MSM 2020 – Conference programme

Wednesday July, 1		Thursday July, 2
	Keynote Speakers	**Session Biomaterials**
8:00		M. Rabiei, S. Nasiri, A. Palevicius, G. Janusas Preparation and Investigation of Bioactive Organic-Inorganic Nano-composite Derived from PVB-co-VA-co-VAc/HA
8:10		D. Łysik, K. Niemirowicz-Laskowska, J. Mystkowska, R. Bucki Antimicrobial Properties of Mucin-based Saliva Substitute Containing Xylitol
8:20		J. Mystkowska, D. Łysik, M. Germaniuk, K. Niemirowicz-Laskowska, R. Bucki The Influence of pH and Temperature on Stability of Artificial Saliva based on Porcine Gastric Mucin
8:30		A. Atmakuri, G. Janusas, M. Siddabathula, A. Palevicius Wettability and Moisture Analysis on Natural Fiber Reinforced Epoxy Resin Hybrid Composites
8:40		Break
		Session Machine and Iterative Learning Control
8:50		M. Petrović, A. Wolniakowski, M. Ciężkowski, S. Romaniuk, Z. Miljković Neural Network-based Calibration for Accuracy Improvement in Lateration Positioning System
9:00	Lech Dzienis - Rector of Bialystok University of Technology Miroslaw Swiercz - Dean of Faculty of Electrical Engineering Arkadiusz Mystkowski - Chairman Welcome and Opening of the Conference	M. Petrović, A. Mystkowski, A. Jokić, L. Dokić, Z. Milijković Deep Learning-based Algorithm for Mobile Robot Control in Textureless Environment
9:10	Vytautas Ostasevicius New Technologies for Industry 4.0 Solutions	E. Sekhri, R. Kapoor, M. Tamre Double Deep Q-learning Approach for Tuning Microwave Cavity Filters using Locally Linear Embedding Technique
9:20		K. Lalik, M. Kozek Cubic SVM Neural Classification Algorithm for Self-excited Acoustical System
9:30		M. Zdrodowska, A. Dardzińska, A. Kasperczuk Using Data Mining Tools in Wall-following Robot Navigation Data Set

9:40	Discussion	A. Korczak, W. Mucha, A. Piasecka-Belkhayat Application of Artificial Neural Networks to Heat Transfer Simulations of Thin Film Structures Irradiated by Laser
9:50	Denys Makarov Flexible Magnetic Field Sensors	
10:00		D. Wyrwał, T. Lindner, P. Nowak , M. Białek Control Strategy of Hydraulic Cylinder based on Deep Reinforcement Learning
10:10		K. Kurachka, K. Panarin Algorithm for Real-time Binary Classification of Adenomas and Norms Images Obtained by Confocal Microscopy
10:20	Discussion	Break
		Session Control of Mechatronic Systems II
10:30	Prafulla Kumar Jha Two-dimensional Materials: an Empowering Contestant for Environment Sensitive Energy Harvesting	R. Pawliczek Modernization of the Fatigue Test Stand Control System using the Idea of a Virtual Instrument
10:40		J. Zhang, X. Liu-Henke Model-based Design of the Vehicle Dynamics Control for an Omidirectional Automated Guided Vehicle (AGV)
10:50		M. Żokowski Autodiagnostics for Remotely Piloted Aircraft Systems
11:00	Discussion	M. Zdziechowski, K. Futera, G. Uciński, P. Pałuszyński, J. Chłapiński Research on the Influence of Metal Surroundings and Reading Method on the Accuracy of UHF RFID Tags Tracking
11:10	Harald Aschemann Modelling and Observer-based Control of Distributed Parameter Systems	T. W. Ursel Object Displacement Estimation with the Use of Microelectromechanical Accelerometer
11:20		N. Stravopodis, E. Katrantzis, C. Valsamos, V. Moulianitis Conceptual Mechatronic Design of a Metamorphic Manipulator's Pseudojoints
11:30		V. Jūrėnas, G. Kazokaitis, D. Vaškas Ultrasonic Motor with Spherical Rotor for Nanosatellite Orientation
11:40	Discussion	Z. Kulesza, D. Ołdziej Dynamic Characteristics of a Rope with a Winder for Powering UAV
11:50	Eric Rogers Iterative Learning Control: a Status Report and Look Ahead on Algorithm Development, Experimental Verification and Applications	P. Sovilj, D. Novaković, J. Makal, W. Walendziuk, N. Petrović, D. Pejić Callibration of EOG and ECG Instrumentation Modules in Smart Biofeedback System
12:00		D. P. Pascault Finite-Time Tracking of Trajectories in Task Space for Stewart Platform

12:10		A. Sulikowski, D. Trzciński, K. Galkowski, E. Rogers Modeling and Control of Multimass Systems in Terms of 2D Systems
12:20	Discussion	W. Walendziuk, Ł. Walendziuk, A. Idźkowski Development of a Wireless Weighing Transducer and its Callibration
12:30	Argyrios Zolotas Systems and Control in the Area Towards Autonomy, Experiences and what the Future May Hold	Break
		Session Piezo-materials and Smart Materials
12:40		R. Regulski, K.K. Leang Design and Characterization of a Dual Piezo-bimorph Micro Flapping Wing
12:50		V. Ostasevicius, A. Mystkowski, P. Karpavicius, V. Jurenas Investigation of Piezoelectric Transducer Application for Vibrational Energy Harvesting in Milling Operation
13:00	Discussion	T. Dyl, E. Szramka The Effect of Superfinishing Conditions on Surface Roughness of Hardened Unalloyed Steel
13:10	Norbert Kruger The History of KI and its Relations to Robotics	V. Ostasevicius, V. Jurenas, D. Eidukynas, V. Grigaliunas, M. Gudauskis, I. Paleviciute, V. Ambrasas Peculiarities of the Robotised Incremental Metal and Polymer Sheets Forming
13:20		S. S. Djokoto, A. Dragašius, V. Jūrėnas, A. Mystkowski Controlling the Positioning 3D Rotational Piezoelectric Deflector using ERF: an Experimental Study
13:30		A. Piłat, J. Gliwa Analysis of Magnetic Inductance, Coil Current and Levitating Sphere Displacement Recorded during Stabilization Experiments
13:40	Discussion	Break
		Session Biomechanics, Biomedical and Rehabilitation Engineering
13:50	Vytautas Bucinskas Implementing of Machine Learning in Industrial Robotics	H. Milanowski, A. Piłat Comparison of Identified and SimScape Model of Human Leg Motion
14:00		K. Daunoraviciene, J. Ziziene, J. Griskevicius, R. Kizlaitiene, A. Ovcinikova Biomechanical Markers of Impaired Motor Coordination
14:10		Break
		Session Signal and Image Processing

14:20	Discussion	D.C. Liyanage, R. Hudjakov, M. Tamre Hyperspectral Imaging Methods Improve RGB Image Semantic Segmentation of Unstructured Terrains
14:30	Break	I. Švagždytė, E. Jarmolajeva, S. Borodinas, M. Jurevičius Investigation of Polishing Quality of Optical Surfaces at Small Samples
	Session Control of Mechatronic Systems I	
14:40	R. Kociszewski Implementation of PI Controller in Reconfigurable PSoC Microcontroller to Control the Speed of Mobile Robot Drives	M. Nowakowski, A. Idźkowski Ultra-wideband Signal Transmission According to European Regulations and Typical Pulses
14:50	S. Wudarczyk, J. Szrek, J. Bałchanowski, B. Lewandowski, S. Mróz, R. Jasiński, T. Niebudek, M. Woźniewski Research on the Mechatronic Gait Monitoring System with Nordic Walking Poles	T. Lindner, D. Wyrwał, M. Białek, P. Nowak Face Recognition System based on a Single-board Computer
15:00	M. Fiedeń, D. Janik, A. Muraszkowski Development and Testing of the Mechatronic Gripper with Two Fingers	D.C. Liyanage, R. Hudjakov, M. Tamre Hyperspectral Image Band Selection using Pooling
15:10	M. Białek, P. Nowak, T. Lindner, D. Wyrwał FEMM Examination of the Gripper with Magnetorheological Cushion	I. Tetsman, V. Vekteris, V. Mokšin, V. Turla, E. Jurkonis Investigation of the Influence of Acoustic Field on Vapor Precipitation over Plating Bath
15:20	S. Wudarczyk, J. Szrek, J. Bałchanowski, B. Lewandowski, S. Mróz, R. Jasiński, M. Woźniewski Experimental Research on the Mechatronic Nordic Walking Poles	Break
		Session Automation, Measurement, Monitoring and Diagnostic Systems
15:30	K. Deliparaschos, G. Santha, L. Z. Fragonara, I. Petrunin, A. Zolotas, A. Tsourdos A Preliminary Investigation of an Autonomous Vehicle Validation Infrastructure for Smart Cities	P. Lindstedt, T. Sudakowski, E. Rokicki Machine Diagnosis based on Amplitude-phase Characteristics, Determined from the Experimental Amplitude Spectrum and the Calculated Phase Spectrum
15:40	Break	K. Golak, R. Grądzki, P. Lindstedt Investigating the Possibility of using the Amplitude-phase Characteristics of the Turbulent Gas Flow to Diagnose the Gas Pipeline Leakage
	Session Robotics I	
15:50	P. Nowak. M. Białek, T. Lindner, D. Wyrwał Manipulator Teleoperation by using the Position of the Hand Registered by Vision System	E. V. Korobko, Z. A. Novikova, V. A. Kuzmin, A. Bubulis, J. Vėžys Influence of Magnetorheological Fluids Thermostability Characteristics on the Damping Performance in Oscillatory Systems

16:00	P. Szywalski, A. Waindok Algorithm for Planning, Generating and Simulating Trajectories for a Group of Drones	R. Kociszewski Determination of Parameters of Supercapacitors as Examples of Fractional-order Elements
16:10	R. Kordaczek, A. Piłat Prototype and Simulation Model of a Robotic Hand	A. Turcanu, I Nuca, J. Makal Numerical Analysis of the Peculiarities of Flow Rate Adjustment in Armature Vibrating Pump in Hydraulic Systems Applications
16:20	K. Kwaśniewski, Z. Gosiewski Wheeled Robot Path Planning in Natural Environment	J. Łagodziński, E. Tkacz Experimental Verification of Solenoid Valve Numerical Model
16:30	M. Ciężkowski, D. Ołdziej, S. Romaniuk, A. Wolniakowski Integrated Framework for Autonomous Mobile Platform based Unmanned Aerial Vehicle Operation	A. Mystkowski Z. Kulesza Closing of the Conference
16:40	M. Kozek Transfer Learning Algorithm in Image Analysis with Augmented Reality Headset for Industry 4.0 Technology	
16:50	Ł. Wieckowski, K. Klimek Development of a Hybrid Energy Storage System for a Mobile Robot	
17:00	P. Kołosowski, A. Wolniakowski. K. Miatliuk Collaborative Robot System for Playing Chess	
17:10	Break	
	Session Energy Harvesting Systems	
17:20	B. Prydalnyi Characteristics of Electromechanical Clamping Mechanism with Asynchronous Electric Motor	
17:30	A. Waindok, M. Żużałek Investigations of an Original Small Power Induction Heater	
17:40	T. Kapłon, T. Lindner, D. Wyrwał Induction Heating for a Silicone / Ethanol Composite Actuator	

17:50	**W. Walendziuk, D. Ołdziej, M. Słowik** **Power Supply System Analysis for Tethered Drones Application**	
18:00	**Break**	