2014 IEEE International Conference on Automation, Quality and Testing, Robotics

(AQTR 2014)

Cluj-Napoca, Romania
22 – 24 May 2014

IEEE Catalog Number: CFP14AQT-POD
ISBN: 978-1-4799-3733-2

Contents

Session code/ID	Paper title	Authors	Page number
Control Systems			1
C1/21	An LMI approach for observer design for Takagi-Sugeno descriptor models	Victor ESTRADA-MANZO, Thierry Marie GUERRA, Zsofia LENDEK	3
C1/22	Fault-Tolerant Predictive Control for Markov Linear Systems	Manuel Alejandro HERNANDEZ MEJIAS, Antonio SALA PIQUERAS, Carlos ARINO, Andres QUEROL	8
C2/40	Synthesis of Train Traffic Control System with Evolutionary Computing	Attila Ors KILYEN, Mihai HULEA, Tiberiu LETIA	14
C1/71	Optimistic Planning with Long Sequences of Identical Actions for Near-Optimal Nonlinear Control	Antal Koppany MATHE, Lucian BUSONIU, Liviu MICLEA	20
C2/80	Internal Model Control for a Hydraulically Driven Robotic Arm	Iulia CLITAN, Ionut MUNTEAN	26
C1/95	Linear Quadratic Optimal Control of an Inverted Pendulum Using the Artificial Bee Colony Algorithm	Baris ATA, Ramazan COBAN	31
C1/100	Digitization of continuous interval transfer functions: a revisited method and its application on a case study	Ionut MUNTEAN, Iulia CLITAN	35
C1/102	Fuzzy-based Gain Scheduling of Exact FeedForward Linearization Control and Sliding Mode Control for Magnetic Ball Levitation System: A Comparative Study	Manar Lashin, Abdullah T.Elgammal, Ahmed Ramadan, A.A.Abouelsoud, Samy F.M.Assal, A.Abo-Ismail	39
C2/104	EPSAC Versus PID Control of Neuromuscular Blockade	Ramona HODREA, Ioana NASCU, Ioan NASCU, Robin DE KEYSER, Horatiu VASIAN	45
C2/114	Adaptive Fuzzy Iterative Learning Controller for X-Y Table Position Control	Osama ELSHAZLY, Mohammad EL-BARDINI, Nabila M. EL-RABAIE	51
C2/134	Process modeling and simulation of distributed parameter using Mpdx method with approximating solutions	Diana SAS, Mihaela Ligia UNGURESAN, Tiberiu COLOSI, Mihai SECARA	57

C2/137	E-Health Decision Support System for Differential Diagnosis	Roxana CUCU, Ionut FARCAS, Jose MACHADO, Camelia AVRAM, Adina ASTILEAN	63
C2/148	From Product Specification to Manufacturing Control	Liana MIC, Raluca FAT, Maria Magdalena SANTA, Tiberiu LETIA	69
Quality & Testing			75
Q3/3	A New Text Clustering Method based on Huffman Encoding Algorithm	Maria MUNTEAN, Honoriu VALEAN, Lucia CABULEA	77
Q2/8	Experimental Testing of BAPAMAN 1 with a High Speed Motion Analysis System	Giuseppe CARBONE, Cristian COPILUSI	83
Q1/14	Spam Host Classification using PSO-SVM	Adriana Cristina ENACHE, Valentin SGARCIU	89
Q4/15	Monitoring and controlling of smart equipments using Android compatible devices towards IoT applications and services in manufacturing industry	Mircea MURAR, Stelian BRAD	94
Q3/28	Multi-Agent System with Hierarchical Private Key	Stelian FLONTA, Laura VEGH, Liviu MICLEA, Iulia STEFAN, Szilard ENYEDI	99
Q1/30	Cyber Physical Systems in the Context of Industry 4.0	Nasser JAZDI	103
Q3/31	Grouping Strategy using Enneagram Typologies	Mircea VAIDA, Petre POP	106
Q3/47	Enhancing Security in Cyber-Physical Systems through Cryptographic and Steganographic Techniques	Laura VEGH, Liviu MICLEA	112
Q2/48	WaterfallTree - External Indexing Data Structure	Iliya TRONKOV	118
Q1/57	Data Scrambling in Memories: A Security Measure	Madalin NEAGU, Liviu MICLEA	124
Q4/62	A redundant solution for collective residences inflammable gas leaking monitoring using ultra-low power transmission system and automatic control	Risteiu MIRCEA, Ileana IOAN, Marc GHEORGHE, Muntean MARIA	130
Q4/70	Model Based Fault Detection for Electrical Drives with BLDC motor	Petru DOBRA, Mirela DOBRA, Daniel MOGA, Valentin SITA, Radu Adrian MUNTEANU	136
Q5/75	Current-mode log-domain Programmable Gain Amplifier	Robert GROZA, Mihaela CARLUGEA	141

Q3/76	Analysis of Architectures for Audio-Video Services Distribution in Hybrid IPTV/DVB-C Networks	Radu ARSINTE, Eugen LUPU	145
Q1/78	Advanced Human-Computer Interaction in External Resource Annotation	Roxana MOLDOVAN, Bogdan ORZA, Aurel VLAICU, Cosmin PORUMB	151
Q2/83	Cryptographic key issues and solutions for the bit sieve/pixel-sieve method	Arpad INCZE	157
Q2/84	Fast Creation of Short-Living Virtual Machines Using Copy-on-Write RAM-Disks	Adrian COLESA, Tudor BURA, Adrian POP, Sandor LUKACS	162
Q3/88	Testing Digital Circuits Using a Mixed-Signal Automatic Test Equipment	Mihaela RADU	168
Q5/89	Function Oriented Concept Development of a Mobile Platform for Motion Studies	Mihai STEOPAN, Virgil ISPAS, Sergiu NEGREAN	
Q1/92	A White-Box Tool to Set Performance Targets in Software Engineering Management using the ISBSG Repository	Vasile STROIAN, Pierre BOURQUE, Alain ABRAN	178
Q1/97	The Implementation of Process Capability: A Case Study in a Wood Industry Company	Cristina ILE	184
Q5/103	Automation System based on Simatic S7 300 PLC for a Hydro Power Plant	Razvan BUTUZA, Ioan NASCU, Octavian GIURGIOIU, Ruben CRISAN	189
Q5/106	“Chirp” signal generators for frequency response experiments	Marius GRETINGER, Mihai SECARA, Clement FESTILA, Eva DULF	195
Q4/111	Assisted Test Case Design using Contextual Information by DOM Exploration	Iulia STEFAN, Ioan IVAN, Liviu MICLEA	199
Q5/125	Criteria for the Localization of the Monophase Fault in Medium Voltage Industrial Networks with an Isolated Neutral	Romeo ORMENISAN	203
Q4/126	Road Traffic Safety Solution	Ovidiu STAN, Liviu MICLEA	207
Q5/128	The Characteristic Sizes of the Monophase Fault from the Industrial Networks of Medium Voltage, in a Stabilized Regime	Romeo ORMENISAN	212
Q2/133	Speeding-up Polynomial Multiplication on Virtex FPGAs: Finding the Best Addition Method	Vlad MICLEA	216

Robotics			**221**
R1/54	Genetic Nonlinear Controller of a Skid Steering Mobile Robot with Slip Conditions	Osama ELSHAZLY, Zakarya ZYADA, Ahmed ABO-ISMAIL	223
R1/55	Design and Development of an Autonomous Omni-Directional Mobile Robot with Mecanum Wheels	Mihai TATAR, Catalin POPOVICI, Dan MANDRU, Ioan ARDELEAN, Alin PLESA	229
R1/72	Railway Track Following with the AR.Drone Using Vanishing Point Detection	Elod PALL, Antal Koppany MATHE, Levente TAMAS, Lucian BUSONIU	235
R1/110	Presentation of the Mixt Control Unit for PARMIS Parallel Robotic System	Bela-Zoltan GYURKA, Istvan KOVACS, Doina PISLA	241
R1/141	Aspects concerning development of reconfigurable driving simulators	Cornel BRISAN, Ciprian LAPUSAN, Veturia CHIROIU, Ligia MUNTEANU, Dan DUMITRIU	247
R1/146	Design and control system of a parallel robot for brachytherapy	Bogdan GALDAU, Nicolae PLITEA, Calin VAIDA, Florin COVACIU, Doina PISLA	253
Applications			**259**
A1/26	eHealth Solutions in the Context of Internet of Things	Gheorghe SEBESTYEN, Anca HANGAN, Stefan ONIGA, Zoltan GAL	261
A2/27	Data Logger for Humidity and Temperature Measurement Based on a Programmable SoC	Silviu FOLEA, Dan MOIS, Mihai HULEA, Liviu MICLEA, Vio BISCU	267
A3/39	Industrial application of micro geometrical cutting edge optimization for solid carbide boring tools	Gabriel TOFANA, Marcel POPA, Stefan SATTEL, Marius BOGZA	271
A2/45	Hardware Virtualization Based Security Solution for Embedded Systems	Sandor LUKACS, Andrei LUTAS, Dan LUTAS, Gheorghe SEBESTYEN	277
A1/52	Exploiting Word Meaning for Negation Identification in Electronic Health Records	Ioana BARBANTAN, Rodica POTOLEA	283
A3/68	Hierarchical Railway Traffic Model for Information Systems	Gheorghe Iulian DAIAN, Maria Magdalena SANTA, Tiberiu LETIA	290
A3/79	Identifying Patterns for Human Activities of Daily Living in Smart Homes	Radu PRODAN, Ioan NASCU	296

A2/90	Environmental Parameters Control in Datacenter	Mihail TRUSCA, Stefan ALBERT, Maria Loredana SORAN, Mihail ABRUDEAN	301
A1/91	Diseased Tissue Area Detection and Delimitation, by Fusion between Finite Difference Methods and Textural Analysis	Alexandru MITREA, Sergiu NEDEVSCHI, Delia MITREA, Paulina MITREA, Radu BADEA	305
A3/94	Analog to Digital Front-End Board ADVW, for Vibrating Wire Sensor Nodes, Used in Hydrotechnical Structures Monitoring Sensor Networks	Istvan KOVACS, Mircea MARIA, Bela-Zoltan GYURKA	310
A1/115	Tibio-Tarsal Joint Biomechanics Analisys through Finite Element Modeling	Gheorghe TOMOAIA, Doru-Alexandru TOFAN	314
A3/118	Remote Data and Video Acquisition using Lego Mindstorms NXT and Linux based USB enabled router	Vasile TOMPA, Dan HURGOIU	318
A2/122	Development of an avatar for a vehicle with independent suspensions	Ciprian LAPUSAN, Veturia CHIROIU, Bara LAVINIA, Cornel BRISAN	323
A2/131	Fluid Stochastic Petri Nets based Modeling and Simulation of Micro Hydro Power Stations Behaviour	Camelia AVRAM, Dan MIRCESCU, Ovidiu GHIRAN, Adina ASTILEAN	329
A1/132	3D Printing Bone Models Extracted From Medical Imaging Data	Alexandru POPESCU, Ovidiu STAN, Liviu MICLEA	335
A3/144	Microcontroller-based multiple-platform PWM signal generation procedures for industrial use	Bogdan CROITORU, Adrian TULBURE, Mihail ABRUDEAN	340
Special Sessions			347
Holonic and Multi-Agent Technologies for Sustainable Manufacturing Planning and Control			349
SS1/149	Multi-agent System for Heterarchical Product-driven Manufacturing	Octavian MORARIU, Silviu RAILEANU, Cristina MORARIU, Theodor BORANGIU	351
SS1/150	ILOG-based Mixed Planning and Scheduling System for Job-Shop Manufacturing	Silviu RAILEANU, Theodor BORANGIU, Octavian MORARIU, Octavian STOCKLOSA	357
SS1/151	Intelligent Open Architecture Solutions for Holonic Manufacturing Execution Systems Domain Key Technologies perspective	Gabriela VARVARA	363

SS1/152	A Petri Net Model for Constraint Satisfaction Application in Holonic Systems	Carlos PASCAL, Doru PANESCU	369
SS1/154	Optimal multi-agent planning solution for a sample gathering problem	Adrian BURLACU, Marius KLOETZER, Florin OSTAFI	375
Fractional Order Modeling and Control			381
SS2/17	Preliminary results on peculiar patterns in fractional coupled oscillators	Carla PINTO	383
SS2/24	Active Disturbance Rejection Controller for a Separation Column	Eva DULF, Roxana BOTH, Cristina MURESAN	388
SS2/34	Vibration Suppression in Smart Structures using Fractional Order PD controllers	Cristina MURESAN, Ovidiu PRODAN	394
SS2/37	Power law and fractional derivative models can measure analgesia	Clara IONESCU, Florina Dana IONESCU	399
SS2/38	Fractional-order feedback control of a poorly damped system	Amélie CHEVALIER, Cosmin COPOT, Dana COPOT, Clara IONESCU, Robin DE KEYSER	403
Intelligent Control for Distributed Renewable Energy Systems			409
SS3/59	Sizing photovoltaic-wind smart microgrid with battery storage and grid connection	Toma PATARAU, Dorin PETREUS, Radu ETZ, Daniel MOGA	411
SS3/60	NN based support system for renewable energy forecasting	Otilia Elena DRAGOMIR, Florin DRAGOMIR	416
SS3/153	Adaptive voltage control, integrated function of a numerical transformer protection system	Iulia CONSTANTIN, Costel CONSTANTIN, Ionela DRAGOMIR, Sergiu Stelian ILIESCU	422
Integrated Water Management			429
109	GIS Data Modeling in Water Management Decision Support Systems	Marius RATA, Tudor Viorel BLIDARU, Paul Serban AGACHI	431
112	Security and Intrusion Detection on Critical SCADA Systems for Water Management	Ioan STOIAN, Sorin IGNAT, Dorina CAPATANA, Ovidiu GHIRAN	437
113	SCADA and Modeling in Water Management	Ioan STOIAN, Dorina CAPATANA, Sorin IGNAT, Ovidiu GHIRAN	443
136	Simplified approach for floods estimation and propagation	Radu DROBOT, Cristian DINU, Aurelian DRAGHIA, Mary Jeanne ADLER, Ciprian CORBUS, Marius MATREATA	449

140	DSS for operation of the lateral reservoirs during flood periods	Radu DROBOT, Aurelian DRAGHIA	455
Separation Process Modeling and Control			461
SS5/96	Modelling versions and simulations of the cryogenic air distillation column	Adrian CIOLOCA, Roxana BOTH	463
SS5/108	The Experimental Identification of the Separation Cascade of (18O) in the NO, NO2 – H2O, HNO3 System	Mihai SECARA, Mihail ABRUDEAN, Maria BOCA, Bogdan CROITORU	469
SS5/117	Control System for a Distributed Parameter Process, with Applications in Isotope Separation Domain	Mihaela Ligia UNGURESAN, Vlad MURESAN, Tiberiu COLOSI	473
SS5/119	Analogical Modeling and Numerical Simulation Variant for Distributed Parameter Processes, with Applications in Isotope Separations, Chemistry and Thermo-energetics	Tiberiu COLOSI, Mihail ABRUDEAN, Mihaela Ligia UNGURESAN, Vlad MURESAN	479
SS5/120	Numerical simulation of distributed parameter processes using Cartesian, spherical, cylindrical and spiral coordinates	Tiberiu COLOSI, Mihaela Ligia UNGURESAN, Vlad MURESAN	489
SS5/123	Advanced models for cryogenic distillation columns	Adrian CIOLOCA, Roxana BOTH, Rodica FESTILA	495
SS5/142	Application for some Parameters Monitoring in Installation for Isotopes Separation	Mihail TRUSCA, Stefan ALBERT, Maria Loredana SORAN, Codruta VARODI, Felix FARCAS, Mihaela Ligia UNGURESAN	499