

17th MECHATRONIKA 2016

Wednesday, December 7					
Ballroom Hall			Education Center		
	12:00 14:00	Registration (Registration desk opened during all three conference days)			
	14:00 14:20	Opening speech			
Session I	14:20	Jiri Kovar, Katerina Mouralova, Filip Ksica, Jiri Kroupa, Ondrej Andrs, Zdenek Hadas: <i>Virtual Reality in Context of Industry 4.0</i>			
Plenary	14:50	J. Hybl, P. Kutilek, J. Hejda, P. Volf, D. Frynta, E. Landova, P. Frydlova, V. Krivanek, R. Cerny: <i>Methods for Evaluation of Kinematic Motion Data of Animal's Body on Dynamic Platform</i>			
	15:10	Matthias Rehm, Johannes Quellmalz, Holger Schlegel, Reimund Neugebauer: <i>Design of Feed Drives with a Process Oriented Design Methodology</i>			
Chairman: Tomas Brezina	15:10 15:40				
	15:40 16:00	Coffee break			
Session II	16:00	Johannes Quellmalz, Matthias Rehm, Holger Schlegel: <i>Performance Index for Servo Drive Control Based on Work-equivalent Balance</i>			
Actuators I	16:20	Jan Laksar, Lukas Veg: <i>Numerical Calculation of the Air Gap Flux Density Distribution in Rotary Electrical Machines</i>			
	16:40	Alecksey Anuchin, Anton Dianov, Dmitry Shpak, Valentina Astakhova, Ksenia Fedorova: <i>Speed Estimation Algorithm with Specified Bandwidth for Incremental Position Encoder</i>			
Chairman: Rostislav Huzlik	16:40 17:00				
	17:00 17:20	Coffee break			
Session III	17:20	Jan Hodicky, Raniero Castrogiovanni, Allesandro Lo Presti: <i>Modelling and Simulation Challenges in the Urbanized Area</i>			
Modeling and Simulation	17:40	Jiri Klima, Ondrej Vitek: <i>The Influence of the Rotor Slits on the Performance of High-Speed Solid-Rotor Induction Machine</i>			
	18:00	Tim Engelberth, Anton Dietmair, Alexander Verl: <i>Modeling and Analysis of Control Valves Applied in Compressor Plants with Consideration of Time-Variation Factors</i>			
Chairman: Radek Marik	18:20	Muhammad Shahab Alam, Muhammad Usman Rafique, Zareena Kauser, Muhammad Saleem: <i>Swarm Intelligence Based Multi-Objective Path Planning in Environments Cluttered with Danger Sources</i>			
	18:20 18:40				
		Free evening			

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Thursday, December 8

Balling Hall			Education Center		
Session IV Actuators II Chairman: Jiri Kovar	09:00	Konrad Urbanski: <i>Position Estimation for Low Speed Range Using MRAS Based Calculator</i>	Session V Biomechatronics Chairman: Grzegorz Ilewicz	09:00	Mazen Ghandour, Hui Liu, Norbert Stoll, Kerstin Thurow: <i>A Hybrid Collision Avoidance System for Indoor Mobile Robots based on Human-Robot Interaction</i>
	09:20	Dariusz Horla: <i>C-code Implementation of an Adaptive Real-time GPC Velocity Controller for a Servo Drive</i>		09:20	Katarzyna Koter, Leszek Podsekowski, Lukasz Fracczak: <i>A Simulation Model of Transversal Artificial Muscle Deformation and Dynamics</i>
	09:40	Karel Hruska, Pavel Dvorak: <i>The Validity Range of PMSM Efficiency Map Regarding Its Equivalent Circuit Parameters</i>		09:40	Jan Smilek, Filip Cieslar, Zdenek Hadas: <i>Measuring Acceleration in the Area of Human Head for Energy Harvesting Purposes</i>
	10:00	Zdenek Novak, Martin Novak: <i>Implementation of a Novel Angular Hall Encoder for Field Oriented Control of High Speed and Experimental Motors</i>		10:00	Miroslav Jirgl, Jan Boril, Rudolf Jalovecky: <i>Assessing Quality of Pilot Training with Use of Mathematical Analyses</i>
	10:20			10:20	
Coffee break			Coffee break		
Session VI Automotive Chairman: Zdenek Hadas	10:40	Dariusz Horla, Joanna Zietkiewicz, Adam Owczarkowski: <i>Analysis of Feedback vs. Jacobian Linearization Approaches Applied to Robust LQR Control of 2DoF Bicycle Robot Model</i>	Session VII Industrial Applications I Chairman: Radek Dorskocil	10:40	Damiano Rossetti, Stefano Squartini, Stefano Collura, Yu Zhang: <i>Exploiting Heterogeneous Data for the Estimation of Particles Size Distribution in Industrial Plants</i>
	11:00	Bogdan Fabianski, Bartolomiej Wicher: <i>The System of Ergonomic Angular Distribution of Torque on the Pedals in Pedaling-by-wire Driven Electric Vehicle</i>		11:00	Irina Makarova, Rifat Khabibullin, Eduard Mukhametdinov, Anton Pashkevich, Ksenia Shubenkova: <i>Efficiency Management of Robotic Production Processes at Automotive Industry</i>
	11:20	Pavel Kucera, Vaclav Pistek: <i>Mechatronic System of Automatic and Manual Differential Lock Control - Vehicle Turnig</i>		11:20	R. Khabibullin, I. Makarova, A. Pashkevich, V. Mavrin, K. Shubenkova: <i>Application of Simulation Modeling to Improve Management of Technological Processes during Production of Automotive Components</i>
	11:40	Michal Ruzicka, Petr Masek: <i>Real Time Visual Marker Detector and Tracker Based on Computer Vision for Semi-autonomous Convoy Purpose</i>		11:40	Rostislav Huzlik, Cestmir Ondrusek, Norbert Palsovics: <i>Design of Permanent Magnet Generators for Small Hydro Power Plant</i>
	12:00			12:00	
Lunch(served in Study room)			Lunch(served in Study room)		
Session VIII Measurement and Diagnostics I Chairman: Leos Bohac	13:20	Anatolijs Zabasta, Kaspars Kondratijevs, Nadezhda Kunicina, Janis Peksa, Leonids Ribickis, Jelena Caiko: <i>Smart Municipal Systems and Services Platform Development</i>	Session IX Industrial Applications II Chairman: Michal Dub	13:20	Tomas Brezina, Lukas Brezina: <i>Using a Simplified PID in Active Chatter Absorber</i>
	13:40	Jarek Grebenik, Yu Zhang, Chris Bingham, Saket Srivastava: <i>Roller Element Bearing Acoustic Fault Detection Using Smartphone and Consumer Microphones</i>		13:40	Ali A. Abdulla, Hui Liu, Norbert Stoll, Kerstin Thurow: <i>An Automated Elevator Management and Multi-Floor Estimation for Indoor Mobile Robot Transportation Based on a Pressure Sensor</i>
	14:00	Damiano Rossetti, Yu Zhang, Stefano Squartini, Stefano Collura: <i>Classification of Bearings Faults Through Time-Frequency Analysis and Image Processing</i>		14:00	Jan Farlik, Miroslav Kratky, Josef Casar, Vadim Stary: <i>Radar Cross Section and Detection of Small Unmanned Aerial Vehicles</i>
	14:20	Samuel Mamo, Miao Zhang, Mario Farrugia: <i>Automotive Turbocharger Hot-Gas Test-Stand Data Acquisition and Control</i>		14:20	Vadim Stary, Radek Dorskocil, Vaclav Krivanek, Patrik Kutilek, Alexandr Stefek: <i>Missile Guidance Systems for UAS Landing Application</i>
	14:40			14:40	
Coffee break			Coffee break		
Session X Measurement and Diagnostics II Chairman: Anatolijs Zabasta	15:00	Jean Paul Azzopardi, Mario Farrugia: <i>Measurement of Knock and its Analysis on Turbocharged 600cc Formula SAE</i>	Session XI Power Electronics/ ICT I Chairman: Jan Boril	15:00	Krzysztof Nowopolski, Bartolomiej Wicher: <i>Optimized Fuzzy Speed Controller for Electrical Drive with Complex Mechanical Structure</i>
	15:20	Mario Farrugia, Jean Paul Azzopardi, Emilio Xuereb, Carl Caruana, Michael Farrugia: <i>The Usefulness of Diesel Vehicle Onboard Diagnostics (OBD) Information</i>		15:20	Ludek Janak, Zdenek Hadas, Jan Smilek: <i>Reliability Assessment of Electromechanical Energy Harvesting Systems</i>
	15:40	Matej Harcarik, Robert Jankovych: <i>Measurement of Automotive Parts' Surface Texture Using Contact and Non-contact Methods</i>		15:40	Tomas Zitta, Marek Neruda, Lukas Vojtech: <i>Mobile Application for Controlling UHF RFID Reader</i>
	16:00	Stanislav Vechet, Jan Hrbacek, Jiri Krejsa: <i>Environmental Data Analysis for Learning Behavioral Patterns in Smart Homes</i>		16:00	Lukas Gregora, Lukas Vojtech, Marek Neruda: <i>Indoor Signal Propagation of LoRa Technology</i>
	16:20			16:20	
Poster session					
National Library of Technology - Guided tour					
Conference raut (served at the Gallery)					

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Friday, December 9					
Balling Hall			Education Center		
			Session XIII	09:00 09:20	Bogdan Fabianski: <i>Fuzzy Classifier of Device State Basing on MEMS Signals in Burglar Alarm Application</i>
			ICT II	09:20 09:40	Radek Marik: <i>On Design of Data Consistency Verification</i>
				09:40	Thanh Bang Le, Petr Makula, Thanh Tam Bui, Marie Richterova, Xuan Nam Tran: <i>Group Successive ICI Cancellation for MIMO-OFDM Systems in Underwater Acoustic Channels</i>
			Chairman: Jiri Krejsa	10:00	Jiri Vodrazka, Jaromir Hrad: <i>Communication over Middle-Voltage Distribution Lines with Inter-section Crosstalk Modeling</i>
				10:20	
				10:20 10:40	Coffee break
			Session XIV Robotics	10:40 11:00	Jiri Krejsa, Stanislav Vechet: <i>Finding Optimal Local Path for Mobile Robot with Kinematic Constraints</i>
				Chairman: Stanislav Vechet	11:00 11:20
			11:20 11:40		Patrik Kutilek, Slavka Viteckova, Jan Hejda, Vaclav Krivanek, Radek Duskocil, Alexandr Stefek: <i>Control of Hexapod with Static-stable Walking Using Artificial Intelligence</i>
			11:40 12:00		Pawel Zak: <i>Jacobian Matrix Determination in a Novel Master Manipulator Device</i>
			12:00		
				12:00 12:10	Closing speech
				12:10 13:20	Lunch(served in Study room)

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Session XII - Poster session, Thursday, December 8

	1	Zdenek Hadas, Boris Garami: <i>Mechatronic Model of Harmonic Drive System</i>
	2	Martin Kroupa, Cestmir Ondrusek: <i>The Induction Machine as Transfer Element</i>
	3	Radek Vlach, Rostislav Huzlik: <i>Thermal Model of High Speed Asynchronous Machine</i>
	4	David Uzel, Vaclav Smidl, Zdenek Peroutka: <i>Gradient Descent Maximum Torque Control up to the Base Speed of Wound Rotor Synchronous Motors</i>
	5	Tomas Kosan, Jakub Talla, Vojtech Blahnik: <i>FPGA-based Real-time HIL Simulator of Induction Motor Drive</i>
	6	Bogdan Fabianski: <i>Optimal Control of Switched Reluctance Motor Drive with Use of Simplified, Nonlinear Reference Model</i>
	7	Martin Brabic, Vaclav Sova, Robert Grepl: <i>Adaptive Feedforward Controller for a DC Motor Drive based on Inverse Dynamic Model with Recursive Least Squares Parameter Estimation</i>
	8	Josef Vejlupek: <i>Trailer Backing-up Assistant</i>
	9	Lubos Kotek, Miroslava Tavodova, Martin Jonak, Daniela Kalincova, Zdenek Tuma, Erika Sujova: <i>Using of High Speed Motion Analysis for Compression Test of Motorcycle Forks Arm</i>
	10	Josef Brozek, Martin Jakes, Simeon Karamazov, Dan Hamernik: <i>Combat Vehicle Simulator Based on HLA</i>
	11	Grzegorz Ilewicz: <i>Modeling and Controlling Medical Robot for Soft Tissue Surgery and Servicing of Artificial Organs</i>
	12	Pavol Dudak, Ivan Sladek, Juraj Dudak, Stefan Sedivy: <i>Application of Inertial Sensors for Detecting Movements of the Human Body</i>
	13	Slavka Viteckova, Patrik Kutilek, Jana Lenartova, Jana Kopecka, Daniela Mullerova, Radim Krupicka: <i>Evaluation of Movement of Patients with Parkinson's Disease Using Accelerometers and Method Based on Eigenvectors</i>
	14	Jiri Hajek, Jaromir Hrad, Jiri Vodrazka: <i>Simplified Model for Performance Estimation of Narrowband Data Transmission on Low-Voltage Power Lines</i>
	15	Leos Bohac, Milos Kozak: <i>Optical Fiber Sensor Networks Floating in IT Cloud</i>
	16	Ang Cao, Tomas Zeman, Jaromir Hrad: <i>Medium-Voltage Faults Location and Handling with the Help of Powerline Communication Systems</i>
Session XII	17	Jan Kucerak: <i>The Suitability of Transport Protocols for Response Time Critical Signaling</i>
	18	Ondrej Vondrous, Zbynek Kocur, Tomas Hegr, Ondrej Slavicek: <i>Performance Evaluation of IoT Mesh Networking Technology in ISM Frequency Band</i>
	19	Lukas Krupka, Lukas Vojtech, Marek Neruda: <i>The Issue of LPWAN Technology Coexistence in IoT Environment</i>
Poster session	20	Ondrej Andrs, Jiri Kovar, Jan Rucka: <i>Design of Test Device for Automatic Pressure Sewerage Control Unit</i>
	21	Daniel Magura, Viliam Fedak, Karol Kyslan, Sanjeevikumar Padmanaban: <i>Practical Experience with Control of Drives of an Accumulator in a Web Processing Continuous Line</i>
	22	Jan Sramek, Jiri Sperka, Robert Jankovych: <i>The Measurement System for the Calibration of Particle Counters</i>
Chairmen: Michal Dub Dusan Maga	23	Juraj Dudak, Ivan Sladek, Gabriel Gaspar: <i>Proposal and Implementation of Universal and Non-volatile 1-wire Module</i>
	24	Jiri Franc, Roman Pechanek, Vladimir Kindl: <i>Optimisation of Ventilation System of the Air-cooled Turbo Generator</i>
	25	Huu Hung Nguyen, Josef Bajer, Premysl Janu: <i>On the Design of Commercial Off-The-Shelf Machmeter with CANaerospace Interface</i>
	26	Hana Opocenska, Milos Hammer: <i>Use of Technical Diagnostics in Predictive Maintenance</i>
	27	Dusan Maga, Alexis Debret, Iurii Turygin: <i>3D FE Model of Shielding Textile Materials</i>
	28	Peter Fabo, Martin Skovajsja, Lubomir Pepucha: <i>PSE Simulation Environment for the Real-time Simulation and Control of Mechatronic Systems</i>
	29	Lukas Veg, Jan Laksar, Roman Pechanek, Karel Hruska: <i>Simplified Thermal Model of Traction Transformer for Comercial Use</i>
	30	Lukasz Fraczak: <i>The Average Path Estimation Accuracy Analysis</i>
	31	David Simek: <i>The Thermal Model and Temperature Rise Test of Disconnecter</i>
	32	Vojtech Lambersky, Robert Grepl: <i>Benchmark Based Method for Predicting Computing Time of Simulink Model Running on Embedded Target</i>
	33	Jiri Holecek, Zdenek Brabec: <i>Infrastructure Operator Field Workforce Management Systems Simulation Possibilities</i>
	34	Boris Skvortsov, Tarek Nahdi, Dusan Maga: <i>Electromechatronic Systems as a Part of a Ship Unified Electric Power System with a Turbogenerator Source of High Frequency Electric Power</i>
	35	Martin Bruha, Martin Sirovy, Vladimir Kindl: <i>Methodology for Complex Energy Efficiency Evaluation of High-Power Variable Speed Drive Applications</i>
	36	Bohuslava Juhasova, Igor Halenar, Martin Juhas: <i>Design and Implementation of Autonomous Mobile Device with Adaptive Control</i>
	37	Katerina Mouralova, Zdenek Karpisek, Jiri Kovar, Lenka Klakurkova: <i>Freeman-Tukey Pseudoquasi-norm for Evaluating the Total Height of Profile Rt after WEDM</i>
	38	Katerina Mouralova, Jiri Kovar, Tomas Prokes: <i>Optimization of the Cutting Speed for Ti-6Al-4V Using WEDM Depending on Quality of the Machined Surface</i>
	39	Katerina Mouralova, Jiri Kovar, Radim Zahradnicek, Ondrej Man: <i>Characterization of 3D Topography of the Surface Machined by Finishing Technologies of WEDM and Grinding</i>
	40	Xuan Luong Tran, Jiri Vesely, Sang Van Doan, Petr Hubacek: <i>Estimation of Target Position From a Moving Passive System Using the Differential Doppler Method</i>
	41	Selma Corovic, Mitja Vidrih, Damijan Miljavec: <i>Three-Dimensional Finite Element Modeling and Analysis of pherical Induction Motor</i>