

# MECHATRONICS 2018 - Reinventing Mechatronics

19-21 September 2018, Technology and Innovation Centre, 99 George Street, University of Strathclyde, Glasgow, UK, G1 1RD

Wednesday 19 September 2018								
<b>Time:</b>								
11:30	12:30	Registration and Buffet Lunch (Level 3 Mezzanine)						
12:30	12:45	Welcome Speech by Conference Chairs , (Room4-5)						
12:45	13:45	<p><b>Plenary 01 Reinventing Mechatronics or how to deal with Industry 4.0, IOT and Artificial Intelligence. A new Challenge? (Room4-5)</b>  <b>Session Chairperson: Prof. Xiu-Tian Yan</b></p> <p><b>Dr. Harald Wild, Professor for Control and Mechanics at Swiss Universities of Applied Sciences Switzerland, Senior Lecturer for Automation Technology at the Institute for Machine Tools and Manufacturing ETH Zurich, CEO of WildControls, Office for Drive Technology and Automation</b></p>						
13:45	14:30	<p><b>Session 01 – What is Mechatronics and future mechatronics? (Room4-5)</b>  <b>Session Chairperson: Prof. Phil Moore</b></p> <table border="0"> <tr> <td>David Bradley, David Russell, Peter Hehenberger, Stephen Watt, Christopher Milne &amp; Jorge Azorin-Lopez</td> <td>Mechatronics and The Cloud</td> </tr> <tr> <td>David Russell</td> <td>Mechatronics and the Internet of Things: A Solution or a Problem</td> </tr> </table>	David Bradley, David Russell, Peter Hehenberger, Stephen Watt, Christopher Milne & Jorge Azorin-Lopez	Mechatronics and The Cloud	David Russell	Mechatronics and the Internet of Things: A Solution or a Problem		
David Bradley, David Russell, Peter Hehenberger, Stephen Watt, Christopher Milne & Jorge Azorin-Lopez	Mechatronics and The Cloud							
David Russell	Mechatronics and the Internet of Things: A Solution or a Problem							
14:30	15:00	<b>Coffee Break and Refreshments (Level 3 Mezzanine)</b>						
15:00	16:00	<table border="0"> <tr> <td>Edward Simpson, David Bradley &amp; Peter Hehenberger</td> <td>Innovation and Failure in Mechatronics Design Education</td> </tr> <tr> <td>Martin Edin Grimheden &amp; Elias Flening</td> <td>Many Mechatronics: A discursive model of Mechatronics' definitions</td> </tr> <tr> <td>Martin Edin Grimheden &amp; Sulaymon Eshkabilov</td> <td>Development and Introduction of Mechatronics program in the example of five Uzbek universities</td> </tr> </table>	Edward Simpson, David Bradley & Peter Hehenberger	Innovation and Failure in Mechatronics Design Education	Martin Edin Grimheden & Elias Flening	Many Mechatronics: A discursive model of Mechatronics' definitions	Martin Edin Grimheden & Sulaymon Eshkabilov	Development and Introduction of Mechatronics program in the example of five Uzbek universities
Edward Simpson, David Bradley & Peter Hehenberger	Innovation and Failure in Mechatronics Design Education							
Martin Edin Grimheden & Elias Flening	Many Mechatronics: A discursive model of Mechatronics' definitions							
Martin Edin Grimheden & Sulaymon Eshkabilov	Development and Introduction of Mechatronics program in the example of five Uzbek universities							
<b>16:30-17:30pm 19th, Sept, 2018 - Welcome Drink Reception (Glasgow City Chamber)</b>								
Thursday 20 September 2018								
<b>Special Session What is the Future of Mechatronics in Manufacturing? (Room4-5)</b>								
<b>Mr. Alan Smith, General Manager, Beckhoff</b>								

09:00	11:00	<b>Flexible and Intelligent Industrial Robots towards Autonomous Manufacturing</b> <b>Dr. Erfu Yang</b> <b>University of Strathclyde</b> <b>Session Chairperson: Dr. Remi Zante</b>			
11:00	11:30	<b>Coffee Break and Refreshments (Level 3 Mezzanine)</b>			
11:30	12:30	<b>(Plenary 02 Reinventing Mechatronics for Extreme Environments (Room4-5))</b> <b>Mr. Stephen Sanders</b> <b>Director - Strategic Remote Operations Oxford Technologies Ltd</b> <b>Session Chairperson: Prof. David Russell</b>			
12:30	14:00	<b>Buffet Lunch (Level 3 Mezzanine)</b>			
14:00	15:00	<b>Session 02 - Medical Systems (Room 4)</b> <b>Session Chairperson: Prof. David Bradley</b>		<b>Session 03 - Simulation &amp; Modelling (Room 5)</b> <b>Session Chairperson: Dr. Martin Edin Grimheden</b>	
		Alireza Abouhossein, Uriel Martinez-Hernandez, Mohammed I. Awad, David Bradley & Abbas A. Dehghani-Sanij	Human-activity-centered measurement system: challenges from laboratory to the real environment in assistive gait wearable robotics	Jieren Ke, Xing Luo, Mark Dooner & Jihong Wang	A Mixed NN-numerical and Physical Modelling Approach for Compressed Air Energy Storage System Analysis
		Derya Yilmaz & Abbas Dehghani-Sanij	A review of assistive robotic exoskeletons and mobility disorders in children to establish requirements of such devices for paediatric population	Georges Tod, Klaas Gadeyne, Jan Goos, Ahmed Abdallah & Maarten Witters	Towards Robust Hybrid Electric Vehicle Computational Design Synthesis
		Imran Mahmood, Uriel Martinez-Hernandez & Abbas A. Dehghani-Sanij	Gait Dynamic Stability Analysis for simulated Ankle-foot impairments and Bipedal robotics applications	Mark Dooner & Jihong Wang	Surface Charge Modelling and Simulation of the Magnetic Field in a Novel Magnetized Scroll Air Expander
15:00	15:30	<b>Coffee Break and Refreshments (Level 3 Mezzanine)</b>			
15:30	17:00	<b>Session 04 - Autonomous Vehicles &amp; Drones (Room 4)</b> <b>Session Chairperson: Dr. Harald Wild</b>		<b>Session 05 - Autonomous Vehicles &amp; Drones (Room 5)</b> <b>Session Chairperson: Prof. Abbas A. Dehghani-Sanij</b>	
		Hongzhao Zhou, Andrew Plummer & David Cleaver	Distributed Actuation of Tensegrity Structures for Morphing Aircraft wings	Yves Lemmens, Marco Grottole & Anne van der Heide	A human-in-the-loop simulation platform for the validation of advanced driver assistance systems
		Markus Pichler-Scheder, Reinhard Ritter, Christian Lindinger, Robert Amerstorfer and Roland Edelbauer	Robust On-Line Polynomial Path Planning for Agricultural Vehicles in Greenland Farming	Matthias Konz, David Kastelan, Daniel Gerbet & Joachim Rudolph	Practical Challenges of Fully-Actuated Tricopter Control
		Omar Rashed, Mohamed Abdellatif, Sameh Shabaan & Abdulaziz Morgan	Online Ocean Current Estimation and Mapping for Autonomous Underwater Vehicle	Xue Li, Sijia Cao, Zhishu Xu, Guangxue Li and Xiutian Yan	SOC Estimation for Lithium Battery Based on Segmented Model UKF Filter
		Xiu T. Yan, Mark A. Post, Alessandro Bianco, Cong Niu, Roberto Palazzetti, Ying Lu, Craig Melville, Aron Kisdi, Wayne Tubby	The AgriRover: a Mechatronic Platform from Space Robotics for Precision Farming		
19:30	22:00	<b>Conference Dinner - Principal Grand Central Hotel, Glasgow</b>			

## Friday 21 September 2018

		<b>Session 06 - Sensors &amp; Actuators (Room 4)</b> <b>Session Chairperson: Prof. Jorge Solis</b>	<b>Session 07 - Sensors &amp; Actuators (Room 5)</b> <b>Session Chairperson: Prof. Seul Jung</b>
<b>09:00</b>	<b>10:00</b>	<p>Immanuel Voigt, Welf-Guntram Drossel, André Bucht, Stefan Winkler &amp; Ralf Werner</p> <p>Latent heat storages with shape memory alloy thermal switch for thermal error compensation on linear direct drive</p> <p>Scott Brady &amp; Xiu Yan</p> <p>An engineering design tool capable of nurturing the development of new mechatronic actuators</p> <p>Ghazi Qaryouti and Tariq Younes</p> <p>Practical Investigation of an Ultrasonic Encoder</p>	<p>Sergey Sokolov , Andrey Boguslavsky &amp; Nikolay Beklemishev</p> <p>Unified Modular Vision Systems for Mobile Robots</p> <p>Keith A Lorenz, Laura M Justham &amp; Michael R Jackson</p> <p>Industrial Vision Based Process Monitoring for Laser Cladding</p> <p>Junqin Lin, Yu Liao, Yanbo Wang, Zhihong Chen and Binyan Liang</p> <p>A universal scheme for multi-robot SLAM in a complex environment</p>
<b>10:00</b>	<b>10:30</b>	<b>Coffee Break and Refreshments (Level 3 Mezzanine)</b>	
<b>10:30</b>	<b>11:30</b>	<b>Session 08 - Manufacturing (Room 4)</b> <b>Session Chairperson: Dr. Markus Pichler-Scheder</b>	<b>Session 09 - Control (Room 5)</b> <b>Session Chairperson: Prof. Sergey Sokolov</b>
<b>10:30</b>	<b>11:30</b>	<p>Abdullah Mohammed &amp; Lihui Wang</p> <p>A framework for human-robot collaborative assembly</p> <p>Albert Pötsch &amp; Andreas Springer</p> <p>From the Sensor to the Cloud: On the Deployment of Wireless Low Power Wide Area Networks for Industrial Communication</p> <p>Daniel Spescha, Sascha Weikert &amp; Konrad Wegener</p> <p>Simulation of the dynamic behaviour of machine tools</p>	<p>Frederik Debrouwere &amp; Mark Versteyhe</p> <p>Closed Loop Shaping for Robust PID Design using Sequential Convex Second Order Cone Programming</p> <p>Sang D Lee &amp; Seul Jung</p> <p>Synchronized Control of a Dual Control Moment Gyroscope in Scissored Pair Configuration</p> <p>Jorge Solis, Christoffer Karlsson &amp; Ann-Louise Lindborg</p> <p>Vision-based detection and positioning target for mobile robotic devices</p>
<b>11:30</b>	<b>11:45</b>	<b>Break</b>	
<b>11:45</b>	<b>12:45</b>	<p>Johanna Kubenke, Philip Roh &amp; Andreas Kunz</p> <p>Assessing the Efficiency of Information Retrieval from the Digital Shadow at the Shoop Floor using IT Assistive Systems</p> <p>Steffen Ihlenfeldt, Jens Müller, Marcel Merx &amp; Christoph Peukert</p> <p>A Novel Concept for Highly Dynamic Over-Actuated Lightweight Machine Tools</p> <p>Thomas McMaster &amp; Xiu Yan</p> <p>Development of a heat flow code to simulate production of a functionally graded material robotic gripper using the additive manufacture process</p>	<p>Frederik Debrouwere, Mark Versteyhe &amp; Stijn Debruyne</p> <p>Including the Stribeck friction curve in optimal path following motions</p> <p>Hyun W. Kim and Seul Jung</p> <p>Torque Evaluation of a Small Control Moment Gyroscope with Scissored Pair Configuration</p> <p>Sina Mohammadrezaei Nodeh, Mohammad Soltanshah, Mohammad Hasan Ghasemi &amp; Xuping Zhang</p> <p>Combination of interval Type 2 Fuzzy Logic and High Order Sliding Mode Control for Robotic Manipulators with Parametric Uncertainties and Perturbations</p>
<b>13:00</b>	<b>13:30</b>	<b>MECHATRONICS 2018 Close. Enjoy your stay in Glasgow and have a safe journey home</b>	