

## Program Summary

Room 201 – Center for Mechatronics, Biomechanics, and Nanoengineering

September 21<sup>st</sup>, 2022 (Wednesday)

9:00	<b>OPENING</b> <i>Chairman: Adam Dąbrowski</i>
9:15-10:00	<b>TUTORIAL I:</b> Patrick Dewilde, <i>An introduction to orthogonal filtering and its many applications</i>
10:00-10:15	<b>Coffee Break</b>
10:15-11:15	<b>SESSION 1: DSP Theory</b> Chairman: Adam Dąbrowski
	Michał Łuczyński, Andrzej Dobrucki, Stefan Brachmański, <i>Active cancellation of the tonal component with synthesized compensation component and processing time compensation</i>
	Zizheng Li, Silei Cao, Weigui Zeng, Tianyu Li, <i>Robust beamforming algorithm based on steering vector estimation and interference plus noise covariance matrix reconstruction</i>
	Jakub Krzysztof Grabski, <i>Representing the shapes of carpals solving boundary value problems by meshless methods</i>
	Mohamed Gabr, Wassim Alexan, <i>Image Encryption Through CA, Chaos and Lucas Sequence Based S-Box</i>
11:15-11:45	<b>Coffee Break</b>
11:45-12:30	<b>TUTORIAL II:</b> Andrzej Materka, <i>Blood-vessels lumen geometric modeling and quantification from 3D images</i>
12:30-14:00	<b>SESSION 2: Biosignal Processing</b> Chairman: Andrzej Materka
	Francisco Luquin Monroy, Rania Hussein, Alexander Mamishev, <i>Accuracy of Smartphone Depth Cameras in Stoma Shape Extraction for Wafer Fitting</i>
	Ludvik Alkhoury, JiWon Choi, Chizhong Wang, Sean Mahoney, Barry S. Shender, Leonid Hrebien, Moshe Kam, <i>Mitigation of Motion Artifacts in Pulse Oximetry through Redundant Sensors</i>
	Fernando Soares de Aguiar Neto, João Luís Garcia Rosa, <i>Impact of Sampling Rate and Eye-Condition on Resting Quantitative EEG</i>
	T. K. M. Lee, H. W. Chan, K. H. Leo, E. Chew, Ling Zhao, S. Sanei, <i>Improving Rehabilitative Assessment with Statistical and Shape Preserving Surrogate Data and Singular Spectrum Analysis</i>
	Jakub Garstka, Michał Strzelecki, <i>Gender assessment from vertebra's cortical bone X-ray images: texture analysis vs. deep learning approach</i>
	Sofia Cotter, Hugo Cordeiro, Gonçalo Marques, <i>Energy Band Analysis for Screening Patients Diagnosed with ALS</i>
14:00-15:00	<b>Lunch</b>
15:00-15:45	<b>TUTORIAL III:</b> Bożena Kostek, <i>Towards searching the Holy Grail in automatic music and speech processing – examples of the correlation between human expertise and automated classification</i>
15:45-17:15	<b>SESSION 3: Image Processing I</b> Chairman: Damian Cetnarowicz
	Zhaonan Jiao, Xiliang Zhang, Yuqi Sun, Xia Hua, Huayu Li, <i>A Permanent Magnet Synchronous Machine Fault Diagnosis Method Using Electrical Signals Based on Image Processing Technique</i>
	Amirkhashayar Naderian, Saeid Sanei, <i>Automated Bone Segmentation Using a Hybrid Model of DRLSE and Faster R-CNN</i>
	Piotr Wzorek, Tomasz Kryjak, <i>Traffic Sign Detection With Event Cameras and DCNN</i>
	Lee Sze Foo, Anissa Mokraoui, Fangchen Feng, Yoong Choon Chang, <i>Motion estimation algorithm based on decoded residual compensation: a proof-of-concept</i>
	Adam Konieczka, Julian Balcerk, Marcin Andrzejewski, Szymon Kaczmarek, Jakub Szczygieł, <i>Smart real-time multi-camera people locating system</i>
	Tomasz Marciniak, Agnieszka Stankiewicz, <i>Automated Classification of VMT Pathology from Optical Coherence Tomography B-scans</i>
18:00	<b>Welcome Party Banquet</b>

**September 22<sup>nd</sup>, 2022 (Thursday)**

<b>9:00-9:45</b>	<b>TUTORIAL IV:</b> Marcel Rupf, <i>On Digital Signal Processing for FMCW-MIMO-based Radar-Sensors</i>
9:45-10:00	<b>Coffee Break</b>
<b>10:00-11:30</b>	<b>SESSION 4: DSP Implementations</b> Chairman: Marcel Rupf
	Andrew Bolt, Carolyn Huston, Petra Kuhnert, Joel Janek Dabrowski, James Hilton, Conrad Sanderson, <i>A Spatio-Temporal Neural Network Forecasting Approach for Emulation of Firefront Models</i>
	Pavel Karpovich, Tomasz P. Zielinski, <i>Testing Zero-Padded OTFSM with Additional Pilot in High Doppler Transmission Scenarios</i>
	Reham Hatash, Ahmed Al Hilli, <i>Optimized Cluster Head Placement for Minimize Energy Consumption in Transmit-Only Wireless Sensor Networks</i>
	Erasmio Misael Rentería-Vargas, Carlos Jesús Zúñiga Aguilar, Jesse Yoe Rumbo Morales, Miguel De-La-Torre, José Antonio Cervantes, José Roberto Lomeli Huerta, Gerardo Ortiz Torres, Felipe De J. Sorcia Vázquez, René Osorio Sánchez, <i>Identification by Recurrent Neural Networks applied to a Pressure Swing Adsorption Process for Ethanol Purification</i>
	Hubert Szolc, Tomasz Kryjak, <i>Hardware-in-the-loop simulation of a UAV autonomous landing algorithm implemented in SoC FPGA</i>
	Michał Adamski, Agata Dąbrowska, Adam Dąbrowski, Adam Konieczka, <i>Analytics of air samples collected with an apparatus coupled to UAV in air quality monitoring</i>
<b>11:30-11:45</b>	<b>Coffee Break</b>
<b>11:45-12:30</b>	<b>Tutorial V:</b> Sanja Lazarova-Molnar, <i>Data-driven Simulation</i>
<b>12:30-13:45</b>	<b>SESSION 5: Image Processing 2</b> Chairman: Tomasz Marciniak
	Zbigniew Czaplą, <i>Location of Vehicles Using Edge and Surface Image Block Features</i>
	Jakub Suder, Kacper Podbucki, Tomasz Marciniak, Adam Dąbrowski, <i>Intelligent vision system for quality classification of airport lamp prisms</i>
	Julian Balcerek, Adam Konieczka, Paweł Pawłowski, Wojciech Rusinek, Wojciech Trojanowski, <i>Vision system for automatic recognition of selected road users</i>
	Piotr Góral, Paweł Pawłowski, Adam Dąbrowski, <i>Precise 3D vision based measurements of gear wheels</i>
	Julian Balcerek, Adam Dąbrowski, Paweł Pawłowski, Jędrzej Rusyniak, <i>Vision system for automatic recognition of Polish historic vehicles</i>
<b>13:45-14:00</b>	<b>Best Paper Award Ceremony</b>
<b>14:00-15:00</b>	<b>Lunch</b>
<b>16:00-18:00</b>	<b>Social Event - an old tram tour around Poznań</b>

**September 23<sup>rd</sup>, 2022 (Friday)**

<b>10:00-13:00</b>	<b>Visit in Enigma Cipher Centre museum</b>
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