Marin NEDELICHEV, Milos MITIC, Alexander KOLEV, Zlatica MARINKOVIC</i>	470
A Hybrid PSO-MiLOF Approach for Outlier Detection in Streaming Data <i>Ankita KARALE, Milena LAZAROVA, Pavlina KOLEVA, Vladimir POULKOV</i>	474
Transfer Learning versus Custom CNN Architectures in NAFLD Biopsy Images <i>Alexandros ARJMAND, Vasileios CHRISTOU, Alexandros TZALLAS, Markos TSIPOURAS, Constantinos ANGELIS, Georgios TSOUMANIS, Evripidis GLAVAS, Roberta FORLANO, Pinelopi MANOUSOU, Nikolaos GIANNAKEAS</i>	480
Real-time Assembly Fault Detection using Image Analysis for Industrial Assembly Line <i>Jan-Iliuțǎ-Romeo COJOCARU, Dan POPESCU, Loretta ICHIM</i>	484
Simultaneous transmission of data and sensory signal with gradual increase in channel spacing <i>Michal LÁTAL, Petr DEJDAR, Tomáš HORVÁTH, Petr MÜNSTER</i>	488
Hybrid Classification Model to Detect Android Application-Collusion <i>Md Faiz Iqbal FAIZ, Md Anwar HUSSAIN</i>	492
Implementation of the Fractional-Order Model of the Biceps Tissue During Fatigue Exercise <i>Eleni TSIKRITSI, Stavroula KAPOULEA, Costas PSYCHALINOS</i>	496
Survey: Classification of the IoT Technologies for Better Selection to Real Use <i>Peter KAŇUCH, Dominik MACKO, Ladislav HUDEC</i>	500
M-SVD based Quality Measurement in Hybrid non-blind Watermarked Medical Images <i>Ersin ELBASI</i>	506
Optimization of LoRa Devices Communication for Applications in Healthcare <i>Alexander VALACH, Dominik MACKO</i>	511
Firefly Algorithm Based Feature Selection for EEG Signal Classification <i>Ebru ERGUN, Onder AYDEMIR</i>	515

A New VLSI Algorithm for type IV DCT for an Efficient Implementation of Obfuscation Technique <i>Laura-Teodora COTOROBAI, Doru Florin CHIPER</i>	519
Rapidly Moving Target Parameter Estimation Using Phased Array Radars <i>Webert MONTLOUIS, Richard FAUCONIER, Mandoye NDOYE</i>	523
Classification of Railway Level Crossing Barrier and Light Signalling System Using YOLOv3 <i>Pavel SIKORA, Martin KIAC, Malay Kishore DUTTA</i>	528
Efficient Convolutional Neural Network Based Optic Disc Analysis Using Digital Fundus Images <i>Rakesh Chandra JOSHI, Malay Kishore DUTTA, Pavel SIKORA, Martin KIAC</i>	533
Fusion of Object Recognition and Obstacle Detection approach for Assisting Visually Challenged Person <i>Saumya YADAV, Rakesh Chandra JOSHI, Malay Kishore DUTTA, Martin KIAC, Pavel SIKORA</i>	537
A Robust Deep Model for Human Action Recognition in Restricted Video Sequences <i>Vahid ASHKANI CHENARLOGH, Hossein BARGHI JOND, Jan PLATOŠ</i>	541
Machine learning based Automatic Classification of Respiratory Signals using Wavelet Transform <i>Anjali YADAV, Malay Kishore DUTTA, Jiri PRINOSIL</i>	545
Truth Identification from EEG Signal by using Convolution neural network: Lie Detection <i>Neeraj BAGHEL, Divyanshu SINGH, Malay Kishore DUTTA, Radim BURGET, Vojtech MYSKA</i>	550
Tool for Optimizing Webpages on a Mobile Phone <i>Martina RADILOVA, Patrik KAMENCAY, Slavomir MATUSKA, Miroslav BENCO, Robert HUDEC</i>	554
FPGA Based Accelerator for Buried Objects Identification <i>Mostafa ELSAADOUNY, Jan BAROWSKI, Ilona ROLFES</i>	559
One-Way Delay and Goodput Measurements with a VDSL, DOCSIS, and MPTCP Internet Access <i>Lorenz AMMON, Jörg DEUTSCHMANN, Kai-Steffen HIELSCHER, Reinhard GERMAN</i>	563
Spectrum Management based on Genetic Algorithm for Cognitive Networks <i>Luis Gustavo MACIEL RIVEROS, Fabricio BRAGA SOARES DE CARVALHO, Rafael DE SOUSA MARINHO</i>	569
Design of Building Blocks for Fractional-Order Applications with Single and Compact Active Device <i>Roman SOTNER, Jan JERABEK, Lukas LANGHAMMER, Jaroslav KOTON, Josef POLAK, Darius ANDRIUKAITIS, Algimantas VALINEVICIUS</i>	573
Design of Electronically Adjustable Fractional-Order Immittances Using Single Active Device <i>Roman SOTNER, Jan JERABEK, Lukas LANGHAMMER, Jaroslav KOTON, Darius ANDRIUKAITIS, Audrius MERFELDAS</i>	578
Analysis of OTA-Based Gyrator Implementing Fractional-Order Inductor <i>David KUBANEK, Jaroslav KOTON, Jan DVORAK, Norbert HERENC SAR, Roman SOTNER</i>	583
Improving the Precision of Wireless Localization Algorithms: ML Techniques for Indoor Positioning <i>Pavel MASEK, Petr SEDLÁČEK, Aleksandr OMETOV, Jiri MEKYSKA, Petr MLYNEK, Jiri HOSEK, Mikhail KOMAROV</i>	589



A Comparative Performance Analysis of Blind Equalization Algorithms in Single Carrier Visible Light Communications <i>Sabiha YAŞAR, Hayriye SINOP, Yusuf İslam TEK, Elif Büşra TUNA, Kudret KARAERIK, Büşra AVCI, Gazihan AYKIRI, Ali ÖZEN</i>	595
Honour:VeHicle tO INfrastructure COmmUnication for Indian SmaRt Cities <i>Aryan SHARMA, Shivani KHANDELWAL, Balwant SINGH, Arunima SHARMA, Ramesh Babu BATTULA</i>	601
Innovative 3D Reconstruction Method based on Patch Based Technique using Neural Network <i>Patrik KAMENCAY, Martina RADILOVA, Roman RADIL, Miroslav BENCO, Robert HUDEC, Roberta VRSKOVA</i>	609
Enhanced approach on solving Online Knapsack Problem to improve Load Balancing <i>Marek GALINSKI, Juraj VOLKO, Ivan KOTULIAK</i>	613
Automated Two-Step Power Amplifier Design with Pre-constructed Artificial Neural Network <i>Lida KOUHALVANDI, Marco PIROLA, Serdar OZOGUZ</i>	617
Classification Based Load Balancing in Content Delivery Networks <i>Peter BAKONYI, Tomáš BOROŠ, Ivan KOTULIAK</i>	621
Performance Evaluation of Carrier Aggregation in LTE-A Pro Mobile Systems <i>Aneta KOLACKOVA, Salwa SAAFI, Pavel MASEK, Jiri HOSEK, Jan JERABEK</i>	627
Robust QRS Complex Detector Algorithm Based on Modified Pan-Tompkins Method and Wavelet Transform <i>Michal GÁLA, Ján BARABÁŠ</i>	633
Usage of Offset Printing Technology for Printed Electronics and Smart Labels <i>Michal KERNDL, Pavel ŠTEFFAN</i>	637
Evaluating execution strategies of GraphQL queries <i>Marek KONIECZNY, Sławomir ZIELINSKI, Piotr ROKSELA</i>	640
Automated Evaluation of COVID-19 Risk Factors Coupled with Real-Time, Indoor, Personal Localization Data for Potential Disease Identification, Prevention and Smart Quarantining <i>Ján BARABÁŠ, Róbert ŽALMAN</i>	645
An SVO-based Approach for Electromagnetic Inverse Scattering <i>Amedeo CAPOZZOLI, Claudio CURCIO, Angelo LISENO</i>	649
Improving the Performance of Optical Single Carrier Frequency Domain Channel Equalizer for Visible Light Communications <i>Serhat SERT, Ahmet Halit AKILLI, Özcan BILBAY, Caner CENGİZ, Ali ÖZEN</i>	653
A Novel PAPR Improvement Approach for the Next Generation Waveforms <i>Yusuf İslam TEK, Elif Büşra TUNA, Kudret KARAERIK, Hayriye SINOP, Sabiha YAŞAR, Büşra AVCI, Gazihan AYKIRI, Ali ÖZEN</i>	658
Fractional-Order Oscillator with Extended Control of Frequency of Oscillation <i>Jan DVORAK, Jan JERABEK, Pavel SEDA, Panagiotis BERTSIAS</i>	663
Forgetting is Necessary for Recurrent Networks to Recover Sequences Longer than Network Size <i>Koray ÇİFTÇİ, Rafet AKDENİZ</i>	668

A New Waveform Design based on Sequentially Connected ILWT and FWHT Transforms <i>Caner CENGİZ, Özcan BILBAY, Ahmet Halit AKILLI, Serhat SERT, Ali ÖZEN</i>	672
Comparing Normalization Methods for Limited Batch Size Segmentation Neural Networks <i>Martin KOLARIK, Radim BURGET, Kamil RIHA</i>	677
14.5nW, 30 dB Analog Front-End in 90-nm Technology for Biopotential Signal Detection <i>Maha DIAB, Soliman MAHMOUD</i>	681
Field Programmable Analog Array for Low Frequency Application of OTA-C Low Pass Filters <i>Maha DIAB, Soliman MAHMOUD</i>	685
General View on Fractional-Order All-Pass Filters Using Generalized Current Conveyors <i>Norbert HERENC SAR</i>	689
<b><i>Author Index</i></b>	<b>694</b>
<b><i>Reviewers</i></b>	<b>698</b>