5th-2018 International Conference on Control, Decision and Information Technologies

April 10-13, 2018
Thessaloniki, Greece

CoDiT 2018

Conference Digest

IEEE SMC

CSS

2018 5th International Conference on **Co**ntrol, **D**ecision and **I**nformation **T**echnologies (CoDIT)

April 10-13, 2018

The Grand Hotel Palace, Thessaloniki, Greece

Conference Digest

Website

http://codit2018.com

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Welcome Message

On behalf of the organizing committee, we would like to extend a warm welcome to all the participants of the 2018-5th International Conference on Control, Decision and Information Technologies (CoDIT'18) being held at the Grand Hotel Palace, in Thessaloniki, Greece on April 10-13, 2018.

The first edition of this conference was held in Hammamet, Tunisia in May 2013, the second one in Metz, France in November 2014, the third edition in St. Paul's Bay - Malta on April 6-8, 2016 and the last previous edition in Barcelona, Spain on April 5-7, 2017. We consider ourselves fortunate to have the opportunity to organize CoDIT'18 in Thessaloniki.

In addition to the regular papers, CoDIT'18 program includes exciting plenary keynotes and special sessions. We have received around 341 papers from 73 countries worldwide that yielded 192 valid papers. The acceptance rate for this conference was around 56%. Authors from all continents honored us by reporting their original work, in all areas of Control, Optimization, Decision, Engineering, Computer Science and Information Technologies. We thank them for submitting their work to our conference.

We would like to express our gratitude to our technical sponsors, the Aristotle University of Thessaloniki, the IEEE Systems, Man, and Cybernetics Society – IEEE SMC, the IEEE Control Systems Society – IEEE CSS, International Association for Hydrogen Energy (IAHE) and the International Institute of Innovation, Industrial Engineering and Entrepreneurship – I 4 E2 .

Finally, we would like to thank all the members on the organizing committee for their extraordinary efforts to ensure that this conference will be a successful one.

On behalf of the organizing committee of CoDIT'18

Nicholas P. Karampetakis, Aristotle University of Thessaloniki, Greece

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Accommodation, Venue and Practical Information

Conference location

The conference will take place in ***Thessaloniki***, at ***the Grand Hotel Palace***, (Monastiriou 305, Thessaloniki 546 27, ***Greece***). A limited number of hotel rooms have been reserved at the conference location with the following reduced rates (from April 08 to April, 2018):

- *Deluxe single room on BB*: 80.00 € (per night)*
- *Deluxe double room on BB*: 95.00 € (47.50 € /person per night)*

Around the conference hotel, there are a lot of hotels at walking distance. Anyway, if you prefer to stay in the city center or in any other area you of Thessaloniki you like, you can reach *the Grand Hotel Palace* from any part of the city in no more of 45 minutes.

Transport to/from the "Makedonia Airport"

A public bus service (no. 78 and no. 78N) connects the airport with the centre of the city at 20-minute intervals throughout the day and takes you to the centre in less than 30 minutes (ticket costs 2€). The bus also stops outside Grand Hotel Palace (bus stop name: "Oryzomyloi").

A taxi service is also available at the airport on a 24-hour basis (a 20-minute drive that costs approximately around 25€).

Oral Session Room Facilities

Every room will be provided with a multi-media LCD projector and a desktop computer with Windows, Office Power Point and a PDF reader. Electricity will be supplied at 220 V, 50 Hz AC through standard European sockets.

Lunch Facilities

A registration fee includes two lunch tickets for the Wednesday (April 11,2018) and the Thursday (April 12, 2018). Lunch will be served at 12:30. Extra lunch tickets will be available on sale in the registration desk (18 €/person).

Conference Banquet

The Conference Banquet will be held at the Mediterranean Palace Hotel on Thursday April 12th at 20:30. The Conference Banquet is included in the full registration fee. Extra tickets will be available on sale in the registration desk (60€/person).

CoDIT'18 Technical Program

April 10, 2018	April 11, 2018				April 12, 2018				April 13, 2018		
	08:00 - 08:30 Registration				08:15 - 08:30 Registration						
	08:30 - 10:10 Technical Sessions 1				08:30 - 10:10 Technical Sessions 4				08:30 - 10:10 Technical Sessions 8		
	C1.1	*C1.2*	*D1.1*	*IT1.1*	*C4.1*	*C4.2*	*D4.1*	*IT4.1*	*IT8.1*	*C8.1*	*C8.2*
	10:10 - 10:30 Coffee break				10:10 - 10:30 Coffee break				10:10 - 10:30 Coffee break		
	10:30 - 10:45 Opening Ceremony				10:30 - 11:20 Keynote 4				10:30 - 12:30 Technical Sessions		
	10:45 - 11:35 Keynote 1				11:20 - 13:00 Technical Sessions 5				*C9.1*	*D9.1*	*IT9.1*
	11:40 - 12:30 Keynote 2				*C5.1*	*C5.2*	*C5.3*	*D5.1*			
	12:30 - 14:00 Lunch				13:00 - 14:00 Lunch						
14:30 - 18:00 Registration	14:00 - 15:40 Technical Sessions 2				14:00 - 15:40 Technical Sessions 6				14:30 - 19:00 Visit to Aigai, the major city of Macedonians		
	C2.1	*C2.2*	*D2.1*	*IT2.1*	*C6.1*	*C6.2*	*D6.1*	*IT6.1*			
	15:40 - 16:00 Coffee break				15:40 - 16:00 Coffee break						
	16:00 - 16:50 Keynote 3				16:00 - 16:50 Keynote 5						
	16:50 - 18:30 Technical Sessions 3				16:50 - 18:30 Technical Sessions 7						
	C3.1	*C3.2*	*C3.3*	*IT3.1*	*C7.1*	*C7.2*	*IT7.1*	*D7.1*			
					Free time						
					20:30 Gala Dinner						

PRESENTATIONS - DURATION

Keynote: The duration of each presentation is of 40 minutes plus 10 minutes for questions.
Oral presentation: The duration of each presentation is of 15 minutes plus 5-10 minutes for questions.

IMPORTANT: Accepted file formats for all presentations are PDF and PPT.

Sessions Titles / Sessions ID / Rooms

Opening Ceremony and Plenary Sessions Room: Voula Patoulidou I

	SESSION TITLE	Session ID	Room
Technical Sessions 1	Control Design Methods	*C1.1*	Ilida
	Fault Detection	*C1.2*	Voula Patoulidou I
	Optimization	*D1.1*	Kallipatira
	"Intelligent Wireless Sensor Networks for Monitoring, Diagnosis and Control (IWSN'18)"	*IT1.1*	Bussines Center
Technical Sessions 2	"Petri Nets Models for Modelling, Control and Optimization" (PART 1)	*C2.1*	Ilida
	Control Theory	*C2.2*	Voula Patoulidou I
	Scheduling Problems	*D2.1*	Kallipatira
	Information Systems	*IT2.1*	Bussines Center
Technical Sessions 3	"Petri Nets Models for Modelling, Control and Optimization" (PART 2)	*C3.1*	Ilida
	Energy Systems	*C3.2*	Voula Patoulidou I
	Embedded Systems	*C3.3*	Kallipatira
	Mobile and Wireless Communications	*IT3.1*	Bussines Center
Technical Sessions 4	Process Control	*C4.1*	Ilida
	"Modelling, Control and Management of Smart Mechatronic Systems"	*C4.2*	Voula Patoulidou I
	Applied Optimization	*D4.1*	Kallipatira
	Computational Intelligence	*IT4.1*	Bussines Center
Technical Sessions 5	Sensors Applications	*C5.1*	Ilida
	Robotics	*C5.2*	Voula Patoulidou I
	Predictive Control	*C5.3*	Kallipatira
	Supply Chain Optimization	*D5.1*	Bussines Center
Technical Sessions 6	Adaptive Control	*C6.1*	Ilida
	Control Applications (PART 1)	*C6.2*	Voula Patoulidou I
	"Formal Methods applied to Transportation and Scheduling problems"	*D6.1*	Kallipatira
	Intelligent Systems	*IT6.1*	Bussines Center
Technical Sessions 7	Control Models	*C7.1*	Ilida
	Control Applications (PART 2)	*C7.2*	Voula Patoulidou I
	"New Challenges in Medical Image Processing"	*IT7.1*	Kallipatira
	Modeling and Simulation Cases	*D7.1*	Bussines Center
Technical Sessions 8	Image Processing	*IT8.1*	Ilida
	Diagnosis and Monitoring Problems	*C8.1*	Kallipatira
	Nonlinear Systems	*C8.2*	Bussines Center
Technical Sessions 9	Energy Control and Power Systems	*C9.1*	Ilida
	"Cyber Physical System (CPS) based Proactive Collaborative Maintenance"	*D9.1*	Kallipatira
	Applied Artificial Intelligence	*IT9.1*	Bussines Center

Papers / Sessions

	Session ID	Papers	Page
Technical Sessions 1	C1.1	121 / 224 / 85 / 108 / 105	16
	C1.2	297 / 7 / 170 / 270 / 272 / 240	16
	D1.1	243 / 29 / 77 / 117 / 144 / 169	17
	IT1.1	276 / 197 / 187 / 53 / 116	17
Technical Sessions 2	C2.1	71 / 186 / 261 / 95 / 62	18
	C2.2	46 / 115 / 255 / 179 / 190 / 28	18
	D2.1	84 / 239 / 188 / 257 / 191 / 259	19
	IT2.1	13 / 178 / 234 / 253 / 208 / 125	19
Technical Sessions 3	C3.1	172 / 34 / 210 / 214 / 87	20
	C3.2	233 / 136 / 65 / 96 / 9 / 38	20
	C3.3	164 / 26 / 227 / 75 / 274 / 153	21
	IT3.1	118 / 74 / 286 / 244 / 235	21
Technical Sessions 4	C4.1	249 / 203 / 142 / 238 / 148 / 22	22
	C4.2	300 / 290 / 289 / 301 / 278	22
	D4.1	23 / 230 / 103 / 219 / 59 / 207	23
	IT4.1	254 / 155 / 33 / 89 / 45	23
Technical Sessions 5	C5.1	3 / 165 / 67 / 97 / 149	24
	C5.2	106 / 281 / 37 / 158 / 216 / 50	24
	C5.3	152 / 156 / 180 / 246 / 211 / 122	25
	D5.1	162 / 200 / 24 / 47 / 279 / 119	25
Technical Sessions 6	C6.1	168 / 258 / 134 / 295 / 135 / 21	26
	C6.2	80 / 58 / 2 / 41 / 280 / 237	26
	D6.1	218 / 201 / 205 / 220 / 99 / 304	27
	IT6.1	124 / 51 / 5 / 25 / 42 / 6	27
Technical Sessions 7	C7.1	273 / 127 / 212 / 68 / 27 / 70	28
	C7.2	177 / 30 / 35 / 206 / 140 / 10	28
	IT7.1	64 / 298 / 185 / 82 / 302 / 299	29
	D7.1	173 / 242 / 192 / 268 / 143 / 229	29
Technical Sessions 8	IT8.1	264 / 69 / 241 / 56	30
	C8.1	285 / 284 / 39 / 174 / 236	30
	C8.2	269 / 120 / 66 / 79 / 31 / 157	31
Technical Sessions 9	C9.1	4 / 256 / 260 / 109 / 189 / 222	31
	D9.1	181 / 112 / 176 / 182 / 198 / 291	32
	IT9.1	171 / 60 / 83 / 226 / 48	32

Keynotes

Keynote 1 *(April 11, 2018 / 10:45 – 11:35)*

"Collaborative Neurodynamic Optimization: Biologically and Socially Plausible Approaches to Distributed, Global and Multiple-objective Optimization"

Prof. Jun Wang *(IEEE Fellow)*
City University of Hong Kong, Hong Kong

Chair: *Prof. Maria Pia Fanti*

Abstract: The past three decades witnessed the birth and growth of neurodynamic optimization which has emerged and matured as a powerful approach to real-time optimization due to its inherent nature of parallel and distributed information processing and the hardware realizability. Despite the success, almost all existing neurodynamic approaches work well only for convex and generalized-convex optimization problems with unimodal objective functions. Effective neurodynamic approach to constrained global optimization with multimodal objective functions is rarely available. In this talk, starting with the idea and motivation of neurodynamic optimization, I will review the historic review and present the state of the art of neurodynamic optimization with many individual models for convex and generalized convex optimization. In addition, I will present a multiple-time-scale neurodynamic approach to selected constrained optimization. Finally, I will introduce population-based collaborative neurodynamic approaches to constrained distributed and global optimization. By deploying a population of individual neurodynamic models with diversified initial states at a lower level coordinated by using some global search and information exchange rules (such as PSO or DE) at a upper level, it will be shown that distributed, global, and multi-objective optimization problems can be solved effectively and efficiently.

Biography

Jun Wang is a Chair Professor of Computational Intelligence in the Department of Computer Science at City University of Hong Kong. Prior to this position, he held various academic positions at Dalian University of Technology, Case Western Reserve University, University of North Dakota, and Chinese University of Hong Kong. He also held various part-time visiting positions at US Air Force Armstrong Laboratory, RIKEN Brain Science Institute, Huazhong University of Science and Technology, Dalian University of Technology, and Shanghai Jiao Tong University as a Changjiang Chair Professor. He received a B.S. degree in electrical engineering and an M.S. degree in systems engineering from Dalian University of Technology, Dalian, China. He received his Ph.D. degree in systems engineering from Case Western Reserve University, Cleveland, Ohio, USA. His current research interests include neural networks and their applications. He published about 200 journal papers, 15 book chapters, 11 edited books, and numerous conference papers in these areas. He is the Editor-in-Chief of the IEEE Transactions on Cybernetics. He also served as an Associate Editor of the IEEE Transactions on Neural Networks (1999-2009), IEEE Transactions on Cybernetics and its predecessor (2003-2013), and IEEE Transactions on Systems, Man, and Cybernetics – Part C (2002–2005), as a member of the editorial advisory board of International Journal of Neural Systems (2006-2013), and a member of the editorial board of Neural Networks (2012-2014) as a guest editor of special issues of European Journal of Operational Research (1996), International Journal of Neural Systems (2007), Neurocomputing (2008, 2014, 2016), and International Journal of Fuzzy Systems (2010, 2011). He was an organizer of several international conferences such as the General Chair of the 13th International Conference on Neural Information Processing (2006) and the 2008 IEEE World Congress on Computational Intelligence, and a Program Chair of the IEEE International Conference on Systems, Man, and Cybernetics (2012). He has been an IEEE Computational Intelligence Society Distinguished Lecturer (2010-2012, 2014-2016). In addition, he served as President of Asia Pacific Neural Network Assembly (APNNA) in 2006 and many organizations such as IEEE Fellow Committee (2011-2012); IEEE Computational Intelligence Society Awards Committee (2008, 2012, 2014), IEEE Systems, Man, and Cybernetics Society Board of Directors (2013-2015), He is an IEEE Fellow, IAPR Fellow, and a recipient of an IEEE Transactions on Neural Networks Outstanding Paper Award and APNNA Outstanding Achievement Award in 2011, Natural Science Awards from Shanghai Municipal Government (2009) and Ministry of Education of China (2011), and Neural Networks Pioneer Award from IEEE Computational Intelligence Society (2014), among others.

Keynote 2 *(April 11, 2018 / 11:40 – 12:30)*

"Distributed Algorithms for Estimation and Inference in Discrete Event Systems: Implications to Diagnosability and Opacity"

Prof. Christoforos Hadjicostis
University of Cyprus, Cyprus

Chair: *Prof. Ioannis Vlahavas*

Abstract: Discrete event systems (DES) are event-driven systems whose state evolutions are determined by occurrences of asynchronous events. Examples include a variety of systems from domains as diverse as transportation, automated manufacturing, process control, communication and networking, security protocols, and others. This talk discusses the recursive algorithms for state estimation and event inference in DES, which are key tasks for proper monitoring and control of such systems, as well as the verification of properties of interest, such as diagnosability and opacity. The verification of such properties becomes even more challenging in emerging distributed settings where there may exist multiple interacting systems and multiple monitors, with diverse (and possibly unreliable) observation and communication capabilities. The talk discusses recent progress on distributed state estimation and event inference in emerging interconnected DES, as well as efficient ways for verifying properties of interest, such as diagnosability (i.e., the ability to detect within finite time the occurrence/type of a fault) and opacity (i.e., the guarantee that outsiders will never be able to infer that the system lies within a certain of certain secret/critical states).

Biography

Christoforos Hadjicostis is Professor of Electrical and Computer Engineering at the University of Cyprus. He received S.B. degrees in Electrical Engineering, Computer Science and Engineering, and Mathematics, the M.Eng. degree in Electrical Engineering and Computer Science, and the Ph.D. degree in Electrical Engineering and Computer Science, all from the Massachusetts Institute of Technology, Cambridge, MA. From 1999 to 2007, he was Assistant and then Associate Professor with the Department of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign. Since 2007, he has been with the University of Cyprus, where he has served as Chair of the Department of Electrical and Computer Engineering and Dean of Engineering. His research focuses on fault diagnosis and tolerance in distributed dynamic systems; error control coding; monitoring, diagnosis and control of large-scale discrete event systems; and related applications in embedded systems, distributed robotics, anomaly detection and network security. His work has been funded via several competitive grants from the National Science Foundation (including an NSF Career Award), the Air Force Office of Scientific Research, the European Commission (including a Marie Curie International Reintegration Grant), Qatar Foundation, the Cyprus Research Promotion Foundation, and companies like Boeing, Motorola, and Lucent. Dr. Hadjicostis has served or is serving on the Editorial Board of IEEE Transactions on Automatic Control, IEEE Transactions on Automation Science and Engineering, IEEE Transactions on Circuits and Systems (Part I), IEEE Transactions on Control Systems Technology, and International Journal of Discrete Event Dynamic Systems.

Keynote 3 *(April 11, 2018 / 16:00 - 16:50)*

"Model Builder for Supervision System Design"

Prof. Belkacem Ould Bouamama
Lille University, France

Chair: *Prof. Antonis I. Vardulakis*

Abstract: Supervision systems include a set of tools and methods for the control of industrial processes in normal working conditions as well as in the presence of failures. The main activities addressed by supervision systems are fault detection and Isolation (FDI), and decision making for fault accommodation or system reconfiguration. The system modelling is an important and difficult step in FDI design. Main issues of supervision systems design before industrial realization, can be summarized mainly as follows: how to generate automatically a formal dynamic model and fault indicators of complex industrial continuous and hybrid systems? How to perform structural detectability and isolability performances without any need of numerical calculation before industrial design, and how to propose the optimal instrumentation architecture? Such are the questions we want to contribute from and discuss during this keynote from an industrial and theoretical point of view.

The speech, based on the validated research results obtained in recent years, will be illustrated by a developed software named "ModBuild" and industrial applications. Theory behind "Modbuild" is based on conventional and Hybrid Bond graphs allowing because of their causal, behavioral and structural properties to use only one model valid for all modes representing hybrid systems not only for modelling but also diagnosis. Applications to complex coupled thermofluidic industrial illustrates this theory.

The software automatically (because of the graphical aspect of the bond graph) creates complex process dynamic models from a simple graphical interface, where system components can be dragged from a component data base and interconnected so as to produce the overall system, following the Piping and Instrumentation Diagram. Once the model has been created, "ModBuild" checks its consistency and performs its structural analysis in order to automatically determine the diagnosis algorithms which should be implemented, and their fault detectability and isolability performances. The friendly graphical user interface allows to test several sensor configurations in order to optimize the diagnostic possibilities.

Biography

Belkacem Ould Bouamama is full Professor of exceptional class and head of the research at "*Ecole Polytechnique de Lille, France*". His main research areas developed at CRIStAL laboratory CNRS9189 where he leads "MOCIS" group, concern Integrated Design for Supervision of System Engineering. Their application domains are mainly intelligent transport, energy, and mechatronic systems. He is the author of more than one hundred international publications in this domain. He is co-author of five books in bond graph modeling and Fault Detection and Isolation area. Research and teaching activities can be consulted at: https://wikis.univ-lille1.fr/ci2s/membres/belkacem-ould-bouamama

Keynote 4 *(April 12, 2018 / 10:30 – 11:20)*

"Active Magnetic Bearings for Smart Rotating Machinery"

Prof. M. Necip Sahinkaya
Kingston University, UK

Chair: *Prof. Panos Seferlis*

Abstract: Active Magnetic Bearings (AMBs) provide contact-free rotor levitation and have many advantages over conventional bearings. These include lubrication-free frictionless operation. They can operate at high speeds, in a vacuum, andare highly robust allowing them operate in hostile environments with littlemaintenance. AMB control electronics incorporate processors, which can be utilized both to implement advanced control techniques and also to monitor the plant in order to detect and compensate for faults. Thus, AMBs are key components in the design of smart machines. Smart machines have been described as part of a 'new wave' of technology, but in the area of rotating machinery that wave has been progressing for over a decade. The talk will concentrate on how magnetic bearings have played a central part in this evolutionary development in machine design, and progress made in the design of smart machinery in terms of modelling, identification, and control, coupled with on-line diagnostics. A key factor is the ability to automatically reconfigure a machine when a fault has been diagnosed or when changes in operational conditions have been detected. Developments in these areas will be described and case studies from Sahinkaya's work spanning over 25 years will be presented. Smart, self-adaptive rotating machinery is still rapidly developing area of technology and the final stage is not yet complete.The talk will include discussions on how further developments and future work arising from research in these areas can lead to increased capability of smart machines.

Biography

M. Necip Sahinkaya is a Professor of Mechanical Engineering. He received his doctorate in 1979 (University of Sussex). Following periods at the Universities of Sussex, Strathclyde and Bath, he moved to industry in 1988. He rejoined the University of Bath in 2000 as a Reader in Mechanical Engineering, and then moved to Kingston University London in 2013 as a Professor of Mechanical Engineering. He is Fellow of IMechE and Editor-in-Chief for the IMechE Proceedings Part I. He was Chair of the Organising Committee for the UKACC Control 2004 conference. He has experience in developing interdisciplinary research and teaching activities. His research involves collaborative projects as well as individual research activity. He has made seminal contributions to the study of machine systems and pioneered an open-loop adaptive control technique using magnetic bearings to control vibrations in rotating machines. His research in the dynamics and control of complex non-linear mechatronic systems has been recognised through prizes and awards. He is a member of the ISO TC108/SC2/WG7 Committee on Vibration of Active Magnetic Bearing Equipped Rotating Machinery. His research has been supported by various grants from Research Councils and industry. He has published over 120 journal and conference papers. http://www.kingston.ac.uk/staff/profile/professor-mehmet-necip-sahinkaya-24/

Keynote 5 *(April 12, 2018 / 16:00 – 16:50)*

"Towards semantic interoperability in Internet of Things and beyond"

Prof. Marcin Paprzycki

Systems Research Institute, Polish Academy of Sciences Warsaw, Poland

Chair: *Prof. Maria Pia Fanti*

Abstract: Lack of interoperability of Internet of Things (IoT) platforms / systems / applications (artifacts) is being recognized as an important issue that prevents faster development of IoT ecosystems (including Smart Grids / Homes / Neighborhoods, office buildings, etc.). While interoperability can be considered on many levels, in the presentation I will focus on semantic interoperability. Moreover, while originating from IoT scenarios, the proposed approach can be naturally applied outside of the Internet of Things.

Based on our recent work, we came to the conclusion that we have to assume that: (i) research should focus on joining multiple (at least three) artifacts, and (ii) existing / to be joined artifacts should not be modified (due to the resistance of stakeholders), and (iii) typically, such artifacts do not have semantics represented in the OWL language. We also have to assume that, at least for the time being, establishing interoperability will be guided by representatives of stakeholders (we thus omit considerations related to the discovery and inclusion of services "from the WWW").

Therefore, we have propose the following approach leading towards establishing semantic interoperability: (1) Modular ontology consisting of: (a) core vocabulary (of the IoT), and (b) domain specific modules (facilitating communication concerning given "topic" – one or more modules for each "topic") has to be developed. (2) Semantics of each artifact has to be extracted and lifted to OWL (providing foundation for semantic translations). (3) Translators (bidirectional – producer and consumer) between the "local vocabulary" and the "lifted vocabulary" have to be created. (4) Alignments ("directional") between ontologies representing each entity, and appropriately selected modules of the central ontology have to be instantiated and stored. They will be used in data translations.

The aim of the presentation will be to provide details of the above described proposal for reaching semantic interoperability (in IoT ecosystems). Furthermore, results concerning efficiency of the proposed approach will be presented. Research presented in the talk is being supported by EU-H2020-ICT grant INTER-IoT 687283. Since the project is ongoing, subsequent publications materialize (as technical reports) at: http://www.ibspan.waw.pl/~paprzyck/mp/cvr/research/IoT.html

Biography

Marcin Paprzycki is an associate professor at the Systems Research Institute, Polish Academy of Sciences. He has an MS from Adam Mickiewicz University in Poznań, Poland, a PhD from Southern Methodist University in Dallas, Texas, and a Doctor of Science from the Bulgarian Academy of Sciences. He is a senior member of IEEE, a senior member of ACM, a Senior Fulbright Lecturer, and an IEEE CS Distinguished Visitor. He has contributed to more than 450 publications and was invited to the program committees of over 500 international conferences. He is on the editorial boards of 12 journals and a book series. To reach him, please visit http://www.ibspan.waw.pl/~paprzyck/.

Papers / Session & Sessions chairs

Session ID: C1.1 (*April 11, 2018 / 08:30 – 10:10)*

Control Design Methods

Chair(s): *Gianluca Ippoliti & Nicholas Karampetakis*

Paper ID		
121	Title:	**A Method for Automated Generation of Inference Rules**
	Author:	*Sergey Gorshkov*
224	Title:	**Semi-Analytic Motion Planning with Actuator Constraints on 3-D Lie Groups**
	Authors:	*Helen Clare Henninger, James Douglas Biggs*
85	Title:	**Reachability and Controllability of Discrete Time Descriptor Systems Using the W eierstrass Decomposition**
	Authors:	*Lazaros Moysis, Ioannis Kafetzis, Nicholas Karampetakis*
108	Title:	**First Order Iterative Learning Control for a Single Axis Piezostage System**
	Authors:	*Luca Cavanini, Maria Letizia Corradini, Andrea Di Donato, Marco Farina, Lennart Hoffhues, Gianluca Ippoliti, Davide Mencarelli, Giuseppe Orlando, Luca Pierantoni, Markus F. Wieghaus*
105	Title:	**Fractional–PD$^{\mu}$ Controllers Design for LTI-Systems with Time-Delay. a Geometric Approach**
	Authors:	*Adrián Josué Guel Cortez, César Fernando Méndez-Barrios, Jose-Guadalupe Romero, Victor Manuel Ramirez Rivera, Emilio J. González-Galván, Jully Kado Mercado Elias*

Session ID: C1.2 (*April 11, 2018 / 08:30 – 10:10)*

Fault Detection

Chair(s): *Maria Pia Fanti*

Paper ID		
297	Title:	**Actuator Fault Detection for Vehicle Lateral Dynamics**
	Authors:	*Ibrahim Alaridh, Abdel Aitouche, Ali Zemouche, Boulaid Boulkroune*
7	Title:	**Using Fault Tree Analysis with Cobit 5 Risk Scenarios**
	Authors:	*Shivani Modi, Sergey Butakov, Pavol Zavarsky*
170	Title:	**Faulty Mode Detection and Identification for SISO Nonlinear Switching System**
	Authors:	*Yosr Garbouj, Talel Zouari, Moufida Ksouri*
270	Title:	**Tricone Bit Health Monitoring Using Wavelet Packet Decomposed Vibration Signal**
	Authors:	*Hamed Rafezi, Ferri Hassani*
272	Title:	**Artificial Neural Network-Based Fault Detection**
	Authors:	*Asma Khelifi, Nadhir Mansour Ben Lakhal, Hajer Gharsallaoui, Othman Nasri*
240	Title:	**Sleepiness Detection for Cooperative Vehicle Navigation Strategies**
	Authors:	*Juan Pablo Vasconez, Fernando Auat Cheein*

Session ID: D1.1 *(April 11, 2018 / 08:30 – 10:10)*

Optimization

Chair(s): Anna Kitaeva

Paper ID		
243	Title:	**Modeling Time of Use Pricing for Load Aggregators Using New Mathematical Programming with Equality Constraints**
	Authors:	*Saeed Ahmadian, Heidar Malki, Amin Rahnama Sadat*
77	Title:	**Price-To-Quality Ratio Dependent Demand: Optimal Dynamic Pricing and Replenishment Period**
	Authors:	*Anna Kitaeva, Alexandra Zhukovskaya, Natalia Stepanova*
117	Title:	**A Location-Routing Problem within Blood Sample Collection Chains**
	Authors:	*Amir Elalouf, Dmitry Tsadikovich, Eugene Levner*
144	Title:	**An Iterated Local Search ILS-CHC for the Maximum Vertex-Weighted Clique Problem**
	Authors:	*Dalila Tayachi, Nadia Zaddem*
169	Title:	**New Search Based Methods to Solve Workflow Scheduling Problem in Cloud Computing**
	Authors:	*Mohammed Ridha Bouzidi, Abdelghani Soltani, Mourad Daoudi*

Session ID: IT1.1 (*April 11, 2018 / 08:30 – 10:10)*

"Intelligent Wireless Sensor Networks for Monitoring, Diagnosis and Control (IWSN'18)"

Chair(s): *Dan Popescu, Loretta Ichim & Grigore Stamatescu*

Paper ID		
276	Title	**Distributed Monitoring of Smart Buildings with Cloud Backend Infrastructure**
	Authors	*Lulia Stamatescu, Valeria Bolboaca, Grigore Stamatescu*
197	*Title*	**Innovative Infrastructure for SmartCity/SmartEnvironment Applications**
	Authors	*Stefan-Alexandru Aldoiu and Nicolae Tapus*
187	Title	**Wireless Sensor Network Architecture Based on Fog Computing**
	Authors	*Viorel Mihai, Cristian-Mihai Dragana, Grigore Stamatescu, Dan Popescu, Loretta Ichim*
53	Title	**Correlation between Distance and Frequency Bands in Hybrid Air-Ground Sensor Networks**
	Authors	*Gabriel Militaru, Dan Popescu, Cristian Mateescu, Loretta Ichim*
116	Title	**Using IoT Communication Infrastructure for Improving Performance of Power Microgrids**
	Authors	*Radu Dobrescu, Stefan Mocanu, Mihai Craciunescu, Magdalena Anghel*

Session ID: C2.1 (*April 11, 2018 / 14:00 – 15:40)*

"Petri Nets Models for Modelling, Control and Optimization" (PART 1)

Chair(s): *Maria Pia Fanti & Dimitri Lefebvre*

Paper ID		
71	Title:	**Computation of Synchronizing Sequences for a Class of 1-Place-Unbounded Synchronized Petri Nets**
	Authors:	*Changshun Wu, Isabel Demongodin, Alessandro Giua*
186	Title:	**A generic generalized stochastic Petri nets model for the performance analysis of FMS considering the resources failures**
	Authors:	*Sajeh Zairi, Belhassen Zouari, Hamdi Rahal, Jean-François Pradat-Peyre*
261	Title:	**Exploitation of Generalized Stochastic Petri Nets for the Evaluation of the Dynamic Reliability of an Hydraulic System**
	Authors:	*Najoua Midaoui, Sajeh Zairi, Eric Niel*
95	Title:	**Timed Arc Petri Nets: The Impulsive Approach**
	Authors:	*Alpaslan Yufka, Hanife Apaydin, Aydin Aybar*
62	Title:	**Temporal Fault Diagnosis for K-Bounded Non-Markovian SPNs**
	Authors:	*Dimitri Lefebvre, Edouard Leclerq, Sara Rachidi, Yoann Pigné*

Session ID: C2.2 (*April 11, 2018 / 14:00 – 15:40)*

Control Theory

Chair(s): *Antonis I. Vardulakis*

Paper ID		
46	Title:	**Towards a New Minimum-Energy Criterion for Nonsquare LTI State-Space Perfect Control Systems**
	Authors:	*Wojciech Przemyslaw Hunek, Marek Krok*
115	Title:	**Simple Algebraic Stability Criteria for a Class of Discrete-Time Model-Based Switched Multiple Time Delay Systems**
	Authors:	*Nawel Aoun, Marwen Kermani, Anis Sakly*
255	Title:	**Induced Synchronization of Chaos-Chaos Intermittency in Coupled Cubic Maps by External Feedback Signals**
	Authors:	*Sou Nobukawa, Haruhiko Nishimura, Teruya Yamanishi, Hirotaka Doho*
179	Title:	**Improved Direct Power Control of a Doubly Fed Induction Generator Based Wind Energy Conversion System**
	Authors:	*Ameni Kadri, Hajer Marzougui, Khaoula Omrani, Faouzi Bacha*
190	Title:	**An Optimal Control Problem of Unmanned Aerial Vehicle**
	Authors:	*Kahina Louadj, Fethi Demim, Abdelkrim Nemra, Philippe Marthon*
28	Title:	**Optimization of Electricity Consumption in a Building**
	Authors:	*Kahina Louadj, Fethi Demim , Abdelkrim Nemra, Mohamed Aidene, Philippe Marthon, Hocine Iddir*

Session ID: D2.1 (*April 11, 2018 / 14:00 – 15:40)*

Scheduling Problems

Chair(s): Pierre Laroche

Paper ID		
84	Title:	**On the single machine scheduling problem with sequence-dependent setup times and periodic maintenance**
	Authors:	*Hanane Krim, Rachid Benmansour, David Duvivier*
239	Title:	**Genetic Algorithm for Open Shop Scheduling Problem**
	Authors:	*Yacine Benziani, Imed Kacem, Pierre Laroche*
188	Title:	**Path Planning for Unmanned Ground Vehicle**
	Authors:	*Fethi Demim, Abdelkrim Nemra, Louadj Kahina*
29	Title:	**The ATC Work Shift Scheduling Problem Based on Multistart Simulated Annealing and Regular Expressions**
	Authors:	*Alfonso Mateos Caballero, Faustino Tello, Antonio Jiménez-Martín, Juan Antonio Fernández del Pozo*
191	Title:	**Maximum Lateness Minimization on Two-Parallel Machine with a Non-Availability Interval**
	Authors:	*Gais Alhadi, Imed Kacem, Pierre Laroche, Izzeldin Osman*

Session ID: IT2.1 (*April 11, 2018 / 14:00 – 15:40)*

Information Systems

Chair(s): *Gilles Beaudon*

Paper ID		
13	Title:	**Password Replacement Patterns**
	Authors:	*Emin Islam Tatli, Ensar Seker*
178	Title:	**Modeling customer experience in insurance: engagement, context and information system trajectory**
	Authors:	*Gilles Beaudon, Eddie Soulier*
234	Title:	**Alignment Business IT by Factor Agility**
	Authors:	*Kawtar Imgharene, Karim Doumi, Salah Baina*
253	Title:	**Access Control by Signature-Keys to Provide Privacy for Cloud and Big Data**
	Authors:	*Anwar Chitheer Jasim Al Bazooni, Nicolae Tapus, Imad Ali Hasson Al Tameemi*
208	Title:	**Using Survey to Estimate the Effort of Setting up an Information Security Management System: Case ITC Organizations**
	Authors:	*Boualem Si Ahmed, Fatima Nibouche*
125	Title:	**Ontologies and RDB Meta-Schema Design: A Three-Level Unified Lifecycle**
	Authors:	*Oumar Sy, Denio Duarte, Guilherme Dal Bianco*

Session ID: C3.1 (*April 11, 2018 / 16:50 – 18:30)*

"Petri Nets Models for Modelling, Control and Optimization" (PART 2)

Chair(s): *Dimitri Lefebvre & Maria Pia Fanti*

Paper ID		
172	Title:	**A First Order Hybrid Petri Net Model for Building Energy Management**
	Authors:	*Maria Pia Fanti, Agostino Marcello Mangini, Michele Roccotelli*
34	Title:	**Pattern-Type Reachability Analysis of Distributed Systems Based on Fractal Petri Nets**
	Authors:	*Alexander Semenov*
210	Title:	**Colored Petri Net Model for Secure Document Management in Business Process Systems**
	Authors:	*Imen Chaouachi Allani, Ghedira Chirine, Belhassen Zouari*
214	Title:	**PNeS: Tools for the Design and Analysis of Petri Nets**
	Authors:	*Zbigniew Suraj*
87	Title:	**Petri-Net Controller for Pipe-Line Transportation System**
	Authors:	*YuHao Fu, JiLiang Luo, WanZhen Lin, YiSheng Huang, and JianHong Ye*

Session ID: C3.2 (*April 11, 2018 / 16:50 – 18:30)*

Energy Systems

Chair(s): *Dimitris Trigkas & Kary Thanapalan*

Paper ID		
233	Title:	**Online Battery Pack State of Charge Estimation Via EKF-Fuzzy Logic Joint Method**
	Authors:	*Wang Letian, Al Savvaris, Antonios Tsourdos*
136	Title:	**Genetic Algorithms in Model Structure Identification for Fuel Cell Polarization Curve**
	Authors:	*Markku Ohenoja, Aki Sorsa, Kauko Leiviska*
65	Title:	**Modeling and Forecasting of Fuel Selling Price Using Time Series Approach: Case Study**
	Authors:	*Zineb Aman, Youness El Bahi, Latifa Ezzine, Haj El Moussami*
96	Title:	**Supervisory Control of Energy Distribution at Autonomous RES-powered Smart-Grids Using a Finite State Machine Approach**
	Authors:	*Dimitris Trigkas, Chrysovalantou Ziogou, Spyridon Voutetakis, Simira Papadopoulou*
9	Title:	**Using Blockchains to Secure Distributed Energy Exchange**
	Authors:	*Khaled Shuaib, Juhar Ahmed Abdella, Farag Sallabi, Mohammed Abdel Hafez*
38	Title:	**Capture and Storage of PV-Energy for Domestic Consumption**
	Authors:	*Ewen Constant, Kary Thanapalan, Mark Bowkett*

Session ID: C3.3 (*April 11, 2018 / 16:50 – 18:30)*

Embedded Systems

Chair(s): *Matthieu Martel*

Paper ID		
164	Title:	**Formal Model-Based Conformance Verification of an OSEK/VDX Compliant RTOS**
	Authors:	*Jean-Luc Béchennec, Olivier H. Roux, Toussaint Tigori*
26	Title:	**FPGA Master Based on Chip Communications Architecture for Cyclone V SoC Running Linux**
	Authors:	*Rihards Novickis, Modris Greitans*
227	Title:	**NUMA-BTLP: A Static Algorithm for Thread Classification**
	Authors:	*Lulia Știrb*
75	Title:	**On the Impact of Numerical Accuracy Optimization on General Performances of Programs**
	Authors:	*Nasrine Damouche, Matthieu Martel*
274	Title:	**Switching PI Speed Control of a Nonlinear Laboratory Dc Micro-Motor Using Low-Cost Embedded Control Hardware and Software**
	Authors:	*Christos Yfoulis, Simira Papadopoulou, Dimitris Trigkas and Spyridon Voutetakis*
153	Title:	**Compensated PID Regulation of Ambient Temperature using New Approach to the System Identification Based on Forced Oscillations**
	Authors:	*Rijad Saric, Zeljko Juric, Edhem Custovic*

Session ID: IT3.1 (*April 11, 2018 / 16:50 – 18:30)*

Mobile and Wireless Communications

Chair(s): *Sotiris Papatheodorou, Michalis Smyrnakis*

Paper ID		
118	Title:	**Collaborative Wideband Spectrum Sensing for Cognitive Radio Using Wavelet-Based Detection**
	Authors:	*Al Hussien Nedaa, Mohammed Abdel Hafez, Khaled Shuaib*
74	Title:	**Mobile Robot Tour Scheduling Acting As Data Mule in a Wireless Sensor Network**
	Authors:	*Ourania Tsilomitrou, Anthony Tzes*
286	Title:	**Path Planning and Task Assignment for Data Retrieval from Wireless Sensor Nodes Relying on Game-Theoretic Learning**
	Authors:	*Sotiris Papatheodorou, Michalis Smyrnakis, Tembine Hamidou, Anthony Tzes*
244	Title:	**Independent Coordination for Sharing Spectrum and Small Cells**
	Authors:	*Lin-Yin Ma, Shyue-Win Wei, Shi-Chung Chang, Hsu-Chi Su, Chia-Nan Wang, Ruei-Yuan Chang*
235	Title:	**Dynamic Content Distribution Over BLE Ibeacon Technology: Implementation Challenges**
	Authors:	*Miran Borić, Rebeca P. Díaz Redondo, Ana Fernández Vilas*

Session ID: C4.1 (*April 12, 2018 / 08:30 – 10:10)*

Process Control

Chair(s): *B. Andrade Costa*

Paper ID		
249	Title:	**Fractional Order PI Controllers for Real-Time Control of Pressure Plant**
	Authors:	*Kishore Bingi, Rosdiazli Ibrahim, Karsiti Mohd Noh, Hasan Sabo Miya, Harindran Vivekananda Rajah*
203	Title:	**Temperature Control of a Heliostat Field Solar Furnace**
	Authors:	*B. Andrade Costa, Joao M. Lemos*
142	Title:	**On-Line Estimation of the VFA Concentration in Anaerobic Digestion Processes Based on a Super-Twisting Observer**
	Authors:	*Gerardo Lara-Cisneros, Denis Dochain*
238	Title:	**Output-Tracking Explicit Nonlinear Model Predictive Control for Microbial Desalination Cells**
	Authors:	Jing Wang, Qilun Wang
148	Title:	**Single-Stage Soft-Switched Partial Resonant High Frequency AC-Link Inverter**
	Authors:	*Abdelkarim Aouiti, Alaeddine Ben Zid, Mansour Amari, Jamel Ghouili, Faouzi Bacha*
22	Title:	**A novel nonlinear virtual sample generation approach integrating extreme learning machine with noise injection for enhancing energy modeling and analysis on small data: Application to petrochemical industries**
	Authors:	*He Yanlin, Geng Zhiqiang, Han Yongming, Yuan Xu, Zhu Qunxiong*

Session ID: C4.2 (*April 12, 2018 / 08:30 – 10:10)*

"Modelling, Control and Management of Smart Mechatronic Systems"

Chair(s): *Truong Quang Dinh, Bui Truong M.N.*

Paper ID		
300	Title:	**Modelling of a Bio-Inspired Knee Joint and Design of an Energy Saving Exoskeleton Based on Performance Maps Optimisation for Condylar Knee Prosthetics**
	Authors:	*Appolinaire C. Etoundi, JJ Chong, Aghil Jafari*
290	Title:	**Nonlinearity Compensation based Tilting Controller for Electric Narrow Tilting Vehicles**
	Authors:	*Yaxing Ren, Truong Quang Dinh, james Marco, David Greenwood, Changiz Hessar*
289	Title:	**Mild-HEVs and Launch Management to Relieve Dry Clutch from Thermal Damage**
	Authors:	*Mario Pisaturo, Adolfo Senatore*
301	Title:	**An Energy Management Strategy for DC Hybrid Electric Propulsion System of Marine Vessels**
	Authors:	*Bui Truong M.N., Truong Quang Dinh, james Marco, Chris Watts*
278	Title:	**Energy Source Technologies Effect on Hybrid Source Sizing for Automotive Applications**
	Authors:	*Laid Degaa, Bachir Bendjedia, Pr.rizoug Rizoug Nassim, Abdelkader Saidane*

Session ID: D4.1 (*April 12, 2018 / 08:30 – 10:10)*

Applied Optimization

Chair(s): *Panagiotis Michailidis*

Paper ID		
23	Title:	**New Intelligent AVR Controller Based on Particle Swarm Optimization for Transient Stability Enhancement**
	Authors:	*Amine Benseddik, Mourad Hasni, Mohamed Menaa, Mohamed Boudour*
230	Title:	**Differential Evolution Algorithm Applied to Sparse PI Control Synthesis for Non-Square Multivariable Systems**
	Authors:	*Raphael Frediani Soares, Sara Jorge Silva, Eduardo Nunes Gonçalves*
103	Title:	**Optimal Model Order Reduction for Fault Detection and Isolation**
	Authors:	*Filipe Figueiredo, Steven Liu*
219	Title:	**Seismic Active Control under Uncertain Ground Excitation: An Efficient Cognitive Adaptive Optimization Approach**
	Authors:	*Iakovos Michailidis, Panagiotis Michailidis, Kyriaki Alexandridou, Patrick Brewick, Sami Masri, Elias Kosmatopoulos*
59	Title:	**An Optimal Integrated Maintenance to Production with Carbon Emission for a Closed-Loop System**
	Authors:	*Bouslikhane Salim, Zied Hajej, Nidhal Rezg*
207	Title:	**Optimal Energy Providing Strategy of Micro-Grid's Operator Based on a Game Theoretical Approach**
	Authors:	*Shahab Dehghan, Meysam Khojasteh, Mousa Marzband, Gordon Lightbody*

Session ID: IT4.1 (*April 12, 2018 / 08:30 – 10:10)*

Computational Intelligence

Chair(s): *Ayeley Tchangani*

Paper ID		
254	Title:	**Markerless Human Activity Recognition Method Based on Deep Neural Network Model Using Multiple Cameras**
	Authors:	*Prasetia Utama Putra, Keisuke Shima, Koji Shimatani*
155	Title:	**Supervised Feature Selection Method for High-Dimensional Data Classification in Photo-Thermal Infrared Imaging with Limited Training Data**
	Authors:	*Nian Zhang, Keenan Leatham*
33	Title:	**Filtering Risks Using Bipolar Fuzzy Nominal Classification**
	Authors:	*Ayeley Tchangani, François Pérès*
89	Title:	**Decision Tree and Parametrized Classifier for Estimating Occupancy in Energy Management**
	Authors:	*Amayri Manar , Stephane PLOIX*
45	Title:	**Author Identification on Noise Arabic Documents**
	Authors:	*Samira Bourib, H.Sayoud*

Session ID: C5.1 (*April 12, 2018 / 11:20 – 13:00)*

Sensors Applications

Chair(s): *Erkki Jantunen*

Paper ID		
3	Title:	**A Multi-Tasking, Multi-Layer and Replaceable Wrist-Worn Environmental Monitoring Sensor Node**
	Authors:	*Mostafa Haghi, Kerstin Thurow, Norbert Stoll*
165	Title:	**Virtual Sensors for Electromobility**
	Authors:	*Maria Pia Fanti, Massimiliano Nolich, Michele Roccotelli, Walter Ukovich*
67	Title:	**Digital Transformation of Structural Steel Manufacturing Enabled by IoT-Based Monitoring and Knowledge Reuse**
	Authors:	*Dimitris Mourtzis, Nikolaos Milas, Katerina Vlachou, Ioannis Liaromatis*
97	Title:	**Monitoring of Wireless Sensor Networks : Analysis of Intrusion Detection Systems**
	Authors:	*Fatiha Mekelleche, Hafid Haffaf, Belkacem Ould Bouamama*
149	Title:	**Sensors: The Enablers for Proactive Maintenance in the Real World**
	Authors:	*Michele Albano, Luis Lino Ferreira, Giovanni Di Orio, Pedro Maló, Godfried Webers, Erkki Jantunen, Iosu Gabilondo, Mikel Viguera, Gregor Papa, Franc Novak*

Session ID: C5.2 (*April 12, 2018 / 11:20 – 13:00)*

Robotics

Chair(s): *Agostino Mangini*

Paper ID		
106	Title:	**Mobile Objects Control in Three-Dimensional Area Using the Hybrid Decentralized Algorithm**
	Authors:	*V. Pshikhopov, Mikhail Medvedev*
281	Title:	**Revisit of Minimum Area Enclosing Rectangle of a Convex Polygon**
	Authors:	*Yin-Ting Lin, Jing- Sin Liu*
37	Title:	**Development of the Linear Delta Robot for Additive Manufacturing**
	Authors:	*Alberto Alvares, Cristhian Ivan Riaño Jaimes, Efrain A. Gasca*
158	Title:	**Sonar Image Processing Based Underwater Localization and Path Planning for AUV's Autonomous Swimming**
	Authors:	*Ji-Hong Li, D. G. Park and H. S. Ki*
216	Title:	**Toward an Optimal Assignment of Diagnosis Method to Mobile Robots Faults**
	Authors:	*Mahmoud Almasri, Nicolas Tricot, Roland Lenain*
50	Title:	**Determination of Constraint Forces for an Offshore Crane on a Moving Base**
	Authors:	*Andrej Cibicik, Olav Egeland*

Session ID: C5.3 (*April 12, 2018 / 11:20 – 13:00)*

Predictive Control

Chair(s): *Karin Dietl*

Paper ID		
152	Title:	**A New Tuning Approach for MPC Applied to a Disturbed DC Motor**
	Authors:	*Marwa Turki, Ismail Oukkacha, Nicolas langlois, Adnan Yassine, Mamadou Bailo Camara, and Brayima Dakyo*
156	Title:	**Start up Optimization of Combined Cycle Power Plants: Controller Development and Real Plant Test Results**
	Authors:	*Kilian Link, Karin Dietl*
180	Title:	**Dealing with Input Delay and Switching in Electrohydraulic Servomechanism Mathematical Model**
	Authors:	*Daniela Enciu, Ioan Ursu, George Tecuceanu*
246	Title:	**Adaptive Dynamic Programming Based Motion Control of Autonomous Underwater Vehicles**
	Authors:	*Siddhant Vibhute*
211	Title:	**On Inertial Parameter Estimation of a Free-Flying Robot Grasping an Unknown Object**
	Authors:	*Monica Ekal, Rodrigo Ventura*
122	Title:	**A Low Dimensional Parameterized NMPC Scheme for Quadrotors**
	Authors:	*André Murilo, Renato Lopes*

Session ID: D5.1 (*April 12, 2018 / 11:20 – 13:00)*

Supply Chain Optimization

Chair(s): *Anna Kitaeva*

Paper ID		
162	Title:	**Dynamic and Flexible Scheduling for a Single Machine**
	Authors:	*Zied Bahroun, Abdulrahim Shamayleh, Rim Samir Zakaria*
200	Title:	**A New Approach for Scheduling of Multipurpose Batch Processes with Unlimited Intermediate Storage Policy**
	Authors:	*Nikolaos Rakovitis, Jie Li, Nan Zhang*
24	Title:	**Towards an Integral Operating Room Management System**
	Authors:	*Bilal Bou Saleh, Abdellah El Moudni, Mohammad Hajjar, Oussama Barakat*
47	Title:	**Improvement of the Hospital Supply Chain and Its Impact on Reduction of Patient Waiting Times. Case of the Oncology Department of IBN ROCHD UH**
	Authors:	*Kenza Sahaf, Mohamed Ben Ali, Said Rifai, Othmane Bouksour, Ahmed Adri*
279	Title:	**Continuity of Care in Home Services : A Client-Centered Heuristic for the Home Health Care Routing and Scheduling Problem**
	Authors:	*Cléa Martinez, Marie-Laure Espinouse, Maria Di Mascolo*
119	Title:	**An Integrated Model of Scheduling and Configuration of the Operating Theater**
	Authors:	*Sina Keyhanian, Abbas Ahmadi, Behrooz Karimi*

Session ID: C6.1 (*April 12, 2018 / 14:00 – 15:40)*

Adaptive Control

Chair(s): *Belkacem Ould Bouamama*

Paper ID		
168	Title:	**Performance-Guaranteed Robust Control of Hypersonic Flight Ve-Hicles Subject to Input Saturations**
	Authors:	*Ming Zeng, Yunling Li, Hao An, Changhong Wang*
258	Title:	**Load Capacity Improvements in Nucleic Acid Based Systems Using Discrete-Time Feedback Control**
	Authors:	*Hamidreza Jafarnejadsani, Jongmin Kim, Vishwesh Kulkarni, Naira Hovakimyan*
134	Title:	**Comparison of Different Controllers for Minimizing the Effect of Known Nonlinear Exosystem on Nonlinear Control Model**
	Authors:	*Bilal M Yousuf, Aqib Noor, Abdul Saboor Khana, Aamir Ali Dayo*
295	Title:	**Adaptive Lag-Bipartite Consensus of Linear Multiagent Systems with a Non-Autonomous Leader Over Signed Graph**
	Authors:	*Sourav Bhowmick, Surajit Panja*
135	Title:	**Enhanced One Step Ahead Adaptive Control Technique for Wind Turbine - Synchronous Generator System**
	Authors:	*Lorenzo Dambrosio*
21	Title:	**Nonsingular Terminal Sliding Mode Control for Aerial Manipulator**
	Authors:	*Samah Riache, Madjid kidouche, Amar Rezoug*

Session ID: C6.2 *(April 12, 2018 / 14:00 – 15:40)*

Control Applications (PART 1)

Chair(s): *Antonis I. Vardulakis*

Paper ID		
80	Title:	**Self-Balancing Two-Wheel Drive Electric Motorcycle Modelling and Control: Preliminary Results**
	Authors:	*Verdiana Del Rosso, Andrea Andreucci, Simonetta Boria, Maria Letizia Corradini, Roberto Giambo, Antonio Ranalli*
58	Title:	**A Comparison of Evolutionary Algorithms and Gradient-Based Methods for the Optimal Control Problem**
	Authors:	*Askhat Diveev, Sergey Konstantinov, Elena Sofronova*
2	Title:	**Balance Control of the Pendubot Via the Polynomial Matrix Approach**
	Authors:	*Antonis Vardulakis, Cui Wei*
41	Title:	**Feedback Linearization LQR Control for Quadcopter Position Tracking**
	Authors:	*Endrowednes Kuantama, Ioan Constantin Tarca, Radu Catalin Tarca*
280	Title:	**Inner Loop Command Interface in a Modular Flight Control Architecture for Trajectory Flights of General Aviation Aircraft**
	Authors:	*Simon Philipp Schatz, Agnes Christine Gabrys, Daniel Marian Gierszewski, Florian Holzapfel*
237	Title:	**PSO-Based Active Disturbance Rejection Control for Position Control of Magnetic Levitation System**
	Authors:	*Amjad Humaidi, Hussien Badir, Akram Hameed*

Session ID: D6.1 *(April 12, 2018 / 14:00 – 15:40)*

"Formal Methods applied to Transportation and Scheduling problems"

Chair(s): *Dimitri Lefebvre, Maria Pia Fanti*

Paper ID		
218	Title:	**Modelling and Performance Evaluation of Railway Transport Systems Using P-Timed Petri Nets**
	Authors:	*Mouhaned Gaied, Dimitri Lefebvre, Anis M'halla, Kamel Ben Othman*
201	Title:	**Max-Plus to Solve the Cyclic Job Shop Problem with Time Lags**
	Authors:	*Siddhartha Verma, Claude Martinez, Jayanta Madhab Barman*
205	Title:	**Computation of Activation Probabilities in the Independent Cascade Model**
	Authors:	*Wenjing Yang, Leonardo Brenner, Alessandro Giua*
220	Title:	**Autonomous Self-Regulating Intersections in Large-Scale Urban Traffic Networks: A Chania City Case Study**
	Authors:	*Iakovos Michailidis, Diamantis Manolis, Panagiotis Michailidis, Christina Diakaki, Elias Kosmatopoulos*
99	Title:	**Modeling Basic Components of Railway Systems Using Timed Arc Petri Nets**
	Authors:	*Alpaslan Yufka, Hanife Apaydin, Aydin Aybar*
304	Title:	**Decision Support System for the Hospital's Departments: Using Armchairs as Sub-Servers**
	Authors:	*Guy Wachtel, Amir Elalouf, Yael Perlman, Uri Yechiali*

Session ID: IT6.1 *(April 12, 2018 / 14:00 – 15:40)*

Intelligent Systems

Chair(s): *Francisco Javier Cabrerizo*

Paper ID		
124	Title:	**Minimum Flows in Directed S-T Planar Networks with Arcs and Nodes Capacities**
	Authors:	*Eleonor Ciurea, Oana Georgescu, Camelia Schiopu*
5	Title:	**Analysis of Overhead Caused by Security Mechanisms in IaaS Cloud**
	Authors:	*Fehmi Jaafar, Sergey Butakov, Gurjot Balraj Singh*
25	Title:	**Study on Effect of Two Adjacent Muscles of Flexor & Extensor of Finger Pinch & Hand Grip Force**
	Authors:	*Norafizah Abas, Wan Mohd Bukhari Wan Daud, Mohammad Azman Abas and M.O. Tokhi*
42	Title:	**Energy Modeling and Efficiency Optimization Using a Novel Extreme Learning Fuzzy Logic Network**
	Authors:	*Chen Zhang, Qunxiong Zhu, Zhiqiang geng, Yuan Xu, Yongming Han, Yan-Lin He, Fang Duan*
6	Title:	**A Survey of Online Sequential Extreme Learning Machine**
	Authors:	*Senyue Zhang, Wenan Tan, Yibo L*

Session ID: C7.1 *(April 12, 2018 / 16:50 – 18:30)*

Control Models

Chair(s): *Raul Nistal Ri*obello, *Dusan Krokavec*

Paper ID		
273	Title:	**Extended State Observer-Based Adaptive Fuzzy Tracking Control for a Quadrotor UAV**
	Authors:	Fouad Yacef, Pr.rizoug Rizoug Nassim, Laid Degaa, Omar Bouhali, Mustapha Hamerlain
127	Title:	**A Supervised Multi-Control for Monitoring the Antiviral Treatment Strategy for an SEIADR Epidemic Model**
	Authors:	Raul Nistal Riobello, Manuel de la Sen, Santiago Alonso-Quesada, Asier Ibeas
212	Title:	**Electromyography Assessment of Forearm Muscles: Towards the Control of Exoskeleton Hand**
	Authors:	Norafizah Abas, Wan Mohd Bukhari Wan Daud, Mohammad Azman Abas, M.O. Tokhi
68	Title:	**A Cooperative Control Model for Operating Theater Scheduling**
	Authors:	Bilal Bou Saleh, Abdellah El Moudni, Mohammad Hajjar, Oussama Barakat
27	Title:	**Enhanced Conditions in Design of Linear Discrete-Time Positive System Control**
	Authors:	Dusan Krokavec, Anna Filasova
70	Title:	**Stochastic Optimization Methods Based Robust Control for Dc/dc Buck Converter**
	Authors:	Hadjer Abderrezek, Aissa Ameur, Aohammed Nadjib Harmas

Session ID: C7.2 *(April 12, 2018 / 16:50 – 18:30)*

Control Applications (PART 2)

Chair(s): *Harikumar Kandath*

Paper ID		
177	Title:	**A Context-Driven Approach Using IoT and Big Data Technologies for Controlling HVAC Systems**
	Authors:	*Fadwa Lachhab, Youssef Nait Malek, Mohamed Bakhouya, Radouane Ouladsine, Mohammed Essaaidi*
30	Title:	**Active Disturbance Rejection Control for Server Thermal Management**
	Authors:	*Qinling Zheng, Zhan Ping*
35	Title:	**A Single-Mode Smooth Wave-Form Command Shaping Control Applied on a Flexible Rotating Beam**
	Authors:	*Khaled Alhazza*
206	Title:	**MoCap Systems and Hand Movement Reconstruction Using Cubic Spline**
	Authors:	*Reda Hanifi Elhachemi Amar, Ibari Benaoumeur, Kamel Bouzgou, Zoubir Ahmed Foitih*
140	Title:	**State Estimation of an Agile Target Using Discrete Sliding Mode Observer**
	Authors:	*Harikumar Kandath, Titas Bera, Rajarshi Bardhan, Suresh Sundaram*
10	Title:	**Preliminary Study of Numerical Corrector for a Bubbling Fluidized Bed Incinerator.**
	Authors:	*Vinícius Caseiro De Oliveira, Souad Rabah, Hervé coppier, Mohammed Chadli, Didier Escalon*

Session ID: IT7.1 *(April 12, 2018 / 16:50 – 18:30)*

"New Challenges in Medical Image Processing"

Chair(s): *Nawres Khlifa, Ines Rahmany*

Paper ID		
64	Title:	**A Robust Watermarking Scheme Over Quadrant Medical Image in Discrete Wavelet Transform Domain**
	Authors:	*Onur Goker, Nazli Nazli, Erdogan Dogdu, Roya Choupani, Mehmet Murat Erol*
298	Title:	**Detection and Characterization of Subsolid Juxta-Pleural Lung Nodule from CT Images**
	Authors:	*Nejla Jbeli, Rekka Mastouri, Henda Neji, Saoussen Hantous-Zannad and Nawres Khlifa*
185	Title:	**New Attenuation Map for SPECT Images Quality Enhancement**
	Authors:	*Hamida Romdhane, Mohamed Ali Cherni, Dorra Ben sellem*
82	Title:	**Lymphoma Lesions Detection from Whole Body Diffusion-Weighted Magnetic Resonance Images**
	Authors:	*Radhia Ferjaoui, Mohamed Ali Cherni, Kraiem Nour el houda, Kraiem Tarek*
302	Title:	**A Novel System for Glaucoma Diagnosis Using Artificial Neural Network Classification**
	Authors:	*A. Soltani, A. Badaoui, T. Batikh, I. Jabri*
299	Title:	**Cerebral Aneurysm Computer-Aided Detection System by Combing MSER, SURF and SIFT Descriptors**
	Authors:	*Ines Rahmany, Bacem Arfaoui, Nawres Khlifa, Houda Megdiche*

Session ID: D7.1 *(April 12, 2018 / 16:50 – 18:30)*

Modeling and Simulation Cases

Chair(s): *Ayeley Tchangani*

Paper ID		
173	Title:	**Quadcopter Modeling in Virtual Reality for Dynamic Visualization**
	Authors:	*Endrowednes Kuantama, Ioan Constantin Tarca, Radu Catalin Tarca*
242	Title:	**Modeling of Decline Dynamics of Knowledge Sharing Networks (KSNets) - a Wikipedia Case**
	Authors:	*Rong-Huei Chen, Shi-Chung Chang, Peter B. Luh*
192	Title:	**Conversion of Business Process Models Using Workflow Patterns**
	Authors:	*Katalina Grigorova, Kaloyan Mironov*
268	Title:	**Dynamic Economic Dispatch Using Genetic and Particle Swarm Optimization Algorithm**
	Authors:	*El fergougui Ahmed , A. A. Ladjici, A. Benseddik, Y. Amrane*
143	Title:	**Preview Control of Aircraft in Ground Operation**
	Authors:	*Ngoc Son Tran, Nguyen Dat*
229	Title:	**An Improved Matching Algorithm for the Underwater Navigation**
	Authors:	*Zhiqiang Wu, Zhonghai Pei, Yu Wang, Peng Wang, Bin He, Lihua Zhu*

Session ID: IT8.1 *(April 13, 2018 / 08:30 – 10:10)*

Image Processing

Chair(s): *Marcin Paprzycki*

Paper ID		
264	Title:	**Blur Analysis for Gimballed Imaging Systems in Air Vehicles**
	Authors:	*Hasan Dogan, Zafer Bingul*
69	Title:	**Automatic Prostate Segmentation on MR Images with Deeply Supervised Network**
	Authors:	*Ji Dong, Shu Zhan, Jun Yu, Toru Kurihara*
241	Title:	**Finding a Proper Approach to Obtain Cognitive Parameters From Human Faces Under Illumination Variations**
	Authors:	*Juan Pablo Vasconez, Fernando Auat Cheein*
56	Title:	**New Attempts in Binary Image Registration**
	Authors:	*Catalina Cocianu, Alexandru Stan*

Session ID: C8.1 *(April 13, 2018 / 08:30 – 10:10)*

Diagnosis and Monitoring Problems

Chair(s): *Belkacem Ould Bouamama*

Paper ID		
285	Title:	**Multi-Dynamics Analysis of QRS Complex for Atrial Fibrillation Diagnosis**
	Authors:	*Youssef Trardi, Bouchra Ananou, Zouhair Haddi, Mustapha Ouladsine*
284	Title:	**Deterioration Diagnosis of Lithium-Ion Battery Based-On Parameter Estimation of Electrochemical Model Using Particle Swarm Optimization**
	Authors:	*Takuro Shindo, Teruyoshi Sadahiro, Shoshiro Hatakeyama, Masami Iwase*
39	Title:	**Fault Diagnosis of Manufacturing Systems Using Data Mining Techniques**
	Authors:	*Imene Djelloul, Zaki Sari, Sidibe Ibrahima dit Bouran*
174	Title:	**Continuous Acoustic Monitoring of Electrical Machines; Processing Signals from USB Microphone & Mobile Smartphone Sensors Detecting DC Motor Controller Fault**
	Authors:	*Jarek Grebenik, Chris Bingham, Saket Srivastava*
236	Title:	**Efficient Online Monitoring and Formula Synthesis with past STL**
	Authors:	*Ebru Aydin Gol*

Session ID: C8.2 *(April 13, 2018 / 08:30 – 10:10)*

Nonlinear Systems

Chair(s): *Adil Brouri*

Paper ID		
269	Title:	**An Analysis of Quadratic Linearization of Three Phase Horizontal Gravity Separator**
	Authors:	*Janakiraman Srinivasan, Rajagopalan Devanathan*
120	Title:	**Identification of Nonlinear Systems with Hard Nonlinearity**
	Authors:	*Adil Brouri, Tarik Rabyi, Abdelmalek Ouannou*
66	Title:	**Feasibility Study of Switching Function Approaches in Sliding Mode Control for a Spacecraft's Attitude Control System**
	Authors:	*Hassrizal Bin Hassan Basri, J. Anthony Rossiter*
79	Title:	**Nonlinear Control Allocation for Interacting Control Effectors Using Bivariate Taylor Expansion**
	Authors:	*Jahanzeb Rajput, Hafiz Zeeshan Iqbal Khan, Qu Xiaobo*
31	Title:	**Pattern Recognition for Water Flooded Layer Based on Ensemble Classifier**
	Authors:	*Zhiqiang Geng, Xuan Hu, Qunxiong ZHU, Yongming Han, Yuan Xu, Yan-Lin He*
157	Title:	**A Contribution on the Identification of Nonlinear Systems**
	Authors:	*Adil Brouri, Laila Kadi*

Session ID: C9.1 *(April 13, 2018 / 10:30 – 12:30)*

Energy Control and Power Systems

Chair(s): *Olena Kuzmych*

Paper ID		
4	Title:	**Optimal Power Control for a PMSG Small Wind Turbine in a Grid-Connected DC Microgrid**
	Authors:	*Daniel Zammit, Cyril Spiteri Staines, Alexander Micallef, Maurice Apap*
256	Title:	**Towards a Demand/Response Control Approach for Micro-Grid Systems**
	Authors:	*Abdellatif Elmouatamid, Youssef NaitMalek, Radouane Ouladsine, mohamed bakhouya, Najib Elkamoun, Khalid Zine-Dine, Mohammed Khaidar, Abid Mohamed Riduan*
260	Title:	**Predictive Control for a Marine Hybrid Diesel-Electric Plant During Transient Operation**
	Authors:	*Nikolaos Planakis, George Papalambrou, Nikolaos Kyrtatos*
109	Title:	**Coordinated Design of a Fuzzy Logic Power System Stabilizer and an SVC-Based Stabilizer in Single-Machine Infinite-Bus Power System**
	Authors:	*Abdullah Baraean, Hussain Al-Duwaish*
189	Title:	**Combining Second Order Central Difference Discretization with Extended Kalman Filter for Rotor Speed and Flux Estimation of a Doubly-Fed Induction Generator**
	Authors:	*Ahmad Boussoufa, Madjid kidouche, Aimad Ahriche*
222	Title:	**Direct Wind Turbine Drivetrain Prognosis Approach Using Elman Neural Network**
	Authors:	*Sharaf Eddine Kramti, Jaouher Ben Ali, Lotfi Saidi, Mounir Sayadi, Eric Bechhoefer*

Session ID: D9.1 *(April 13, 2018 / 10:30 – 12:30)*

"Cyber Physical System (CPS) based Proactive Collaborative Maintenance"

Chair(s): *Erkki Jantunen, Urko Zurutuza, Michele Albano*

Paper ID		
181	Title:	**The MANTIS Architecture for Proactive Maintenance**
	Authors:	*Csaba Hegedűs, Pal Varga*
112	Title:	**Cybercrime Offences: Identification, Classification and Adaptive Response**
	Authors:	*George Tsakalidis, Kostas Vergidis, Michael Madas*
176	Title:	**Open Source Analytics Solutions for Maintenance**
	Authors:	*Erkki Jantunen, Jaime Campos, Pankaj Sharma, Mark McKay*
182	Title:	**Proactive Maintenance of Railway Switches**
	Authors:	*Csaba Hegedűs, Gregor Papa, Pal Varga*
198	Title:	**Implementation of a Reference Architecture for Cyber Physical Systems to Support Condition Based Maintenance**
	Authors:	*Felix Larrinaga, Javier Fernandez-Anakabe, Ekhi Zugasti, Iñaki Garitano, Urko Zurutuza, Mikel Anasagasti, Mikel Mondragon*
291	Title:	**Predicting Machine Failures from Industrial Time Series Data**
	Authors:	*Femke Jansen, Mike Holenderski, Tanir Ozcelebi*

Session ID: IT9.1 *(April 13, 2018 / 10:30 – 12:30)*

Applied artificial Intelligence

Chair(s): *Francisco Javier Cabrerizo*

Paper ID		
171	Title:	**Hesitant Fuzzy Sets: A Bibliometric Study**
	Authors:	*Francisco Javier Cabrerizo, María Ángeles Martínez, Manuel Jesús Cobo, Sergio Alonso, Enrique Herrera-Viedma*
60	Title:	**Micro-Expression Analysis by Fusing Deep Convolutional Neural Network and Optical Flow**
	Authors:	*Qiuyu Li, Jun Yu, Toru Kurihara, Shu Zhan*
83	Title:	**Boiler Flow Control Using Optimal Fuzzy Supervisory PID Controller**
	Authors:	*Riad Bendib, Naoual Batout*
226	Title:	**Scheduling People's Daily Activities Using Temporal Constraints Satisfaction Problem**
	Authors:	*Feras Alhaijawy, Adina Magda Florea*
48	Title:	**HLMIQ of Aircraft Control Software for Control Intelligence Measurement**
	Authors:	*Marwa Brichni, Said Al Gattoufi*