

# CONTENTS

## SECTION A - Systems, Process Control and Automations

|   |    |
|---|----|
| <i>Embedded Networked Monitoring and Control for Renewable Energy Storage Systems</i><br>Grigore STAMATESCU, Iulia STAMATESCU, Nicoleta ARGHIRA, Ioana FAGARASAN,<br>Sergiu Stelian ILIESCU .....   | 1  |
| <i>PID-Controller Application in the System for Variable Technological Process</i><br>Simion BARANOV, Irina COJUHARI, Ion FIODOROV, Leonid GORCEAC .....  | 7  |
| <i>Improving Interrupt Handling in the nMPRA</i><br>Nicoleta Cristina GAITAN, Vasile Gheorghita GAITAN, Elena-Eugenia (CIOBANU) MOISUC .....  | 11 |
| <i>Fuzzy Decision Support System for Solar Tracking Optimization</i><br>Iulia STAMATESCU, Grigore STAMATESCU, Nicoleta ARGHIRA, Ioana FAGARASAN,<br>Sergiu Stelian ILIESCU .....  | 16 |
| <i>Real-Time Reconfiguration of Distributed Control System Based on Hard Petri Nets</i><br>Victor ABABII, Viorica SUDACEVSCHI, Marin PODUBNII, Irina COJUHARI .....   | 21 |
| <i>On Quick-Change Detection based on Process Adaptive Modelling and Identification</i><br>Dorel AIORDACHIOAIE .....  | 25 |
| <i>Experimental Analysis on a Self Excited Induction Generator for Standalone Wind Electric Pumping Stations</i><br>Mohamed BARARA, Ahmed ABOU, Mohamed AKHERRAZ, Abderrahim BENNASSAR, Silviu IONITA,<br>Emilian LEFTER, Bogdan ENACHE ..... | 29 |
| <i>Optimal Estimation of Parameters in Systems with the Phase Space Variable Measurability</i><br>Mykola ILASHCHUK, Eugene SOPRONIUK .....  | 37 |
| <i>Principle of Maximum to Control Systems with Delay and Change of Phase Space Measurability</i><br>Tetiana HABUZA, Fedir SOPRONIOUK.....  | 43 |
| <i>Robotic Arm Control in 3D Space Using Stereo Distance Calculation</i><br>Roland SZABO, Aurel GONTEAN .....   | 50 |

## SECTION B - Communications and Computer Networks

|  |    |
|--|----|
| <i>Matlab Based Platform for the Evaluation of Modulation Techniques Used in VLC</i><br>Steven De LAUSNAY, Lieven De STRYCKER, Jean-Pierre GOEMAERE, Nobby STEVENS,<br>Bart NAUWELAERS ..... | 57 |
| <i>Optimization of an Improved Nyquist Filter With Piece-Wise Polynomial Frequency Characteristic</i><br>Nicolae Dumitru ALEXANDRU, Alexandra Ligia BALAN .....                              | 62 |

*Hardware Event Treating in nMPRA*

Elena-Eugenia (CIOBANU) MOISUC, Alexandru-Bogdan LARIONESCU, Vasile Gheorghita GAITAN..... 66

*Sensors Network Based on Mobile Robots*

Victor ABABII, Viorica SUDACEVSCHI, Marin PODUBNII, Irina COJUHARI..... 70

*Using dual priority scheduling to improve the resource utilization in the nMPRA microcontrollers*

Nicoleta Cristina GAITAN, Lucian ANDRIES..... 73

*Introducing aceMote: an energy efficient 32 bit mote*

Andrei STAN, Nicolae BOTEZATU ..... 79

*Evaluation of the noise effects on Visible Light Communications using Manchester and Miller coding*

Alin-Mihai CAILEAN, Barthelemy CAGNEAU, Luc CHASSAGNE, Valentin POPA, Mihai DIMIAN ..... 85

*Implementation and Performance Analysis of Zero Forcing MIMO Detection Algorithm*

Vakulabharanam RAMAKRISHNA, Tipparti Anil KUMAR..... 90

*Design of a Multi-Input-Multiple-Output Visible Light Communication System for Transport Infrastructure to Vehicle Communication*

Lucian-Nicolae COJOCARIU, Valentin POPA ..... 93

**SECTION C - Electronics and Computer Aided Engineering**

*Eddy Current Nondestructive Evaluation – the Challenge of Accurate Modeling*

Nathan IDA ..... 97

*Using a Decision Tree for Real-Time Distributed Indoor Localization in Healthcare Environments*

Jeroen WYFFELS, Jos De BRABANTER, Jean-Pierre GOEMAERE, Bart NAUWELAERS, Lieven De STRYCKER, Piet VERHOEVE, Pieter CROMBEZ..... 103

*A 2.4 GHz Phase Locked Loop for a Linear Phased Antenna Array*

Anneleen Van NIEUWENHUYSE, Frederic TORREELE, Jean-Pierre GOEMAERE, Lieven De STRYCKER, Bart NAUWELAERS ..... 110

*A Comparison between Coded-Decoded Mode Signals on Multifunctional Registers*

Mihai TIMIS, Alexandru VALACHI, Petru CASCAVAL, Radu SILION ..... 116

*Size, Shape and Temperature Effects on Ferro/Antiferro-electric Hysteresis Loops from Monte Carlo Simulations on 2D Ising Model*

Daniel CHIRUTA, Christian CHONG, Pierre-Richard DAHOO, Yasser ALAYLI, Mihai DIMIAN, Jorge LINARES..... 122

*A Study on Light Energy Harvesting from Indoor Environment*

Aurel CHIRAP, Valentin POPA, Eugen COCA, Alin Dan POTORAC ..... 127

*The Temperature Dependence of Magnetostatic Interactions in Nanowire Systems*

Andrei DIACONU, Ioan DUMITRU, Alexandru STANCU, Leonard SPINU..... 132

*Multi-Inverter Six-Phase Motor Drive with Two DC Sources and Voltage Waveform Symmetries*

Valentin OLESCHUK, Vladimir ERMURATSKII, Vladimir BERZAN..... 137

|  |     |
|--|-----|
| <i>LabVIEW used for Modelling of Hysteresis for Soft Magnetic Materials</i><br>Septimiu MOTOASCA .....   | 143 |
| <i>CSLC: The Infrastructure Compiler for SoC Design</i><br>Cristian-Gyozo HABA, Derek PAPPAS .....   | 149 |
| <i>Harmonic Analysis of Power Quality Indices Based on DWT using Three-Phase Modern Converters</i><br>Viorel APETREI, Constantin FILOTE, Adrian GRAUR.....   | 155 |
| <b>SECTION D - Software Engineering and Information Technologies</b>   |     |
| <i>A Black Box Approach to Physical Layer Validation for 3G/4G Base Stations</i><br>Mihai BARBULESCU, Mihnea IONESCU, Andrei Alexandru ENESCU.....   | 161 |
| <i>Using Neural Networks for a Discriminant Speech Recognition System</i><br>Daniela SCHIOPU, Mihaela OPREA.....   | 165 |
| <i>Production Scheduling by Using ACO and PSO Techniques</i><br>Florentina Alina TOADER.....   | 170 |
| <i>Automatic Fury Recognition in Audio Records</i><br>Adrian CIOBANU, Mihaela LUCA, Elena MUSCA, Ioan PAVALOI.....   | 176 |
| <i>Color Feature Vectors Based on Optimal LAB Histogram Bins</i><br>Adrian CIOBANU, Ioan PAVALOI, Mihaela LUCA, Elena MUSCA.....   | 180 |
| <i>A Parallel Accelerated Approach of HMM Forward Algorithm for IBM Roadrunner Clusters</i><br>Stefania-Iuliana SOIMAN, Ionela RUSU, Stefan-Gheorghe PENTIUC.....  | 184 |
| <i>A Second Order-Cone Programming Relaxation for Facility Location Problem</i><br>Vasile MORARU, Sergiu ZAPOROJAN, Adrian GROZA .....   | 189 |
| <i>Organization of High-Performance Parallel-Hierarchical Computing Processes for Classification of Laser Beam Images</i><br>Andriy A. YAROVYY, Leonid I. TIMCHENKO, Nataliya I. KOKRIATSKAIA, Svitlana V. NAKONECHNA,<br>Maksym S. MATEICHUK..... | 192 |
| <i>From Classical Computing to Quantum Computing</i><br>Adina BARILA .....   | 198 |
| <i>Romanian2SPARQL: A Grammatical Framework approach for querying Linked Data in Romanian language</i><br>Anca MARGINEAN, Adrian GROZA, Radu Razvan SLAVESCU, Ioan Alfred LETIA .....  | 204 |
| <i>Spectral Analysis of Fetal Heart Rate Variability Associated with Fetal Acidosis and Base Deficit Values</i><br>Cristian ROTARIU, Alexandru PASARICA, Hariton COSTIN, Dragos NEMESCU .....  | 210 |
| <i>Index of Authors .....</i>  | 214 |