Technical Program of 2013 IEEE/ASME International Conference on Advanced Intelligent Mechatronics

Technical Program for Wednesday July 10, 2013

WeAT1	Throsby
Mobile Robots (Regular Session)	
Chair: Hashimoto, Hideki	Chuo Univ.
Co-Chair: Hirai, Shinichi	Ritsumeikan Univ.
08:30-08:50	WeAT1.1
The Collective Self-Reconfigurable Modular Organism (CoSMO), pp. 1-6. Attachment	
Liedke, Jens	Karlsruhe Inst. of Tech. - KIT
Matthias, Rene	Karlsruhe Inst. of Tech. (KIT)
Winkler, Lutz	Karlsruhe Inst. of Tech. (KIT)
Woern, Heinz	Karlsruhe Inst. of Tech. (KIT)
08:50-09:10	WeAT1.2
Isotropic Optical Mouse Placement for Mobile Robot Velocity Estimation, pp. 7-12.	
Kim, Sungbok	Hankuk Univ. of Foreign Studies
09:10-09:30	WeAT1.3
Hybrid Dijkstra-PSO Algorithm for Motion Planning of Non-Holonomic Platforms in Dense Contexts, pp. 13-18.	
Pereida Perez, Karime	Univ. of New South Wales
Guivant, Jose	Univ. of New South Wales
09:30-09:50	WeAT1.4
Active Shaping of a Tensegrity Robot Via Pre-Pressure, pp. 19-25.	
Hirai, Shinichi	Ritsumeikan Univ.
Koizumi, Yuusuke	Ritsumeikan Univ.
Shibata, Mizuho	Kinki Univ.
Wang, Minghui	Shenyang Inst. of Automation, Chinese Acad. of Sciences
Li, Bin	Shenyang Inst. of Automation, Chinese Acad. of Sciences
09:50-10:10	WeAT1.5
Interplay of Theory and Experiment in Analysis of the Advantage of the Novel Semi-Elliptical Leg Moving on Loose Soil, pp. 26-31.	
Xu, Lichao	Univ. of Science and Tech. of China
Liang, Xu	Univ. of Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Liu, Bo	Univ. of Science and Tech. of China
Zhang, Shiwu	Univ. of Science and Tech. of China
10:10-10:30	WeAT1.6
Formation Control of Mobile Robots Using Decentralized Nonlinear Model Predictive Control, pp. 32-37.	
Trindade Ribeiro, Tiago	Federal Univ. of Bahia
Ferrari, Rafael	Federal Univ. of Bahia
Santos, Jessivaldo	Feral Univ. of Bahia
Scolari Conceicao, Andre Gustavo	Federal Univ. of Bahia

WeAT2	McCabe
Biomechatronics (Regular Session)	
Chair: Sun, Dong	City Univ. of Hong Kong
Co-Chair: Li, Weihua	Univ. of Wollongong
08:30-08:50	WeAT2.1
Mechanics-Based Modeling of Needle Insertion into Soft Tissue, pp. 38-43.	
Wang, Jianjun	Univ. of Science and Tech. of China
Li, Xiangpeng	City Univ. of Hong Kong
Zheng, Jinjin	Univ. of Science and Tech. of China
Sun, Dong	City Univ. of Hong Kong
08:50-09:10	WeAT2.2
Research on the Structure of Bio-Inspired Bacterial Flagellum Propeller, pp. 44-49.	
Chen, Bai	Nanjing Univ. of Aeronautics and Astronautics
Li, Yajuan	Nanjing Univ. of Aeronautics and Astronautics
Wang, Peng	Nanjing Univ. of Aeronautics and Astronautics
Wang, Ling	Nanjing Univ. of Aeronautics and Astronautics
Wu, Hongtao	Nanjing Univ. of Aeronautics and Astronautics
Jiang, Surong	Nanjing Univ. of Aeronautics and Astronautics
09:10-09:30	WeAT2.3
A Magnetically Actuated Endoscopic Capsule Robot Based on a Rolling Locomotion Mechanism, pp. 50-55. Attachment	
Maul, Lance Robert	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong
09:30-09:50	WeAT2.4
Design and Postural Synergy Synthesis of a Prosthetic Hand for a Manipulation Task, pp. 56-62.	
Xu, Kai	Shanghai Jiao Tong Univ.
Zhao, Jiangran	Shanghai Jiao Tong Univ.
Du, Yuheng	Shanghai Jiao Tong Univ.
Sheng, Xinjun	Shanghai Jiao Tong Univ.
Zhu, Xiangyang	Shanghai Jiao Tong Univ.
09:50-10:10	WeAT2.5
An Endoscopic Continuum Testbed for Finalizing System Characteristics of a Surgical Robot for NOTES Procedures, pp. 63-70. Attachment	
Zhao, Jiangran	Shanghai Jiao Tong Univ.
Zheng, Xidian	Shanghai Jiao Tong Univ.
Zheng, Minhua	Shanghai Jiao Tong Univ.
Shih, Albert J.	Univ. of Michigan, Ann Arbor
Xu, Kai	Shanghai Jiao Tong Univ.
10:10-10:30	WeAT2.6
An Investigation into Biomechanical and Biotribological Properties of a Real Intestine for Design of a Spiral-Type Robotic Capsule, pp. 71-76.	
Zhou, Hao	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong
Than, Trung	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong

WeAT3	Hoskins
Advances in Micro and Nano-Scale Positioning Systems: Design and Control (Invited Session)	
Chair: Gravdahl, Jan Tommy	Norwegian Univ. of Science and Tech.
Co-Chair: Xi, Ning	Michigan State Univ.
Organizer: Yong, Yuen Kuan	The Univ. of Newcastle
Organizer: Rakotondrabe, Micky	FEMTO-st Inst. UMR CNRS 6174 - UFC / ENSMM / UTBM
08:30-08:50	WeAT3.1
Multi-Mode Resonant Control of a Microcantilever for Atomic Force Microscopy (I), pp. 77-82.	
Ruppert, Michael G.	The Univ. of Newcastle, Australia
Fairbairn, Matthew W.	The Univ. of Newcastle, Australia
Moheimani, S. O. Reza	The Univ. of Newcastle, Australia
08:50-09:10	WeAT3.2
Thermal Analysis of Piezoelectric Benders with Laminated Power Electronics (I), pp. 83-88. Attachment	
Fleming, Andrew J.	Univ. of Newcastle
Yong, Yuen Kuan	The Univ. of Newcastle
09:10-09:30	WeAT3.3
Prior Knowledge Based Fast Imaging for Scanning Ion Conductance Microscopy (I), pp. 89-93.	
Li, Peng	Shenyang Inst. of Automation, Chinese Acad. of Sciences
Zhang, Changlin	Shenyang Inst. of Automation, Chinese Acad. of Sciences
Liu, Lianqing	Shenyang Inst. of Automation
Wang, Yuechao	Shenyang Inst. of Automation
Xi, Ning	Michigan State Univ.
Wejinya, Uchechukwu C.	Univ. of Arkansas
Li, Guangyong	Univ. of Pittsburgh
09:30-09:50	WeAT3.4
Design of a Nonlinear Damping Control Scheme for Nanopositioning (I), pp. 94-99.	
Vagia, Marialena	Norwegian Univ. of Science and Tech.
Eielsen, Arnfinn Aas	Norwegian Univ. of Science and Tech.
Gravdahl, Jan Tommy	Norwegian Univ. of Science and Tech.
Pettersen, Kristin Y.	Norwegian Univ. of Science and Tech.
09:50-10:10	WeAT3.5
A Vision-Based Measurement Algorithm for Micro/Nano Manipulation, pp. 100-105. Attachment	
Clark, Leon	Monash Univ.
Shirinzadeh, Bijan	Monash Univ.
Bhagat, Umesh	Monash Univ.
Smith, Julian	Monash Univ.
10:10-10:30	WeAT3.6
Modelling a Precision Loadcell Using Neural Networks for Vision-Based Force Measurement in Cell Micromanipulation, pp. 106-110.	
Karimirad, Fatemeh	Monash Univ.
Shirinzadeh, Bijan	Monash Univ.
Zhong, Yongmin	Monash Univ.
Smith, Julian	Monash Univ.
Mozafari, Mohammadreza	Australasian Nanoscience and Nanotechnology Initiative

WeAT4	Kembla
Actuators (Regular Session)	
Chair: Chaillet, Nicolas	Univ. of Franche-Comté
Co-Chair: Bae, Joonbum	UNIST
08:30-08:50	WeAT4.1
A Methodology to Establish a Hysteresis Model for Trilayer Conducting Polymer Actuators, pp. 111-116.	
Wang, Xiangjiang	the School of Mechanical Engineering, Univ. of South China
Alici, Gursel	Univ. of Wollongong
Nguyen, Chuc	Wollongong Univ.
08:50-09:10	WeAT4.2
A Rotary Joint Based on Dielectric Elastomer, pp. 117-121.	
Wang, Huaming	NUAA
Guo, Hao	NUAA
Luan, Yunguang	NUAA
Oetomo, Denny	The Univ. of Melbourne
09:10-09:30	WeAT4.3
A New Mobile Pressure Control System for Pneumatic Actuators Using Reversible Chemical Reactions of Water, pp. 122-127.	
Suzumori, Koichi	Okayama Univ.
Wada, Akira	Okayama Univ.
Wakimoto, Shuichi	Okayama Univ.
09:30-09:50	WeAT4.4
3-D Finite-Element Analysis of Fiber-Reinforced Soft Bending Actuator for Finger Flexion, pp. 128-133.	
Mohd Nordin, Ili Najaa Aimi	Faculty of Electrical Engineering, Univ. Teknologi Malaysia
M. Razif, M. Rusydi	Univ. Teknologi Malaysia
Mohd Faudzi, Ahmad `Athif	Univ. Teknologi Malaysia
Natarajan, Elango	Univ. Teknologi Malaysia
Iwata, Kazuhiro	Okayama Univ.
Suzumori, Koichi	Okayama Univ.
09:50-10:10	WeAT4.5
Model-Based Fault Detection of Modular and Reconfigurable Robots with Joint Torque Sensing, pp. 134-139.	
Ahmad, Saleh	Ryerson Univ.
Liu, Guangjun	Ryerson Univ.
10:10-10:30	WeAT4.6
Duo-Bimorph Actuator Made of PMN-PT [011]: 3D Modeling, Development and Characterization, pp. 140-145.	
Ivan, Ioan Alexandru	FEMTO-ST Inst.
Ciubotariu, Dragos Adrian	Femto-ST Inst. / Univ. Franche-Comte / "Valahia" Univ.
Clévy, Cédric	Franche-Comté Univ.
Lutz, Philippe	FEMTO-ST - UMR CNRS 6174 - UFC/ENSMM/UTBM
Chaillet, Nicolas	Univ. of Franche-Comté

WeAT5	Keira
Control Applications in Mechatronics (Regular Session)	
Chair: Yang, Guilin	Singapore Inst. of Manufacturing Tech.
Co-Chair: Dötlinger, Alexander	Tech. Univ. München
08:30-08:50	WeAT5.1
Control of an 2-DOF Electromagnetic Actuator for High Precision and High-Throughput Pick-And-Place Tasks, pp. 146-151.	
Chen, Silu	Singapore Inst. of Manufacturing Tech.
Teo, Tat Joo	Singapore Inst. of Manufacturing Tech.
Yang, Guilin	Singapore Inst. of Manufacturing Tech.
08:50-09:10	WeAT5.2
Receding Horizon Based Trajectory Planning for Biaxial Systems, pp. 152-157.	
Dötlinger, Alexander	Tech. Univ. München
Kennel, Ralph	Tech. Univ. München
09:10-09:30	WeAT5.3
Development of a Pneumatically Driven Flight Simulator Stewart Platform Using Motion and Force Control, pp. 158-163.	
Pradipta, Justin	Univ. of Stuttgart
Klünder, Mario	Univ. Stuttgart, Inst. für Systemdynamik
Weickgenannt, Martin	ISYS Uni-Stuttgart
Sawodny, Oliver	Univ. of Stuttgart
09:30-09:50	WeAT5.4
Precision Motion Control of a Linear Piezoelectric Ultrasonic Motor Stage, pp. 164-169.	
Liang, Wenyu	National Univ. of Singapore
Huang, Sunan	National Univ. of Singapore
Chen, Silu	Singapore Inst. of Manufacturing Tech.
Tan, Kok-Kiong	National Univ. of Singapore
09:50-10:10	WeAT5.5
Robust Precision Positioning Control on Linear Ultrasonic Motor, pp. 170-175.	
Tan, Kok-Kiong	National Univ. of Singapore
Nguyen, Minh H-T	National Univ. of Singapore
Liang, Wenyu	National Univ. of Singapore
Teo, Chek Sing	SIMTech
10:10-10:30	WeAT5.6
P-Adaptive Neuro-Fuzzy and PD-Fuzzy Controller Design for Position Control of a Modified Single Acting Pneumatic Cylinder, pp. 176-181.	
Azman, M. Asyraf	Univ. Teknologi Malaysia
Mohd Faudzi, Ahmad `Athif	Univ. Teknologi Malaysia
Elnimair, M. Omer	Univ. Teknologi Malaysia
Hikmat, Omer F	Univ. Teknologi Malaysia
Osman, Khairuddin	Univ. Teknikal Malaysia Melaka
Chai, Chang Kai	Univ. Teknologi Malaysia

WeAT6	Belmore
Human-Machine Interfaces (Regular Session)	
Chair: Dubey, Rajiv	Univ. of South Florida
Co-Chair: Peng, Zhongxiao	The Univ. of New South Wales
08:30-08:50	WeAT6.1
Powered Finger Exoskeleton Having Partially Open Fingerpad for Flexion Force Assistance, pp. 182-187.	
Heo, Pilwon	KAIST
Kim, Sangjoon J.	KAIST
Kim, Jung	KAIST
08:50-09:10	WeAT6.2
A Vision Based P300 Brain Computer Interface for Grasping Using a Wheelchair-Mounted Robotic Arm, pp. 188-193. Attachment	
Pathirage, Indika Upashantha	Univ. of South Florida
Khokar, Karan	Univ. of South Florida
Klay, Elijah	Univ. of South Florida
Alqasemi, Redwan	Univ. of South Florida
Dubey, Rajiv	Univ. of South Florida
09:10-09:30	WeAT6.3
Development of an Expert System for Automatic Osteoarthritis Diagnosis Using Numerical Characterisation of Articular Cartilage and Wear Particles, pp. 194-198.	
Tian, Yuan	James Cook Univ.
Peng, Zhongxiao	The Univ. of New South Wales
Liu, Xiulei	Henan Univ.
09:30-09:50	WeAT6.4
Design and Analysis of an Event Indicator Function Classifier for Immune Cell Tracking Applications, pp. 199-205.	
Konda, Ravikanth	NICTA/THE Univ. OF MELBOURNE
09:50-10:10	WeAT6.5
Compact Human-Machine Interface Using Surface Electromyography, pp. 206-211.	
Simmons, Luke Peter	Univ. of Newcastle, Australia
Welsh, James	Univ. of Newcastle, Australia
10:10-10:30	WeAT6.6
Sensor Based Operation of Google Street View in Ipad, pp. 212-216.	
Kanehira, Ayumi	Hokkaido Univ.
Kawamura, Hidenori	Hokkaido Univ.
Suzuki, Keiji	Hokkaido Univ.

WeAT7	Pacific 2/3
Compliant Mechanisms for Mechatronics and Manufacturing Applications (Invited Session)	
Chair: Lee, Kok-Meng	Georgia Inst. of Tech.
Co-Chair: Guo, Jiajie	Huazhong Univ. of Science and Tech.
Organizer: Guo, Jiajie	Huazhong Univ. of Science and Tech.
Organizer: Lan, Chao-Chieh	National Cheng Kung Univ.
Organizer: Lee, Kok-Meng	Georgia Inst. of Tech.
08:30-08:50	WeAT7.1
Design of a Miniature Manipulator Actuated by Antagonistic Shape Memory Alloys (I), pp. 217-222.	
Lai, Chih Ming	National Cheng Kung Univ.
Chu, Cheng-Yu	National Cheng Kung Univ.
Lan, Chao-Chieh	National Cheng Kung Univ.
08:50-09:10	WeAT7.2
Dynamic Analysis of the Demolding Process for PDMS Microstructures with High Aspect Ratio (I), pp. 223-228.	
Liu, Chih-Hsing	A*STAR-Singapore Inst. of Manufacturing Tech.
Chen, Wenjie	Singapore Inst. of Manufacturing Tech.
09:10-09:30	WeAT7.3
Design of a New R-P Compliant Joint (I), pp. 229-234.	
Meng, Qiaoling	Univ. of Macau
Li, Yangmin	Univ. of Macau/Tianjin Univ. Tech.
09:30-09:50	WeAT7.4
Equivalent Pin Models for Dynamic Analysis of Compound Rigid-Flexure Multi-Body Systems (I), pp. 235-240.	
Guo, Jiajie	Huazhong Univ. of Science and Tech.
Lee, Kok-Meng	Georgia Inst. of Tech.
09:50-10:10	WeAT7.5
Multi-Objective Topology Optimization of Compliant Mechanism for Fast Tool Servo (I), pp. 241-246.	
Zhuang, ChunGang	Shanghai Jiao Tong Univ.
Xu, Mennan	Shanghai Jiao Tong Univ.
Xiong, Zhenhua	Shanghai Jiao Tong Univ.
10:10-10:30	WeAT7.6
A Hybrid Topological and Structural Optimization Method to Design a 3-DOF Planar Motion Compliant Mechanism (I), pp. 247-254.	
Lum, Guo Zhan	Nanyang Tech. Univ. and Carnegie Mellon Univ.
Teo, Tat Joo	Singapore Inst. of Manufacturing Tech.
Yang, Guilin	Singapore Inst. of Manufacturing Tech.
Yeo, Song Huat	Nanyang Tech. Univ.
Sitti, Metin	Mechanical Engineering Department and Robotics Inst.

WeBT1	Throsby
Mobile Robots II (Regular Session)	
Chair: Bae, Joonbum	UNIST
Co-Chair: Wada, Masayoshi	Tokyo Univ. of Agriculture and Tech.

13:30-13:50 WeBT1.1

Bounded-Velocity Motion Control of Four Wheel Steered Mobile Robots, pp. 255-260.

Oftadeh, Reza	Tampere Univ. of Tech.
M. Aref, Mohammad	Tampere Univ. of Tech.
Ghabcheloo, Reza	Univ. of Tampere
Mattila, Jouni	Tampere Univ. of Tech.

13:50-14:10 WeBT1.2

Tetraspine: Robust Terrain Handling on a Tensegrity Robot Using Central Pattern Generators, pp. 261-267. Attachment

Tietz, Brian R.	Case Western Res. Univ.
Carnahan, Ross W.	Case Western Res. Univ.
Bachmann, Richard J.	BioRobots, LLC
Quinn, Roger, D.	Case Western Res. Univ.
SunSpiral, Vytas	Stinger Ghaffarian Tech.

14:10-14:30 WeBT1.3

Path-Following Control for Multi-Axle Car-Like Wheeled Mobile Robot with Nonholonomic Constraint, pp. 268-273.

Li, Yunhua	BeiHang Univ.
He, Liuyu	Beihang Univ.
Yang, Liman	BeiHang Univ.

14:30-14:50 WeBT1.4

Traction Analysis for Active-Caster Omnidirectional Robotic Drive with a Ball Transmission (ACROBAT), pp. 274-279.

Wada, Masayoshi	Tokyo Univ. of Agriculture and Tech.
Hirama, Takahiro	Tokyo Univ. of Agriculture and Tech.

14:50-15:10 WeBT1.5

Modular Home Robot System Based on the MMM Concept –Design Instance with Detachable Symmetric Arm Module–, pp. 280-285. Attachment

Tsuchiya, Takahito	Tokyo City Univ.
Shiraki, Yohei	Tokyo City Univ.
Sekido, Sachi	Tokyo city Univ.
Yamamoto, Akihiro	Tokyo City Univ.
Sato, Daisuke	Tokyo City Univ.
Nenchev, Dragomir	Tokyo City Univ.

15:10-15:30 WeBT1.6

Hardware and Software Architecture of the Bimanual Mobile Manipulation Robot HoLLiE and Its Actuated Upper Body, pp. 286-292.

Hermann, Andreas	Res. Center for Information Tech. (FZI)
Sun, Jian	Res. Center for Information Tech. (FZI)
Xue, Zhixing	Res. Center for Information Tech. (FZI)
Ruehl, Steffen Wilhelm	Res. Center for Information Tech. (FZI)
Oberländer, Jan	Res. Center for Information Tech. (FZI)
Roennau, Arne	Res. Center for Information Tech. (FZI)
Zöllner, Johann Marius	Res. Center for Information Tech. (FZI)
Dillmann, Rüdiger	KIT Karlsruhe Inst. for Tech.

WeBT2	McCabe
Biomechatronics II (Regular Session)	
Chair: Stirling, David	Univ. of Wollongong
Co-Chair: Liao, Wei-Hsin	The Chinese Univ. of Hong Kong
13:30-13:50	WeBT2.1
Kinematics and Dynamics Analysis of a Hybrid Parallel-Serial Micromanipulator Designed for Biomedical Applications, pp. 293-299. Attachment	
Nasseri, M. Ali	Tech. Univ. Muenchen
Eder, Martin	TU Munich
Daniel, Eberts	TU Muenchen
Nair, Suraj	fortiss An-Inst. der Tech. Univ. Muenchen
Maier, Mathias	Klinikum rechts der Isar der TU München
Zapp, Daniel	Klinikum rechts der Isar der TU München
Lohmann, Chris P.	Klinikum rechts der Isar der TU München
Knoll, Alois	TU Munich
13:50-14:10	WeBT2.2
Development of a 7-DOF Manipulator Actuated by Straight-Fiber-Type Pneumatic Artificial Muscle, pp. 300-306.	
Tanaka, Dai	Chuo Univ.
Kamo, Daichi	Chuo Univ.
Watanabe, Takumi	Chuo Univ.
Maehara, Masanori	Chuo-u Univ.
Nakamura, Taro	Chuo Univ.
14:10-14:30	WeBT2.3
Assessing the Impact of Fatigue on Gait Using Inertial Sensors, pp. 307-312.	
Ameli, Sina	Univ. of Wollongong
Stirling, David	Univ. of Wollongong
14:30-14:50	WeBT2.4
Fabrication of Arc-Shaped 3D Electrodes for Biomedical Devices, pp. 313-318.	
Li, Shunbo	Department of Physics, Hong Kong Univ. of Science and Tech.
Li, Ming	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
Wen, Weijia	Department of Physics, Hong Kong Univ. of Science and Tech.
14:50-15:10	WeBT2.5
A Wave Energy Conversion Mechanism Applied in Robotic Fishes, pp. 319-324.	
Zhu, Weijing	Univ. of Science and Tech. of China
Wang, Xudong	Univ. of Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Yang, Jie	Univ. of Science and Tech. of China
Si, Ting	Univ. of Science and Tech. of China
Zhang, Shiwu	Univ. of Science and Tech. of China
15:10-15:30	WeBT2.6
Center of Gravity Balance Approach Based on CPG Algorithm for Locomotion Control of a Quadruped Robot, pp. 325-329.	
Teng, Long	Beihang Univ.
Wu, Xingming	Beihang Univ.
Chen, Weihai	Beijing Univ. of Aeronaurics and Astronautics
Wang, Jianhua	Beijing Univ. of Aeronautics and Astronautics

WeBT3	Hoskins
Micro-Electro-Mechanical Systems (Regular Session)	
Chair: Fowler, Anthony	Univ. of Newcastle
Co-Chair: Cherubini, Giovanni	IBM Res. - Zurich
13:30-13:50	WeBT3.1
A MEMS Electromagnetic Energy Harvester Using Ultrasonic Excitation, pp. 330-334.	
Fowler, Anthony	Univ. of Newcastle
Moheimani, S. O. Reza	The Univ. of Newcastle
Behrens, Sam	CSIRO Energy Tech.
13:50-14:10	WeBT3.2
Design, Fabrication and Characterization of a High-Bandwidth 2DOF MEMS Nanopositioner, pp. 335-340.	
Maroufi, Mohammad	The Newcastle Univ.
Moheimani, S. O. Reza	The Univ. of Newcastle
14:10-14:30	WeBT3.3
Geometry-Aided MEMS Motion State Estimation for Multi-Body Manipulators, pp. 341-347. Attachment	
Vihonen, Juho	Tampere Univ. of Tech.
Honkakorpi, Janne	Tampere Univ. of Tech.
Mattila, Jouni	Tampere Univ. of Tech.
Visa, Ari	Tampere Univ. of Tech.
14:30-14:50	WeBT3.4
Design, Modeling, and Characterization of a MEMS Micro-Gripper with an Integrated Electrothermal Force Sensor, pp. 348-353.	
Piriyanont, Busara	The Univ. of Newcastle
Moheimani, S. O. Reza	The Univ. of Newcastle
14:50-15:10	WeBT3.5
Micro-Electromechanical System Sensors in Unscented Kalman Filter-Based Condition Monitoring of Hydraulic Systems, pp. 354-361.	
Nurmi, Jarmo	Tampere Univ. of Tech.
Honkakorpi, Janne	Tampere Univ. of Tech.
Vihonen, Juho	Tampere Univ. of Tech.
Mattila, Jouni	Tampere Univ. of Tech.
15:10-15:30	WeBT3.6
Dielectrophoretic Manipulation and Separation of Microparticles in an S-Shaped Microchannel Integrated with Multiple Hurdles, pp. 362-366.	
Li, Ming	Univ. of Wollongong
Li, Shunbo	Hong Kong Univ. of Science and Tech.
Li, Weihua	Univ. of Wollongong
Wen, Weijia	Hong Kong Univ. of Science and Tech.
Alici, Gursel	Univ. of Wollongong

WeBT4	Kembla
Actuators II (Regular Session)	
Chair: Yavuz, Mustafa	Univ. of Waterloo
Co-Chair: Li, Yangmin	Univ. of Macau
13:30-13:50	WeBT4.1
System Dynamics Modeling and Prototype Investigation of a New SMA-Electric Motor Hybrid Linear Actuator, pp. 367-372.	
Dong, Erbao	Univ. of Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Zhang, Shiwu	Univ. of Science and Tech. of China
Yang, Jie	Univ. of Science and Tech. of China
13:50-14:10	WeBT4.2
Neuro-Fuzzy Control of Electroactive Polymer Actuators, pp. 373-380.	
Druitt, Christopher Mark	BAE Systems Australia
Alici, Gursel	Univ. of Wollongong
14:10-14:30	WeBT4.3
Design and Experimental Testing of an Adaptive Magneto-Rheological Elastomer Base Isolator, pp. 381-386.	
Li, Yancheng	Univ. of Tech. Sydney
Li, Jianchun	Univ. of Tech. Sydney
Li, Weihua	Univ. of Wollongong
14:30-14:50	WeBT4.4
Power-Optimized Stiffness and Nonlinear Position Control of an Actuator with Variable Torsion Stiffness, pp. 387-392.	
Beckerle, Philipp	Tech. Univ. Darmstadt
Wojtusch, Janis Nikolas Harald	TU Darmstadt
Schuy, Jochen	Tech. Univ. Darmstadt
Strah, Bruno	Tech. Univ. Darmstadt
Rinderknecht, Stephan	TU Darmstadt
von Stryk, Oskar	Tech. Univ. Darmstadt
14:50-15:10	WeBT4.5
Transient Performance Investigation of a Self-Driven Adaptive Thermostatic Valve for Single-Phase Space Thermal Control Loop, pp. 393-398.	
Wang, Jin	beihang Univ.
Li, Yun-Ze	Beihang Univ.
Wang, Jun	Beihang Univ.
15:10-15:30	WeBT4.6
A Mechatronic Approach for Robust Stiffness Estimation of Variable Stiffness Actuators, pp. 399-404.	
Cirillo, Andrea	Seconda Univ. degli Studi di Napoli
De Maria, Giuseppe	Seconda Univ. degli Studi di Napoli
Natale, Ciro	Seconda Univ. degli Studi di Napoli
Pirozzi, Salvatore	Seconda Univ. degli Studi di Napoli

WeBT5	Keira
Control Applications in Mechatronics II (Regular Session)	
Chair: Li, Weihua	Univ. of Wollongong
Co-Chair: Paz, Robert	New Mexico State Univ.
13:30-13:50	WeBT5.1
Autobalancing Control for a Reduced Gravity Simulator, pp. 405-410. Attachment	
Paz, Robert	New Mexico State Univ.
Barajas, José	New Mexico State Univ.
Ma, Ou	New Mexico State Univ.
13:50-14:10	WeBT5.2
Control of Metal Hydride Reactor Coupled with Thermoelectric Module Via Fuzzy Adaptive PID Controller, pp. 411-416.	
Nuchkrua, Thanana	School of Manufacturing System and Mechanical Engineering Sirind
Leephakpreeda, Thananchai	Sirindhorn International Inst. of Tech. Thammasat Univ.
14:10-14:30	WeBT5.3
Multivariable PID Parameters Tuning Method Based on Model Matching on Frequency Domain for Aero-Engine, pp. 417-422.	
Liu, Nan	Nanjing Univ. of Aeronautics and Astronautics
Huang, Jinquan	Nanjing Univ. of Aeronautics and Astronautics
Lu, Feng	Nanjing Univ. of Aeronautics and Astronautics
14:30-14:50	WeBT5.4
Modeling and Control of Magnetic Flexible Rotor Bearing System, pp. 423-428.	
Toh, Chow-Shing	Advanced Inst. of Manufacturing with High-Tech. Innovations,
Chen, Shyh-Leh	Advanced Inst. of Manufacturing with High-Tech. Innovations,
14:50-15:10	WeBT5.5
Estimation of Discontinuous Friction Using Continuous-Discrete Unscented Kalman Filter for Adaptive Compensation, pp. 429-435.	
Srang, Sarot	Tokyo Inst. of Tech.
Yamakita, Masaki	Tokyo Inst. of Tech.
15:10-15:30	WeBT5.6
Decentralized and Dynamic Routing for a Cognitive Conveyor, pp. 436-441.	
Krühn, Tobias	Leibniz Univ. Hannover, Inst. of Transport and Automation Te
Radosavac, Misel	Leibniz Univ. Hannover, Inst. of Transport and Automation Te
Overmeyer, Ludger	Leibniz Univ. Hannover, Inst. of Transport and Automation Te
Shchekutin, Nikita	Leibniz Univ. Hannover, Inst. of Transport and Automation Te

WeBT6	Belmore
Human-Machine Interfaces II (Regular Session)	
Chair: Niitsuma, Mihoko	Chuo Univ.
Co-Chair: Yi, Jingang	Rutgers Univ.
13:30-13:50	WeBT6.1
Modeling of Rider-Bicycle Interactions with Learned Dynamics on Constrained Embedding Manifolds, pp. 442-447.	
Chen, Kuo	Rutgers Univ.
Zhang, Yizhai	Rutgers Univ.
Yi, Jingang	Rutgers Univ.
13:50-14:10	WeBT6.2
Filter Optimization for Human - Machine Interaction in Aviation, pp. 448-452.	
Boril, Jan	Univ. of Defence, Faculty of Military Tech. Kounicova
Zaplatilek, Karel	Univ. of Defence, Faculty of Military Tech. Kounicova
Jalovecky, Rudolf	Univ. of Defence, Faculty of Military Tech. Kounicova
14:10-14:30	WeBT6.3
Teaching-Playback Robot Manipulator System in Consideration of Singularities, pp. 453-458. Attachment	
Yong, Yoon Seong	The Univ. of Tokyo
Huang, Yanjiang	The Univ. of Tokyo
Chiba, Ryosuke	Tokyo Metropolitan Univ.
Arai, Tamio	Shibaura Inst. of Tech.
Ueyama, Tsuyoshi	DENSO WAVE INCORPORATED
Ota, Jun	The Univ. of Tokyo
14:30-14:50	WeBT6.4
Interactive Programming of a Mechatronic System: A Small Humanoid Robot Example, pp. 459-464. Attachment	
Wasielica, Mikolaj	Poznan Univ. of Tech.
Wasik, Marek	Poznan Univ. of Tech.
Kasinski, Andrzej J.	Poznan Univ. of Tech.
Skrzypczynski, Piotr	Poznan Univ. of Tech.
14:50-15:10	WeBT6.5
Bayesian Human Intention Estimator for Exoskeleton System, pp. 465-470.	
Cheng, Ching-An	National Taiwan Univ.
Huang, Tzu-Hao	National Taiwan Univ.
Huang, Han-Pang	National Taiwan Univ.
15:10-15:30	WeBT6.6
Evaluation of Smart Electric Wheelchair Operation Based on Directional Input from User and Mobile Robot Navigation, pp. 471-476.	
Sakamaki, Sota	Chuo Univ.
Niitsuma, Mihoko	Chuo Univ.

WeBT7	Pacific 2/3
Mechatronic System Design and Applications (Regular Session)	
Chair: Nahavandi, Saeid	Deakin Univ.
Co-Chair: Yao, Bin	Purdue Univ.
13:30-13:50	WeBT7.1
Mutual Information Based Data Selection in Gaussian Processes for 2D Laser Range Finder Based People Tracking, pp. 477-482.	
Zainudin, Zulkarnain	Univ. of Tech. Sydney
Kodagoda, Sarath	Univ. of Tech. Sydney
Dissanayake, Gamini	Univ. of Tech. Sydney
13:50-14:10	WeBT7.2
Human Skill Transfer System Via Novint Falcon, pp. 483-488.	
Tonggoed, Tarinee	King Mongkut' s Univ. of Tech. Thonburi
Charoenseang, Siam	King Mongkut's Univ. of Tech. Thonburi
14:10-14:30	WeBT7.3
A Honey Bee Swarm-Inspired Cooperation Algorithm for Foraging Swarm Robots : An Empirical Analysis, pp. 489-493.	
Lee, Jong-Hyun	Sungkyunkwan Univ.
Ahn, Chang Wook	Sungkyunkwan Univ.
An, Jinung	DGIST
14:30-14:50	WeBT7.4
3D Mapping Using a ToF Camera for Self Programming an Industrial Robot, pp. 494-499.	
Larkin, Nathan	Univ. of Wollongong
Pan, Zengxi	Univ. of Wollongong
van Duin, Stephen	Univ. of Wollongong
Norrish, John	Univ. of Wollongong
14:50-15:10	WeBT7.5
Three-Layered Architecture with Variable Task Flow for Teleoperator, pp. 500-505.	
Hoshino, Koshi	Chuo Univ.
Furukawa, Masaru	Chuo Univ.
Kunii, Yasuharu	Chuo Univ.
15:10-15:30	WeBT7.6
Video Driven Traffic Modelling, pp. 506-511.	
Zhou, Hailing	Deakin Univ.
Creighton, Douglas	Deakin Univ.
Wei, Lei	Deakin Univ.
Gao, David Yang	Univ. of Ballarat
Nahavandi, Saeid	Deakin Univ.

WeCT1	Throsby
Legged Robots (Regular Session)	
Chair: Inagaki, Katsuhiko	TOKAI Univ.
Co-Chair: Senoo, Taku	Univ. of Tokyo
16:00-16:20	WeCT1.1
Two-Dimensional Analysis of Dynamic Biped Locomotion Based on Feet Slip, pp. 512-517. Attachment	
Senoo, Taku	Univ. of Tokyo
Ishikawa, Masatoshi	Univ. of Tokyo
16:20-16:40	WeCT1.2
An Experimental Study on the Locomotion Performance of Elliptic-Curve Leg in Muddy Terrain, pp. 518-523.	
Ren, Xiaoshuang	Univ. of Science and Tech. of China
Liang, Xu	Univ. of Science and Tech. of China
Kong, Ziwen	Univ. of Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Xu, Ronald	Univ. of Science and Tech. of China
Zhang, Shiwu	Univ. of Science and Tech. of China
16:40-17:00	WeCT1.3
Skating Motion by a Leg-Wheeled Robot with Passive Wheels, pp. 524-529. Attachment	
Inagaki, Katsuhiko	Tokai Univ.
Azlizan, Nurul Izzati Binti	Tokai Univ.
17:00-17:20	WeCT1.4
Mechanical System and Stable Gait Transformation of a Leg-Wheel Hybrid Transformable Robot, pp. 530-535.	
Lu, Dongping	Univ. Science and Tech. of China
Dong, Erbao	Univ. Science and Tech. of China
Liu, Chunshan	Univ. Science and Tech. of China
Wang, Zhirong	Univ. Science and Tech. of China
Zhang, Xiaoguang	Univ. Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Yang, Jie	Univ. of Science & Tech. of China
17:20-17:40	WeCT1.5
System Dynamics Simulation and Prototype Design of a High Efficient Legged Robot Based on Hybrid-Driven Mechanism, pp. 536-541. Attachment	
Wang, Zhirong	Univ. of Science and Tech. of China
Dong, Erbao	Univ. of Science and Tech. of China
Jin, Hu	Univ. of Science and Tech. of China
Wang, Hao	Univ. of Science and Tech. of China
Lu, Dongping	Univ. of Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Yang, Jie	Univ. of Science and Tech. of China
17:40-18:00	WeCT1.6
Magnetic Field Localization Method for Guiding Visually Impaired Applications, pp. 542-547.	
Li, Min	Georgia Inst. of Tech.
Lee, Kok-Meng	Georgia Inst. of Tech.

WeCT2	McCabe
Image Processing (Regular Session)	
Chair: Bowling, Alan	The Univ. of Texas at Arlington
Co-Chair: Sharafi, Azadeh	Ec. Pol. de Montreal
16:00-16:20	WeCT2.1
GrabCutSFM: How 3D Information Improves Unsupervised Object Segmentation, pp. 548-553. Attachment	
He, Hu	Queensland Univ. of Tech.
Upcroft, Ben	Queensland Univ. of Tech.
16:20-16:40	WeCT2.2
High Voltage Transmission Line Detection for Uav Based Routing Inspection, pp. 554-558.	
Cao, Weiran	Univ. of Chinese Acad. of Sciences, Shenyang Normal Univ.
Zhu, Linlin	Shenyang Inst. of Automation, Chinese Acad. of Sciences
Han, Jianda	Shenyang Inst. of Automation, Chinese Acad. of Sciences
Wang, Tianran	Shenyang Inst. of Automation, Chinese Acad. of Sciences
Du, Yingkui	Shenyang Inst. of Automation, Chinese Acad. of Sciences
16:40-17:00	WeCT2.3
A New Communication Method for Untethered Intelligent Microrobots, pp. 559-564.	
Sharafi, Azadeh	Ec. Pol. de Montreal (EPM)
Olamaei, Nina	Ec. Pol. de Montreal (EPM)
Martel, Sylvain	Ec. Pol. de Montreal (EPM)
17:00-17:20	WeCT2.4
Comparison of Different Design Methodologies of Hardware-Based Image Processing for Automation in Microrobotics, pp. 565-570.	
Tiemerding, Tobias	Department of Computing Science, Univ. of Oldenburg
Diederichs, Claas	Department of Computing Science, Univ. of Oldenburg
Stehno, Christian	CoSynth GmbH & Co. KG
Fatikow, Sergej	Univ. of Oldenburg
17:20-17:40	WeCT2.5
An Object Image Edge Detection Based Quality-Guided Phase Unwrapping Approach for Fast Three-Dimensional Measurement, pp. 571-576.	
Chen, Ke	Univ. of Wollongong
Xi, Jiangtao	Univ. of Wollongong
Yu, Yanguang	Univ. of Wollongong
Song, Limei	TianJin Pol. Univ.
17:40-18:00	WeCT2.6
Visual Terrain Classification for Selecting Energy Efficient Gaits of a Hexapod Robot, pp. 577-584. Attachment	
Zenker, Steffen	Univ. of Goettingen, Inst. of Computer Science
Aksoy, Eren Erdal	Univ. of Goettingen, Bernstein Center for Computational Neu
Goldschmidt, Dennis	Univ. of Göttingen, Bernstein Center for Computational Neur
Wörgötter, Florentin	Univ. of Göttingen, Bernstein Center for Computational Neur
Manoonpong, Poramate	Univ. of Goettingen, Bernstein Center for Computational Neu

WeCT3	Hoskins
MEMS and Micro/Nano Manipulation (Regular Session)	
Chair: Hirai, Shinichi	Ritsumeikan Univ.
Co-Chair: Régnier, Stéphane	Univ. Pierre et Marie Curie
16:00-16:20	WeCT3.1
Optimized Targeting of Magnetic Nano Particles for Drug Delivery System, pp. 585-590.	
Kumar, Naveen	Gyeongsang National Univ. Jinju
Syed, Hassan	Gyeongsang National Univ.
Yoon, Jungwon	Gyeongsang National Univ.
16:20-16:40	WeCT3.2
A New Compliant Microgripper with Integrated Position and Force Sensing, pp. 591-596. Attachment	
Xu, Qingsong	Univ. of Macau
16:40-17:00	WeCT3.3
Identification of MIMO Transport Systems in Tape Drives, pp. 597-602.	
Cherubini, Giovanni	IBM Res. - Zurich
Pantazi, Angeliki	IBM Res. - Zurich
Jelitto, Jens	IBM Res. - Zurich
17:00-17:20	WeCT3.4
Vibration-Proof Mechanism Design of Free-Space Optical Switch Modules Using MEMS Mirror Devices for Telecom Systems, pp. 603-607.	
Mizukami, Masato	Nippon Telegraph and Telephone Corp.
Matsuura, Nobuaki	Nippon Telegraph and Telephone Corp.
Yamaguchi, Joji	Nippon Telegraph and Telephone Corp.
Matsuura, Tohru	Nippon Telegraph and Telephone Corp.
Yamamoto, Tsuyoshi	Nippon Telegraph and Telephone Corp.
17:20-17:40	WeCT3.5
Simulation Model for Sub-Millimeter Part Feeding on the Asymmetrical Saw-Tooth Surface with Air Drag, pp. 608-611.	
Le, Phuong	Ritsumeikan Univ.
Dinh, Thien	Ritsumeikan Univ.
Mitani, Atsushi	Sapporo City Univ.
Hirai, Shinichi	Ritsumeikan Univ.
17:40-18:00	WeCT3.6
Micro-Force Sensor by Active Control of a Comb-Drive, pp. 612-617.	
Mohand Ousaid, Abdenbi	Univ. Pierre et Marie Curie
Haliyo, Dogan Sinan	Univ. Pierre et Marie Curie - Paris 6 - CNRS
Régnier, Stéphane	Univ. Pierre et Marie Curie
Hayward, Vincent	Univ. Pierre et Marie Curie

WeCT4	Kembla
Parallel Mechanisms (Regular Session)	
Chair: Shirinzadeh, Bijan	Monash Univ.
Co-Chair: Oetomo, Denny	The Univ. of Melbourne
16:00-16:20	WeCT4.1
Reducing the Optimization Problem for the Efficient Motion Planning of Kinematically Redundant Parallel Robots, pp. 618-624.	
Niemann, Sebastian	Inst. of Systems Engineering, System and ComputerArchitectur
Kotlarski, Jens	Leibniz Univ. Hannover
Ortmaier, Tobias	Leibniz Univ. Hanover
Müller-Schloer, Christian	Inst. of Systems Engineering, System and ComputerArchitectur
16:20-16:40	WeCT4.2
Closed-Loop Control for a Cable-Driven Parallel Manipulator with Joint Angle Feedback, pp. 625-630.	
Cui, Xiang	Beihang Univ.
Chen, Weihai	Beijing Univ. of Aeronaurics and Astronautics
Yang, Guilin	Singapore Inst. of Manufacturing Tech.
Jin, Yan	Queen's Univ. of Belfast, UK
16:40-17:00	WeCT4.3
An Energy-Efficient Wire-Based Storage and Retrieval System, pp. 631-636.	
Bruckmann, Tobias	Univ. Duisburg-Essen
Sturm, Christian	Univ. Duisburg-Essen
Fehlberg, Lisa	Univ. Duisburg-Essen
Reichert, Christopher	Univ. Duisburg-Essen
17:00-17:20	WeCT4.4
Dynamic Parameter Identification of Actuation Redundant Parallel Robots: Application to the DualV, pp. 637-643.	
Briot, Sébastien	IRCCyN
Gautier, Maxime	Univ. of Nantes/IRCCyN
Krut, Sebastien	LIRMM (CNRS & Univ. Montpellier 2)
17:20-17:40	WeCT4.5
Inverse Kinematics Analysis of 6-RRCRR Parallel Manipulators, pp. 644-648.	
Moradi Dalvand, Mohsen	Deakin Univ.
Shirinzadeh, Bijan	Monash Univ.
Nahavandi, Saeid	Deakin Univ.
17:40-18:00	WeCT4.6
Modelling of Cable Wrapping Phenomenon towards Improved Cable-Driven Mechanisms, pp. 649-655.	
Lei, Man Cheong	The Univ. of Melbourne
Oetomo, Denny	The Univ. of Melbourne

WeCT5	Keira
Control Applications in Mechatronics III (Regular Session)	
Chair: Tan, Xiaobo	Michigan State Univ.
Co-Chair: Sawodny, Oliver	Univ. of Stuttgart
16:00-16:20	WeCT5.1
Robust Control of VO2-Coated Microactuators Based on Self-Sensing Feedback, pp. 656-661.	
Merced, Emmanuelle	Michigan State Univ.
Zhang, Jun	Michigan State Univ.
Tan, Xiaobo	Michigan State Univ.
Sepulveda, Nelson	Michigan State Univ.
16:20-16:40	WeCT5.2
Performance Evaluation of a Three-Pole Magnetic Rotor-Bearing System, pp. 662-667.	
Chen, Shyh-Leh	Adavanced Inst. of Manufacturing with High-Tech. Innovations,
Mao, Chao-Kai	Department of Mechanical Engineering, National Chung Cheng Univ.
16:40-17:00	WeCT5.3
Attitude Control for an Actuated Load Attached to an Overhead Crane, pp. 668-673.	
Schlott, Patrick	Univ. of Stuttgart
Sawodny, Oliver	Univ. of Stuttgart
17:00-17:20	WeCT5.4
Backstepping Based Position Control of Active Magnetic Bearing under Bounded Disturbance, pp. 674-679.	
Li, Xiaohai	Coll. of Tech. City Univ. of New York
Wang, Yu	Coll. of Tech. City Univ. of New York
17:20-17:40	WeCT5.5
Constrained Real-Time Model-Predictive Reference Trajectory Planning for Rotary Cranes, pp. 680-685.	
Schaper, Ulf	Univ. of Stuttgart
Arnold, Eckhard	Univ. of Stuttgart
Sawodny, Oliver	Univ. of Stuttgart
Schneider, Klaus	Liebherr Werk-Nenzing GmbH
17:40-18:00	WeCT5.6
Vibrational Control of Mathieu's Equation, pp. 686-691.	
Berg, Jordan M.	Texas Tech. Univ.
Wickramasinghe, Imiya	Texas Tech. Univ.

WeCT6	Belmore
Human-Machine Interfaces III (Regular Session)	
Chair: Yavuz, Mustafa	Univ. of Waterloo
Co-Chair: Stirling, David	Univ. of Wollongong
16:00-16:20	WeCT6.1
Application-Specific Modelling of Assisted Telemanipulation Systems in the Early Design Phase Using the I Framework*, pp. 692-697.	
Hoevenaars, Antonius G.L.	Delft Univ. of Tech.
Herder, Just L.	Delft Univ. of Tech.
16:20-16:40	WeCT6.2
Smart Rope and Vision Based Guide-Dog Robot System for the Visually Impaired Self-Walking in Urban System, pp. 698-703.	
Wei, Yuanlong	Pusan National Univ.
Kou, Xiangxin	Pusan National Univ.
Lee, Min Cheol	Pusan National Univ.
16:40-17:00	WeCT6.3
Tele-Operation of a Robot Arm with Electro Tactile Feedback, pp. 704-709.	
Pamungkas, Daniel Sutopo	Univ. of Wollongong
Ward, Koren	Univ. of Wollongong
17:00-17:20	WeCT6.4
Automatic User Identification by Using Forearm Biometrics, pp. 710-715.	
Cannan, James	Univ. of Essex
17:20-17:40	WeCT6.5
Dynamic Fingerprint Based on Human Motion and Posture, pp. 716-721.	
Hesami, Amir	Univ. of Wollongong
Naghdy, Fazel	Univ. of Wollongong
Stirling, David	Univ. of Wollongong
17:40-18:00	WeCT6.6
Adaptive Residual Filtering for Safe Human-Robot Collision Detection under Modeling Uncertainties, pp. 722-727.	
Caldas, Alex	CEA LIST - Interactive Robotic Lab.
Makarov, Maria	SUPELEC Systems Sciences (E3S)
Grossard, Mathieu	CEA LIST - Interactive Robotic Lab.
Rodriguez-Ayerbe, Pedro	SUPELEC Systems Sciences (E3S)
Dumur, Didier	SUPELEC Systems Sciences (E3S)

WeCT7	Pacific 2/3
Computational Models and Methods (Regular Session)	
Chair: Chen, I-Ming	Nanyang Tech. Univ.
Co-Chair: Petsch, Susanne	Tech. Univ. München
16:00-16:20	WeCT7.1
Estimation of Inverse Kinematics of Arbitrary Serial Chain Manipulators and Human-Like Robotic Hands, pp. 728-733.	
Petsch, Susanne	Tech. Univ. München
Burschka, Darius	Tech. Univ. Muenchen
16:20-16:40	WeCT7.2
Mass and Consumable Loss Analysis for the Combined Cooling-Power-Oxygen System of an Extravehicular-Activity Spacesuit, pp. 734-738.	
Zhou, Guodong	Astronaut Res. and Training Center of China
Gao, Feng	Astronaut Res. and Training Center of China
Li, Yun-Ze	Beihang Univ.
Wang, Shengnan	Beihang Univ.
Zhou, Hang	Beihang Univ.
16:40-17:00	WeCT7.3
A Novel Single Hand Control Unit of Colonoscope, pp. 739-744.	
Cheng, Wubin	East China Univ. of Science and Tech.
Luo, Wenlong	East China Univ. of Science and Tech.
Qian, Zhiqin	East China Univ. of Science and Tech.
Zhang, Wenjun	East China Univ. of Science and Tech.
17:00-17:20	WeCT7.4
Real-Time 3-D Path Generation Method for a Robot Arm by a 2-D Dipole Field, pp. 745-749.	
Nakamura, Takayuki	Wakayama Univ.
17:20-17:40	WeCT7.5
Efficient Application of Task-Oriented Programming for Assembly Systems, pp. 750-755.	
Backhaus, Julian	Tech. Univ. München
Reinhart, Gunther	Tech. Univ. München
17:40-18:00	WeCT7.6
Ambulatory Measurement of Elbow Kinematics Using Inertial Measurement Units, pp. 756-761.	
Ang, Wei Sin	Nanyang Tech. Univ.
Chen, I-Ming	Nanyang Tech. Univ.
Yuan, Qilong	Nanyang Tech. Univ.

ThAT1	Throsby
Analysis and Applications of Magnetic Fields (Invited Session)	
Chair: Lee, Kok-Meng	Georgia Inst. of Tech.
Co-Chair: Yan, Liang	Nanyang Tech. Univ.
Organizer: Yan, Liang	Nanyang Tech. Univ.
Organizer: Bai, Kun	Huazhong Univ. of Science and Tech.
Organizer: Hu, Liang	Univ. of Zhejiang
Organizer: Foong, Shaohui	Singapore Univ. of Tech. and Design
Organizer: Son, Hungsun	Nanyang Tech. Univ.
Organizer: Wu, Shuai	Beihang Univ.
08:30-08:50	ThAT1.1
Analytical Torque Model for a Permanent Magnet Spherical Motor Using Magnetic Field Reconstruction from Measured Boundary Conditions (I), pp. 762-767.	
Hu, Liang	Univ. of Zhejiang
Lee, Kok-Meng	Georgia Inst. of Tech.
Fu, Xin	Zhejiang Univ.
08:50-09:10	ThAT1.2
Magnetic Field Model for Direct Field-Feedback Control of a Permanent Magnet Spherical Motor (I), pp. 768-773.	
Bai, Kun	Huazhong Univ. of Science and Tech.
Lee, Kok-Meng	Georgia Inst. of Tech.
09:10-09:30	ThAT1.3
Inductance Calculation for Orientation/Position by Extended DMP Model (I), pp. 774-779.	
Wu, Fang	Nanyang Tech. Univ.
Son, Hungsun	Nanyang Tech. Univ.
09:30-09:50	ThAT1.4
Analysis of Novel Three-Dimensional Pole Arrays for Electromagnetic Spherical Actuators (I), pp. 780-785.	
Yan, Liang	Beihang Univ.
Liang, Fengqi	Beihang Univ.
Yuan, Mei	Beihang Univ.
Hu, Hongjie	Beihang Univ.
Chen, Chin-Yin	Taiwan Ocean Res. Inst.
Chen, I-Ming	Nanyang Tech. Univ.
09:50-10:10	ThAT1.5
A Hybrid Magnetic Field Model for Axisymmetric Magnets (I), pp. 786-791.	
Wu, Faye	MIT
Frey, Dan	MIT
Foong, Shaohui	Singapore Univ. of Tech. and Design
10:10-10:30	ThAT1.6
A New Rotary Voice Coil Motor Suitable for Short Angular Strokes–design, Modeling and Optimization (I), pp. 792-797.	
Wu, Shuai	Beihang Univ.
Jiao, Zongxia	Beihang Univ.
Yan, Liang	Beihang Univ.
Shang, Yaoxing	Beihang Univ.
Chen, Chin-Yin	Taiwan Ocean Res. Inst. National Applied Res. Lab.

ThAT2	McCabe
Rehabilitation Robots (Regular Session)	
Chair: Bruckmann, Tobias	Univ. Duisburg-Essen
Co-Chair: van Duin, Stephen	Univ. of Wollongong
08:30-08:50	ThAT2.1
Optimization of a Redundant 4R Robot for a Shoulder Exoskeleton, pp. 798-803.	
Lo, Ho Shing	Univ. of Auckland
Xie, Shane	Univ. of Auckland
08:50-09:10	ThAT2.2
Development of a Haptic Bilateral Interface for Arm Self-Rehabilitation, pp. 804-809.	
Morito, Chikara	Yokohama National Univ.
Shimono, Tomoyuki	Yokohama National Univ.
Motoi, Naoki	Yokohama National Univ.
Fujimoto, Yasutaka	Yokohama national Univ.
Tsuji, Toshiaki	Saitama Univ.
Hasegawa, Yuri	Ushioda General Hospital
Abe, Keiichiro	Ushioda General Hospital
Sakurai, Yoshimi	Kanagawa Univ. of Human Services
Ishii, Shinichiro	Kanagawa Univ. of Human Services
09:10-09:30	ThAT2.3
Ankle Injury Assessment Using Inertial 3D Data, pp. 810-815.	
Zhang, Shuo	Univ. of Wollongong
Naghdy, Fazel	Univ. of Wollongong
Stirling, David	Univ. of Wollongong
Ros, Montserrat	Univ. of Wollongong
09:30-09:50	ThAT2.4
Design and Control of a Powered Knee Orthosis for Gait Assistance, pp. 816-821.	
Ma, Hao	The Chinese Univ. of Hong Kong
Lai, Wai-Yin	The Chinese Univ. of Hong Kong
Liao, Wei-Hsin	The Chinese Univ. of Hong Kong
Fong, Daniel Tik-Pui	The Chinese Univ. of Hong Kong
Chan, Kai-Ming	The Chinese Univ. of Hong Kong
09:50-10:10	ThAT2.5
Design and Evaluation of an One DOF Finger Rehabilitation Device, pp. 822-827.	
Tang, Zhenjin	Waseda Univ.
Sugano, Shigeki	Waseda Univ.
Iwata, Hiroyasu	Waseda Univ.
10:10-10:30	ThAT2.6
FAT Based Adaptive Control for a Lower Extremity Rehabilitation Device: Simulation Results, pp. 828-832.	
Li, Jinfu	National Univ. of Singapore
Shen, Bingquan	National Univ. of Singapore
Chew, Chee Meng	National Univ. of Singapore

ThAT3	Hoskins
Applications of Nanotechnology (Regular Session)	
Chair: Tan, Xiaobo	Michigan State Univ.
Co-Chair: Yavuz, Mustafa	Univ. of Waterloo
08:30-08:50	ThAT3.1
Study of the Temperature Effect of Shear Thickening Fluid, pp. 833-837.	
Tian, Tongfei	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
Ding, Jie	Defence Science and Tech. Organisation
Alici, Gursel	Univ. of Wollongong
Du, Haiping	Univ. of Wollongong
08:50-09:10	ThAT3.2
High Bandwidth Multi-Variable Combined Resonant and Integral Resonant Controller for Fast Image Scanning of Atomic Force Microscope, pp. 838-843.	
Das, Sajal	The Univ. of New South Wales, Canberra
Pota, Hemanshu	Australian Defense Force Acad.
Petersen, Ian	The Univ. of New South Wales at ADFA, Canberra, ACT2600, Au
09:10-09:30	ThAT3.3
Cantilever Beam Microgyroscope Based on Frequency Modulation, pp. 844-849.	
Effa, David	Univ. of Waterloo
Abdel-Rahman, Eihab	Univ. of Waterloo
Yavuz, Mustafa	Univ. of Waterloo
09:30-09:50	ThAT3.4
Dynamic Modeling and Control of a Nanotube-Based Linear Motor, pp. 850-855.	
Li, Zhibin	Shenzhen Pol.
Dong, Lixin	Michigan State Univ.
Tan, Xiaobo	Michigan State Univ.
09:50-10:10	ThAT3.5
Nanopositioner Design Using Tapered Flexures: A Parametric Study, pp. 856-861.	
Wadikhaye, Sachin	Univ. of Newcastle
Yong, Yuen Kuan	The Univ. of Newcastle
Moheimani, S. O. Reza	The Univ. of Newcastle
10:10-10:30	ThAT3.6
Time Delay Estimation for Control of Microrobots under Uncertainties, pp. 862-867. Attachment	
Ghanbari, Ali	Daegu Gyeongbuk Inst. of Science and Tech. (DGIST)
Chang, Pyung Hun	DGIST
Choi, Hongsoo	Daegu Gyeongbuk Inst. of Science and Tech. (DGIST)
Nelson, Bradley J.	ETH Zurich

ThAT4 Kembla

Actuators in Mechatronic Systems (Regular Session)

Chair: Dohta, Shujiro — Okayama Univ. of Science

Co-Chair: Li, Weihua — Univ. of Wollongong

08:30-08:50 ThAT4.1

Quantifying the Positioning Resolution of Cantilever-Type Electroactive Polymer Actuators, pp. 868-875.

Jolliffe, Gavin — Univ. of Wollongong

Alici, Gursel — Univ. of Wollongong

08:50-09:10 ThAT4.2

Wearable Control Valves Driven by Small Sliding Force, pp. 876-881.

Akagi, Tetsuya — Okayama Univ. of Secience

Dohta, Shujiro — Okayama Univ. of Science

Masago, Yusuke — Okayama Univ. of Science

09:10-09:30 ThAT4.3

Improvement of Pressure Control Type Quasi-Servo Valve and On/Off Valves Using Embedded Controller, pp. 882-887.

Moriwake, Yoshinori — Okayama Univ. of Science

Akagi, Tetsuya — Okayama Univ. of Secience

Dohta, Shujiro — Okayama Univ. of Science

Zhao, FeiFei — Tsuyama National Coll. of Tech.

09:30-09:50 ThAT4.4

Development and Control of Simple-Structured Flexible Mechanisms Using Flexible Pneumatic Cylinders, pp. 888-893.

Dohta, Shujiro — Okayama Univ. of Science

Akagi, Tetsuya — Okayama Univ. of Secience

Mohd, Aliff — Okayama Univ. of Science

Ando, Ayaka — Sanki Engineering Co.,Ltd.

09:50-10:10 ThAT4.5

Crawling-Inspired Robot Utilizing L-Shape Piezoelectric Actuators, pp. 894-899. Attachment

Avirovik, Dragan — Virginia Pol. Inst. and State Univ.

Priya, Shashank — Virginia Pol. Inst. and State Univ.

10:10-10:30 ThAT4.6

Control of Conducting Polymer Actuators without Feedback: Simulated Feedback Control Approach, pp. 900-905.

Xiang, Xingcan — Univ. of Wollongong

Alici, Gursel — Univ. of Wollongong

Li, Weihua — Univ. of Wollongong

ThAT5	Keira
Robot Dynamics and Control (Regular Session)	
Chair: Salvucci, Valerio	The Univ. of Tokyo
Co-Chair: Koivumäki, Janne	Tampere Univ. of Tech.
08:30-08:50	ThAT5.1
Exponential Trajectory Generation for Point to Point Motions, pp. 906-911.	
Rymansaib, Zuhayr	Univ. of Bath
Iravani, Pejman	Univ. of Bath
Sahinkaya, M. Necip	Univ. of Bath
08:50-09:10	ThAT5.2
The Automation of Multi Degree of Freedom Hydraulic Crane by Using Virtual Decomposition Control, pp. 912-919. Attachment	
Koivumäki, Janne	Tampere Univ. of Tech.
Mattila, Jouni	Tampere Univ. of Tech.
09:10-09:30	ThAT5.3
Regulation and Integral Control of an Underactuated Robotic System Using IDA-PBC with Dynamic Extension, pp. 920-925.	
Teo, Yik Ren	The Univ. of Newcastle
Donaire, Alejandro	The Univ. of Newcastle
Perez, Tristan	The Univ. of Newcastle
09:30-09:50	ThAT5.4
Improving Dynamic Performance of Bi-Articularly Actuated Robot Arms by Using Infinity Norm Based Actuation Redundancy Resolution, pp. 926-931.	
Salvucci, Valerio	The Univ. of Tokyo
Koseki, Takafumi	The Univ. of Tokyo
09:50-10:10	ThAT5.5
Robot Dynamics Identification for Tasks Bounded in Workspace Sub-Region Using a Genetic Algorithm Optimization, pp. 932-937.	
Villagrossi, Enrico	CNR
Pedrocchi, Nicola	National Res. Council
Vicentini, Federico	Italian National Res. Council (CNR)
Molinari Tosatti, Lorenzo	National Council of Res.
10:10-10:30	ThAT5.6
Evaluation of Two Robot Vision Control Algorithms Developed Based on N-R and EKF Methods for the Rigid-Body Placement, pp. 938-943.	
Hong, Sung Mun	Chosun Univ.
Jang, Wan Shik	chosun Univ.
Son, Jae Kyung	chosun Univ.
Kim, Gyeon Seok	chosun Univ.

ThAT6	Belmore
Process Automation and Manufacturing (Regular Session)	
Chair: Hirai, Shinichi	Ritsumeikan Univ.
Co-Chair: Ang Jr, Marcelo H	National Univ. of Singapore
08:30-08:50	ThAT6.1
PID Gain Scheduling by Parametric Model Predictive Control, pp. 944-948.	
Nguyen, Minh H-T	National Univ. of Singapore
Tan, Kok-Kiong	National Univ. of Singapore
Teo, Chek Sing	SIMTech
08:50-09:10	ThAT6.2
General Framework of the Force and Compliant Motion Control for Macro Mini Manipulator, pp. 949-954.	
Arifin, Ahmad Suryo	National Univ. of Singapore
Ang Jr, Marcelo H	National Univ. of Singapore
Lai, Chow Yin	A*STAR Singapore Inst. of Manufacturing Tech.
Lim, Chee Wang	Makino Asia Pte Ltd
09:10-09:30	ThAT6.3
Dynamic Control of Skilled and Unskilled Labour Task Assignments, pp. 955-960.	
Le, Vu	Deakin Univ.
Zhang, James	Deakin Univ.
Johnstone, Michael	Deakin Univ.
Nahavandi, Saeid	Deakin Univ.
Creighton, Doug	Deakin Univ.
09:30-09:50	ThAT6.4
A Feasible Work-Piece Placement Method for Contact-Type Operations, pp. 961-966.	
Vuong, Ngoc Dung	Singapore Inst. of Manufacturing Tech.
Lim, Tao Ming	Singapore Inst. of Manufacturing Tech.
Yang, Guilin	Singapore Inst. of Manufacturing Tech.
09:50-10:10	ThAT6.5
Improvement of Sawtooth Shape Generated by Anisotropic Etching Process of Single-Crystal Silicon for Microparts Feeding Using Horizontal and Symmetric Vibrations, pp. 967-972.	
Mitani, Atsushi	Sapporo City Univ.
Le, Phuong	Ritsumeikan Univ.
Matsuo, Yasutaka	Hokkaido Univ.
Hirai, Shinichi	Ritsumeikan Univ.
10:10-10:30	ThAT6.6
Development of a Coaxial Melt Extrusion Printing Process for Specialised Composite Bioscaffold Fabrication, pp. 973-978.	
Cornock, Rhys	Univ. of Wollongong, Intelligent Pol. Res. Inst.
Beirne, Stephen	Univ. of Wollongong, Intelligent Pol. Res. Inst.
Wallace, Gordon G.	Univ. of Wollongong, Intelligent Pol. Res. Inst.

ThBT1 Throsby

Planning and Navigation (Regular Session)

Chair: McAree, Peter Ross — Univ. of Queensland

Co-Chair: Pan, Zengxi — Univ. of Wollongong

13:30-13:50 ThBT1.1

Path Planning for Industrial Robots; Lazy Significant Edge Algorithm (LSEA), pp. 979-984.

Polden, Joseph — Univ. of Wollongong

Pan, Zengxi — Univ. of Wollongong

Larkin, Nathan — Univ. of Wollongong

13:50-14:10 ThBT1.2

Design and Construction of a Scale Robotic Excavator Work-Cell to Test Automated Excavation Algorithms, pp. 985-990.

Beasley, Peter — Univ. of Queensland

McAree, Peter Ross — Univ. of Queensland

14:10-14:30 ThBT1.3

A Path Generation Method for Automated Vehicles Based on Bezier Curve, pp. 991-996.

Kawabata, Kuniaki — RIKEN

Ma, Liang — Xi'an Jiaotong Univ.

Xue, Jianru — Xi'an Jiaotong Univ.

Zheng, Nanning — Xi'an Jiaotong Univ.

14:30-14:50 ThBT1.4

Bio-Inspired Trajectory Generation for UAV Perching, pp. 997-1002.

Zhang, Zhen — Shanghai Univ.

Xie, Pu — New Mexico State Univ.

Ma, Ou — New Mexico State Univ.

14:50-15:10 ThBT1.5

Low-Cost Vision-Based 6-DOF MAV Localization Using IR Beacons, pp. 1003-1009.

Roozing, Wesley — Univ. of Twente

Goktogan, Ali Haydar — Australian Centre for Field Robotics (ACFR)

15:10-15:30 ThBT1.6

Navigation Control for Exploration Rover with Microwave Doppler Sensors, pp. 1010-1015.

Isogai, Masahiro — Aichi Univ. of Tech.

Nawa, Yasuhiko — Aichi Univ. of Tech.

Usui, Yuya — Aichi Univ. of Tech.

Aiki, Kunio — Aichi Univ. of Tech.

ThBT2	McCabe
Rehabilitation Robots II (Regular Session)	
Chair: Song, Jae-Bok	Korea Univ.
Co-Chair: McDaid, Andrew	The Univ. of Auckland
13:30-13:50	ThBT2.1
Imitation of Human Motion Based on Variable Stiffness Actuator and Muscle Stiffness Sensor, pp. 1016-1020.	
Bae, Gang-Tae	Korea Univ.
Song, Jae-Bok	Korea Univ.
Kim, Byeong-Sang	Samsung Electronics
13:50-14:10	ThBT2.2
A Theoretical Approach to Pneumatic Muscle Mechanics, pp. 1021-1026.	
Sorge, Francesco	Univ. of Palermo
Cammalleri, Marco	Univ. of Palermo
14:10-14:30	ThBT2.3
Wearable Lower-Limb Assistive Device for Physical Load Reduction of Caregiver on Transferring Support, pp. 1027-1032.	
Hasegawa, Yasuhisa	Univ. of Tsukuba
Muramatsu, Masataka	Univ. of Tsukuba
14:30-14:50	ThBT2.4
Design and Control of a Smart Bed for Pressure Ulcer Prevention, pp. 1033-1038.	
Brush, Zachary	Univ. of Texas- Arlington
Bowling, Alan	The Univ. of Texas at Arlington
Tadros, Michael	Univ. of Texas- Arlington
Russell, Michael	Univ. of Texas- Arlington
14:50-15:10	ThBT2.5
Brain Controlled Robotic Exoskeleton for Neurorehabilitation, pp. 1039-1044.	
McDaid, Andrew	The Univ. of Auckland
Song, Xing	The Univ. of Auckland
Xie, Shane	Univ. of Auckland
15:10-15:30	ThBT2.6
Torque Measurement Experiments of a Torque Detection Mechanism Implemented on Hand-Rims of a One Hand Drive Wheelchair, pp. 1045-1050.	
Sakai, Kazuaki	Northeastern Industrial Res. Center
Yasuda, Toshihiko	The Univ. of Shiga Prefecture

ThBT3	Hoskins
Sensing and Manipulation in Mechatronic Systems (Regular Session)	
Chair: Xie, Shane	Univ. of Auckland
Co-Chair: Nahavandi, Saeid	Deakin Univ.
13:30-13:50	ThBT3.1
Contact State Based Representation of Object Relations in the Environment for Dexterous Manipulations, pp. 1051-1057.	
Petsch, Susanne	Tech. Univ. München
Burschka, Darius	Tech. Univ. Muenchen
13:50-14:10	ThBT3.2
Integrating Kinect and Haptics for Interactive STEM Education in Local and Distributed Environments, pp. 1058-1065.	
Wei, Lei	Deakin Univ.
Zhou, Hailing	Deakin Univ.
Soe, Aung K.	Deakin Univ.
Nahavandi, Saeid	Deakin Univ.
14:10-14:30	ThBT3.3
A New Criterion for Redundancy Resolution of Human Arm in Reaching Tasks, pp. 1066-1071.	
Xie, Biyun	Beijing Univ. of Tech.
Zhao, Jing	Beijing Univ. of Tech.
14:30-14:50	ThBT3.4
A Novel On-Axis Self-Calibration Approach for Precision Rotary Metrology Stages, pp. 1072-1077.	
Hu, Chuxiong	Tsinghua Univ.
Zhu, Yu	Tsinghua Univ.
Hu, Jinchun	Tsinghua Univ.
Xu, Dengfeng	Tsinghua Univ.
Zhang, Ming	Tsinghua Univ.
14:50-15:10	ThBT3.5
On-Axis Self-Calibration of Precision XYθ Z Metrology Systems: An Approach Framework, pp. 1078-1083.	
Zhu, Yu	Tsinghua Univ.
Hu, Chuxiong	Tsinghua Univ.
Hu, Jinchun	Tsinghua Univ.
Zhang, Ming	Tsinghua Univ.
Xu, Dengfeng	Tsinghua Univ.
15:10-15:30	ThBT3.6
A Highly Sensitive 3D-Shaped Tactile Sensor, pp. 1084-1089.	
Kõiva, Risto	Bielefeld Univ.
Zenker, Matthias	Bielefeld Univ.
Schürmann, Carsten	Univ. Bielefeld
Haschke, Robert	Bielefeld Univ.
Ritter, Helge Joachim	Bielefeld Univ.

ThBT4	Kembla
Actuators in Mechatronic Systems II (Regular Session)	
Chair: Li, Weihua	Univ. of Wollongong
Co-Chair: Nguyen, Chuc	Wollongong Univ.
13:30-13:50	ThBT4.1
Design of a Novel Linear Permanent Magnet Vibration Energy Harvester, pp. 1090-1095.	
Jiang, Xuezheng	Centre for Built Infrastructure Res. Faculty of Engineering
Li, Yancheng	Univ. of Tech. Sydney
Li, Jianchun	Faculty of Engineering and Information Tech. Univ. of
13:50-14:10	ThBT4.2
Electroactive Polymers As Soft Robotic Actuators: Electromechanical Modeling and Identification, pp. 1096-1101.	
Mutlu, Rahim	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
14:10-14:30	ThBT4.3
Parameter Identification Study of Frequency Response Data for a Trilayer Conjugated Polymer Actuator Displacement Model, pp. 1102-1107.	
Blanchard, Emmanuel	Univ. of Wollongong
Nguyen, Chuc	Wollongong Univ.
Smith, Mitchell	Univ. of Wollongong
14:30-14:50	ThBT4.4
Parameter Identification Study of a Trilayer Conjugated Polymer Actuator Curvature Model, pp. 1108-1113.	
Blanchard, Emmanuel	Univ. of Wollongong
Chen, Patrick	Univ. of Wollongong
Nguyen, Chuc	Wollongong Univ.
14:50-15:10	ThBT4.5
The Rotational Propulsion Characteristics of Scaled-Up Helical Microswimmers with Different Heads and Magnetic Positioning, pp. 1114-1120.	
Xu, Tiantian	UPMC Pierre and Marie Curie Univ.
Régnier, Stéphane	Univ. Pierre et Marie Curie
Hwang, Gilgueng	CNRS
Andreff, Nicolas	Univ. de Franche Comté
15:10-15:30	ThBT4.6
Adaptive Position Control of Fluidic Soft-Robots Working with Unknown Loads, pp. 1121-1126.	
Taghia, Javad	Univ. of New South Wales
Wilkening, André	Univ. of Bremen, Inst. of Automation
Ivlev, Oleg	FWBI Res. Company & Univ. of Bremen

ThBT5	Keira
Robot Dynamics and Control II (Regular Session)	
Chair: Petersen, Ian	The Univ. of New South Wales at ADFA, Canberra, ACT 2600, Australia.
Co-Chair: van Duin, Stephen	Univ. of Wollongong
13:30-13:50	ThBT5.1
Realizing Peg-And-Hole Alignment with One Eye-In-Hand High-Speed Camera, pp. 1127-1132.	
Huang, Shouren	Univ. of Tokyo
Yamakawa, Yuji	Univ. of Tokyo
Senoo, Taku	Univ. of Tokyo
Ishikawa, Masatoshi	Univ. of Tokyo
13:50-14:10	ThBT5.2
Pulse Shaping of an Impulse Controller to Improve Precision of Machines with Friction, pp. 1133-1139.	
van Duin, Stephen	Univ. of Wollongong
Cook, Christopher	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong
Li, Zheng	Univ. of Wollongong
14:10-14:30	ThBT5.3
Stochastic Ant Agent for Priority-Based Coverage, pp. 1140-1145.	
Oyekan, John Oluwagbemiga	Univ. of Bedfordshire
Gu, Dongbing	Univ. of Essex
Hu, Huosheng	Univ. of Essex
14:30-14:50	ThBT5.4
Position Tracking for Bilateral Teleoperation System with Varying Time Delay, pp. 1146-1151.	
Sallam, Mohamed	Egypt-Japan Univ. of Science and Tech.
Ramadan, Ahmed	Tanta Univ.
Fanni, Mohamed	Mansoura Univ.
14:50-15:10	ThBT5.5
Cooperative Autonomous Platoon Maneuvers on Highways, pp. 1152-1157. Attachment	
Lam, Stanley	Univ. of New South Wales
Katupitiya, Jayantha	The Univ. of New South Wales
15:10-15:30	ThBT5.6
Adaptive Bilateral Teleoperation of an Unknown Object Handled By Multiple Robots under Unknown Communication Delay , pp. 1158-1163.	
Mohajerpoor, Reza	Amirkabir Univ. of Tech.
Sharifi, Iman	Amirkabir Univ. of Tech.
Talebi, Heidar Ali	Amirkabir Univ. of Tech.
Rezaie, Mehdi	Amirkabir Univ. of Tech.

ThBT6	Belmore
Modeling and Design of Mechatronic Systems (Regular Session)	
Chair: Dubowsky, Steven	MIT
Co-Chair: Guan, Yisheng	South China Univ. of Tech.
13:30-13:50	ThBT6.1
Development and Construction of an Automated Curing System for CFRP-Slittapes, pp. 1164-1169.	
Bock, Matthias	German Aerospace Center (DLR)
Meier, Ivo	Tech. Univ. Braunschweig
13:50-14:10	ThBT6.2
Study of Pneumatic Servo System Based on Linear Active Disturbance Rejection Controller, pp. 1170-1174.	
Wang, Bo	Beijing Inst. of Tech.
Wang, Tao	Beijing Inst. of Tech.
Ying, Jin	Bei Jing Inst. of Tech.
Fan, Wei	Beijing Inst. of Tech.
Wang, Yu	Beijing Inst. of Tech.
14:10-14:30	ThBT6.3
Mechatronic Model of a Novel Slotless Permanent Magnet DC-Motor with Air Gap Winding Design, pp. 1175-1180.	
Borchardt, Norman	Otto-von-Guericke-Univ. Magdeburg, Germany
Penzlin, Bernhard	Otto-von-Guericke-Univ. Magdeburg, Germany
Kasper, Roland	Otto-von-Guericke-Univ. Magdeburg, Germany
14:30-14:50	ThBT6.4
Controllable Energy Recovery for a Smart PVRO Desalination System, pp. 1181-1186.	
Reed, Elizabeth	Massachusetts Inst. of Tech.
Bilton, Amy M.	Massachusetts Inst. of Tech.
Dubowsky, Steven	MIT
14:50-15:10	ThBT6.5
Task-Oriented Inverse Kinematics of Modular Reconfigurable Robots, pp. 1187-1192.	
Wu, Wenqiang	South China Univ. of Tech.
Guan, Yisheng	Guangdong Univ. of Tech.
Li, Huaizhu	South China Univ. of Tech.
Su, Manjia	School of Mech. & Auto. Eng., South China Univ. of Tech.
Zhu, Haifei	South China Univ. of Tech.
Zhou, Xuefeng	Soth China Univ. of Tech.
Zhang, Hong	Univ. of Alberta
15:10-15:30	ThBT6.6
Conceptual Development of a Reconfigurable Parallel Robot, pp. 1193-1198.	
Vasiu, Razvan-Vlad	Tech. Univ. of Cluj-Napoca
Rusu, Calin	Tech. Univ. of Cluj Napoca
Csiszar, Akos	Univ. of Stuttgart
Brisan, Cornel	Tech. Univ. of Cluj-Napoca
Verl, Alexander	Univ. of Stuttgart

FrAT1	Throsby
Identification and Estimation in Mechatronics (Regular Session)	
Chair: Gautier, Maxime	Univ. of Nantes/IRCCyN
Co-Chair: McAree, Peter Ross	Univ. of Queensland
08:30-08:50	FrAT1.1
Pose Verification for Autonomous Equipment Interaction in Surface Mining, pp. 1199-1204.	
Green, Matthew E.	Univ. of Queensland
Ridley, Alexander N.	CRCMining
McAree, P. Ross	Univ. of Queensland
08:50-09:10	FrAT1.2
Global Identification of Mechanical and Electrical Parameters of DC Motor Driven Joint with a Fast CLOE Method, pp. 1205-1210.	
Robet, Pierre-Philippe	Univ. of Nantes/IRCCyN
Gautier, Maxime	Univ. of Nantes/IRCCyN
Jubien, Anthony	Univ. de nantes
Janot, Alexandre	ONERA
09:10-09:30	FrAT1.3
A Comperative Study of Different Physics-Based Approaches to Modeling of Piezoelectric Actuators, pp. 1211-1216.	
Miri, Narges	Univ. of Adelaide
Mohammadzaheri, Morteza	Univ. of Adelaide
Chen, Lei	Univ. of Adelaide
09:30-09:50	FrAT1.4
Establishment and Experimental Verification of a Prandtl–Ishlinskii Hysteresis Model for Tri-Layer Conducting Polymer Actuators, pp. 1217-1221.	
Wang, Xiangjiang	the School of Mechanical Engineering, Univ. of South China
Alici, Gursel	Univ. of Wollongong
Nguyen, Chuc	Wollongong Univ.
09:50-10:10	FrAT1.5
Design of a Closed-Loop Data Based Evolutionary Controller, pp. 1222-1227.	
Kawada, Kazuo	Hiroshima Univ.
Yamamoto, Toru	Hiroshima Univ.
10:10-10:30	FrAT1.6
Gray-Box Identification of McKibben Pneumatic Artificial Muscle Using Interpolation of Load-Dependent Parameters, pp. 1228-1234.	
Kogiso, Kiminao	Nara Inst. of Science and Tech.
Naito, Ryo	Nara Inst. of science and Tech.
Sugimoto, Kenji	Nara Inst. of Science and Tech.

FrAT2	McCabe
Medical Robotics/Mechatronics (Regular Session)	
Chair: Régnier, Stéphane	Univ. Pierre et Marie Curie
Co-Chair: Borchard, Jan-Hinnerk	Leibniz Univ. Hannover
08:30-08:50	FrAT2.1
Development of an Exsufflation System for Peristaltic Pump Based on Bowel Peristalsis, pp. 1235-1240.	
Kimura, Yoshiki	chuo Univ.
Saito, Kunihiro	chuo Univ.
Nakamura, Taro	Chuo Univ.
08:50-09:10	FrAT2.2
Workspace Comparison of Cooperating Instruments in Laparo-Endoscopic Single-Site Surgery, pp. 1241-1248.	
Borchard, Jan-Hinnerk	Leibniz Univ. Hannover
Kotlarski, Jens	Leibniz Univ. Hannover
Ortmaier, Tobias	Leibniz Univ. Hanover
09:10-09:30	FrAT2.3
Design of a Modular, Flexible Instrument with Integrated DC-Motors for Minimal Invasive Robotic Surgery, pp. 1249-1254.	
Mintenbeck, Julien	Karlsruhe Inst. of Tech. (KIT)
Estana, Ramon	Univ. of Applied Science Karlsruhe
Woern, Heinz	Karlsruhe Inst. of Tech. (KIT)
09:30-09:50	FrAT2.4
Control of an IPMC Actuated Robotic Surgical Tool with Embedded Interaction Sensing, pp. 1255-1259.	
Fu, Lixue	The Univ. of Auckland
McDaid, Andrew	The Univ. of Auckland
Aw, Kean C.	The Univ. of Auckland
09:50-10:10	FrAT2.5
Modeling and Experimental Investigation of Mechanical Behavior of a Spiral-Type Capsule in Small Intestine, pp. 1260-1265.	
Zhou, Hao	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong
Than, Trung	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
10:10-10:30	FrAT2.6
Investigation of Trapping Process in "Centrifuge-On-A-Chip", pp. 1266-1271.	
Zhang, Jun	Univ. of Wollongong
Li, Ming	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong

FrAT3	Hoskins
Sensors and Sensing Systems (Regular Session)	
Chair: Chiu, George	Purdue Univ.
Co-Chair: Berg, Jordan M.	Texas Tech. Univ.
08:30-08:50	FrAT3.1
A Proximity/Contact-Force Sensor for Human Safety in Industrial Robot Environment, pp. 1272-1277. Attachment	
Cirillo, Andrea	Seconda Univ. degli Studi di Napoli
Cirillo, Pasquale	Seconda Univ. degli Studi di Napoli
De Maria, Giuseppe	Seconda Univ. degli Studi di Napoli
Natale, Ciro	Seconda Univ. di Napoli
Pirozzi, Salvatore	Seconda Univ. degli Studi di Napoli
08:50-09:10	FrAT3.2
A MEMS Based Sensor for Large Scale Force Measurement, pp. 1278-1283.	
Chen, Weihai	Beihang Univ.
Jiang, Jun	Beihang Univ.
Liu, Jingmeng	Beihang Univ.
Chen, Wenjie	Singapore Inst. of Manufacturing Tech.
09:10-09:30	FrAT3.3
An Evaluation of Ranging Sensor Performance for Mining Automation Applications, pp. 1284-1289.	
Phillips, Tyson	Univ. of Queensland
Hahn, Martin	Aachen Univ.
McAree, Peter Ross	Univ. of Queensland
09:30-09:50	FrAT3.4
Displacement Profile Estimation Using Low Cost Inertial Motion Sensors with Applications to Sporting and Rehabilitation Exercises, pp. 1290-1295.	
Coyte, James	Univ. of Wollongong
Stirling, David	Univ. of Wollongong
Ros, Montserrat	Univ. of Wollongong
Du, Haiping	Univ. of Wollongong
Gray, Andrew	St George Illawarra Dragons
09:50-10:10	FrAT3.5
Design of Simple Structured Tactile Sensor for the Minimally Invasive Robotic Palpation, pp. 1296-1299.	
Hwang, Jung-Hoon	Korea Eletronics Tech. Inst.
Kwon, Joon Ho	Korea Univ.
Kim, Tae-Keun	Korea Eletronics Tech. Inst.
Hong, Daehie	Korea Univ.
10:10-10:30	FrAT3.6
Real-Time Kinematic Doppler Pose Estimation for IMES, pp. 1300-1305.	
Sakamoto, Yoshihiro	Waseda Univ.
Ebinuma, Takuji	The Univ. of Tokyo
Fujii, Kenjiro	Hitachi Industrial Equipment Systems Co., Ltd
Sugano, Shigeki	Waseda Univ.

FrAT4	Kembla
Flexible Manipulators and Structures (Regular Session)	
Chair: Li, Yangmin	Univ. of Macau
Co-Chair: Tadakuma, Riichiro	Yamagata Univ.
08:30-08:50	FrAT4.1
On the Stiffness Design of Intrinsic Compliant Manipulators, pp. 1306-1311.	
Kashiri, Navvab	Istituto Italiano di Tecnologia
Tsagarakis, Nikolaos	Istituto Italiano di Tecnologia
Laffranchi, Matteo	Istituto Italiano di Tecnologia
Caldwell, Darwin G.	Istituto Italiano di Tecnologia
08:50-09:10	FrAT4.2
A New Soft Bionic Starfish Robot with Multi-Gaits, pp. 1312-1317.	
Mao, Shixin	Univ. of Science and Tech. of China
Dong, Erbao	Univ. of Science and Tech. of China
Zhang, Shiwu	Univ. of Science and Tech. of China
Xu, Min	Univ. of Science & Tech. of China
Yang, Jie	Univ. of Science and Tech. of China
09:10-09:30	FrAT4.3
Hyper Flexible Robot with Variable Stiffness and Shape, pp. 1318-1323. Attachment	
Tadakuma, Kenjiro	Osaka Univ.
Moya, Erick	Yamagata Univ.
Tadakuma, Riichiro	Yamagata Univ.
09:30-09:50	FrAT4.4
Design, Analysis, and Experimental Investigations of a 2-DOF Monolithic Parallel Mechanism, pp. 1324-1329.	
Qin, Yanding	Nankai Univ.
Shirinzadeh, Bijan	Monash Univ.
Tian, Yanling	Tianjin Univ.
Zhang, Dawei	Tianjin Univ.
Bhagat, Umesh	Monash Univ.
09:50-10:10	FrAT4.5
Kinematic Modeling of a Hydraulically Actuated 3-SPR-Parallel Manipulator for an Adaptive Shell Structure, pp. 1330-1336.	
Woerner, Mark	Univ. Stuttgart
Weickgenannt, Martin	ISYS Uni-Stuttgart
Neuhaeuser, Stefan	Univ. Stuttgart
Goehrle, Christoph	Univ. Stuttgart
Sobek, Werner	Univ. Stuttgart
Sawodny, Oliver	Univ. of Stuttgart

FrAT5 Keira

Aerial Robots and UAVs (Regular Session)

Chair: Katupitiya, Jayantha — The Univ. of New South Wales

Co-Chair: Konomura, Ryo — Univ. of Tokyo

08:30-08:50 FrAT5.1

Adaptive Trajectory Tracking for Quadrotor MAVs in Presence of Parameter Uncertainties and External Disturbances, pp. 1337-1342.

Antonelli, Gianluca — Univ. di Cassino e del Lazio Meridionale

Arrichiello, Filippo — Univ. di Cassino e del Lazio Meridionale

Chiaverini, Stefano — Univ. di Cassino e del Lazio Meridionale

Robuffo Giordano, Paolo — Centre National de la Recherche Scientifique (CNRS)

08:50-09:10 FrAT5.2

Methodology for Identifying Quadrotor Parameters, Attitude Estimation and Control, pp. 1343-1348. Attachment

Elsamanty, Mahmoud — Egypt Japan Univ. for Science and Tech. EJUST

Khalifa, Ahmed — Egypt Japan Univ. of Science and Tech. EJUST

Fanni, Mohamed Ahmed — Egypt Japan Univ. of Science and Tech. E-JUST

Ramadan, Ahmed Ahmed — Assistant Prof at Tanta Univ.

AboIsmail, Ahmed — Egypt-Japan Univ. of Science and Tech. EJUST

09:10-09:30 FrAT5.3

Comparison of Attitude Determination Methodologies with Low Cost Inertial Measurement Unit for Autonomous Aerial Vehicle, pp. 1349-1354.

Choi, Man Ho — Monash Univ.

Porter, Robert John — Monash Univ.

Shirinzadeh, Bijan — Monash Univ.

09:30-09:50 FrAT5.4

Monocular Vision Based Autonomous Navigation for a Cost-Effective Open-Source MAV in GPS-Denied Environments, pp. 1355-1360. Attachment

Sa, Inkyu — Queensland Univ. of Tech.

He, Hu — Queensland Univ. of Tech.

Huynh, Van — Queensland Univ. of Tech.

Corke, Peter — QUT

09:50-10:10 FrAT5.5

Dynamic Modelling and Control of a Vectored Thrust Aerial Vehicle, pp. 1361-1366.

Yuan, Wei — The Univ. of New South Wales

Katupitiya, Jayantha — The Univ. of New South Wales

10:10-10:30 FrAT5.6

Designing Hardware and Software Systems Toward Very Compact and Fully Autonomous Quadrotors, pp. 1367-1372. Attachment

Konomura, Ryo — Univ. of Tokyo

Hori, Koichi — Univ. of Tokyo

FrAT6	Belmore
Mechatronic Devices and Systems (Regular Session)	
Chair: Du, Haiping	Univ. of Wollongong
Co-Chair: Coy, Johannes Alexander	Tech. Univ. München
08:30-08:50	FrAT6.1
A Segmental Mobile Robot with Active Tensegrity Bending and Noise-Driven Oscillators, pp. 1373-1380.	
Webster, Victoria A.	Case Western Res. Univ.
Lonsberry, Alexander J.	Case Western Res. Univ.
Horchler, Andrew D.	Case Western Res. Univ.
Shaw, Kendrick M.	Case Western Res. Univ.
Chiel, Hillel J.	Case Western Res. Univ.
Quinn, Roger D.	Case Western Res. Univ.
08:50-09:10	FrAT6.2
First Pullout Strength Measurements of Threads Produced by Selective Laser Sintering, pp. 1381-1386.	
Coy, Johannes Alexander	Tech. Univ. München
Miyashita, Koji	Mie Univ.
Gumprecht, Jan David Jerome	Tech. Univ. München
Entsfellner, Konrad	Tech. Univ. München
Lueth, Tim C.	Tech. Univ. München
09:10-09:30	FrAT6.3
Distributed Formation Control in Cluttered Environments (I), pp. 1387-1392.	
Seng, Whye Leon	Monash Univ.
Barca, Jan Carlo	Monash Univ.
Sekercioglu, Y. Ahmet	Monash Univ.
09:30-09:50	FrAT6.4
A Solution to Perceptual Aliasing through Probabilistic Fuzzy Logic and SIFT, pp. 1393-1398.	
Qamar, Madiha	Natoinal Univ. of Sciences and Tech. (NUST)
Khawaja, Fahad Iqbal	National Univ. of Science and Tech. (NUST)
Qureshi, Ahmed Hussain	National Univ. of Science and Tech. (NUST)
Ayaz, Yasar	National Univ. of Sciences and Tech. (NUST)
Muhammad, Naveed	National Univ. of Science and Tech. (NUST)
Abbasi, Abdul Ghafoor	National Univ. of Science and Tech. (NUST)
09:50-10:10	FrAT6.5
Implementation of Adaptive Neuro Fuzzy Inference System Controller on Magneto Rheological Damper Suspension, pp. 1399-1403.	
Nugroho, Pipit	Univ. of Wollongong
Du, Haiping	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
Alici, Gursel	Univ. of Wollongong
10:10-10:30	FrAT6.6
In-Situ Indoor 3-D Land Mapping and Radioactive Source Localization, pp. 1404-1409.	
Nguyen, Van Thai	National Taipei Univ. of Tech.
Chen, Liang-Chia	National Taiwan Univ.

FrBT1	Throsby
Identification and Estimation in Mechatronics II (Regular Session)	
Chair: Cherubini, Giovanni	IBM Res. - Zurich
Co-Chair: Gautier, Maxime	Univ. of Nantes/IRCCyN
13:30-13:50	FrBT1.1
A New Method for Correcting Uncalibrated Robot Programs, pp. 1410-1417. Attachment	
Søe-Knudsen, Rune	Univ. Robots A/S
Petersen, Henrik Gordon	Univ. of Southern Denmark
Østergaard, Esben	Univ. Robots A/S
13:50-14:10	FrBT1.2
Influence of Viscosity of Carrier Liquid on Performance of Electrorheological Fluids, pp. 1418-1422.	
Dong, Xufeng	Dalian Univ. of Tech.
Zhao, Hong	Dalian Univ. of Tech.
Qi, Min	Dalian Univ. of Tech.
Ma, Ning	Dalian Univ. of Tech.
Ou, Jinping	Dalian Univ. of Tech.
14:10-14:30	FrBT1.3
Design and System Identification of a Micro Coaxial Helicopter Testbed, pp. 1423-1428.	
Robinson, David Conal	Monash Univ.
Doherty, Erin	Monash Univ.
Tsai, Steve	Monash Univ.
Chung, Hoam	Monash Univ.
14:30-14:50	FrBT1.4
Identification of Consistent Standard Dynamic Parameters of Industrial Robots, pp. 1429-1435.	
Gautier, Maxime	Univ. of Nantes/IRCCyN
Briot, Sébastien	IRCCyN
Venture, Gentiane	Tokyo Univ. of Agriculture and Tech.
14:50-15:10	FrBT1.5
New Iterative Learning Identification and Model Based Control of Robots Using Only Actual Motor Torque Data, pp. 1436-1441.	
Gautier, Maxime	Univ. of Nantes/IRCCyN
Jubien, Anthony	Univ. de nantes
Janot, Alexandre	ONERA
15:10-15:30	FrBT1.6
Localization of Networked Robot Systems Subject to Random Delay and Packet Loss, pp. 1442-1447.	
Phung, Manh Duong	Vietnam National Univ.
Nguyen, Thi Thanh Van	Vietnam National Univ.
Tran, Thuan Hoang	Univ. of Engineering and Tech.
Tran, Quang Vinh	Vietnam National Univ.

FrBT2	McCabe
Medical Robotics/Mechatronics II (Regular Session)	
Chair: Hasegawa, Yasuhisa	Univ. of Tsukuba
Co-Chair: Lan, Chao-Chieh	National Cheng Kung Univ.
13:30-13:50	FrBT2.1
Mechatronic Design of an Office-Based Ventilation Tube Applicator for Patients with Otitis Media with Effusion, pp. 1448-1453.	
Tan, Kok-Kiong	National Univ. of Singapore
Liang, Wenyu	National Univ. of Singapore
Pham, Le Phuong	National Univ. of Singapore
Lim, Hsueh Yee	National Univ. of Singapore
Gan, Chee Wee	National Univ. of Singapore
13:50-14:10	FrBT2.2
Design and Analysis of a Tactile Sensor Used in Minimally Invasive Surgery, pp. 1454-1457.	
Li, Cheng Gang	Nanjing Univ. of Aeronautics and Astronautics
Shen, Jing Jin	nanjing Univ. of aeronautics and astronautics
14:10-14:30	FrBT2.3
Preliminary Evaluation of a Lower-Limb Exoskeleton - Stair Climbing, pp. 1458-1463.	
Chandrapal, Mervin	Univ. of Canterbury
Chen, XiaoQi	Univ. of Canterbury
Wang, Wenhui	Tsinghua Univ.
14:30-14:50	FrBT2.4
Development of Universal Gripping Adapters: Sterile Coupling of Medical Devices and Robots Using Robotic Fingers, pp. 1464-1469.	
Entsfellner, Konrad	Tech. Univ. München
Tauber, Robert	Tech. Univ. München
Roppenecker, Daniel B.	Tech. Univ. München
Gumprecht, Jan David Jerome	Tech. Univ. München
Strauss, Gero	Clinic and Pol. for ENT-Medicine and Plastic Surgery, Univ.
Lueth, Tim C.	Tech. Univ. München
14:50-15:10	FrBT2.5
Inertial Sensing for Human Motor Control Symmetry in Injury Rehabilitation, pp. 1470-1475.	
Field, Matthew	Univ. of Wollongong
Stirling, David	Univ. of Wollongong
Ros, Montserrat	Univ. of Wollongong
Pan, Zengxi	Univ. of Wollongong
Naghdy, Fazel	Univ. of Wollongong
15:10-15:30	FrBT2.6
Using Forearm Circumference for Automatic Threshold Calibration for Simple EMG Control, pp. 1476-1481.	
Cannan, James	Univ. of Essex

FrBT3	Hoskins
Sensors and Sensing Systems II (Regular Session)	
Chair: Lattimer, Brian Y.	Virginia Tech.
Co-Chair: Lee, Jangmyung	Busan National Univ. Busan, Korea
13:30-13:50	FrBT3.1
Sensor Fusion Based Seek-And-Find Fire Algorithm for Intelligent Firefighting Robot, pp. 1482-1486.	
Kim, Jong-Hwan	Virginia Tech.
Keller, Brian	Virginia Tech.
Lattimer, Brian Y.	Virginia Tech.
13:50-14:10	FrBT3.2
Encoding Finesse Using Dynamic Movement Primitives and Low-Cost Sensors, pp. 1487-1491.	
Hu, Ai-Ping	Georgia Tech. Res. Inst.
Usher, Colin	Georgia Tech. Res. Inst.
Matthews, James	Georgia Tech. Res. Inst.
14:10-14:30	FrBT3.3
Height Estimation Scheme of Low-Cost Pedestrian Dead-Reckoning System Using Kalman Filter and Walk Condition Estimation Algorithm, pp. 1492-1497.	
Kim, Yunki	Pusan National Univ.
Hwang, Yo-Seop	Pusan national Univ.
Choi, Seunghwan	Pusan National Univ.
Lee, Jangmyung	Busan National Univ. Busan, Korea
14:30-14:50	FrBT3.4
An Ionic Liquid-Based Actuator As a Humidity Sensor, pp. 1498-1503.	
Must, Indrek	IMS Lab. Univ. of Tartu, Estonia
Johanson, Urmas	IMS Lab. Univ. of Tartu, Estonia
Kaasik, Friedrich	IMS Lab. Univ. of Tartu, Estonia
Põldsalu, Inga	IMS Lab. Univ. of Tartu, Estonia
Punning, Andres	IMS Lab. Univ. of Tartu, Estonia
Aabloo, Alvo	IMS Lab. Univ. of Tartu, Estonia
14:50-15:10	FrBT3.5
Autonomous Fire Suppression Using Multispectral Sensors, pp. 1504-1509.	
McNeil, Joshua	Virginia Tech.
Starr, Joseph	Virginia Tech. Department of Mechanical Engineering
Lattimer, Brian Y.	Virginia Tech.

FrBT4	Kembla
Vehicle Control (Regular Session)	
Chair: Katupitiya, Jayantha	The Univ. of New South Wales
Co-Chair: Liaw, Hwee Choo	National Univ. of Singapore
13:30-13:50	FrBT4.1
Development of a Hardware-In-The-Loop Simulator and Flight Simulation of a Subscale Experimental Winged Rocket, pp. 1510-1515.	
Yamasaki, Hiroshi	Kyushu Inst. of Tech.
Matsumoto, Takaaki	Kyushu Inst. of Tech.
Miyamoto, Shintaro	Kyushu Inst. of Tech.
Itakura, Kyoshiro	Kyushu Inst. of Tech.
Yonemoto, Koichi	Kyushu Inst. of Tech.
13:50-14:10	FrBT4.2
Design and Development of a Compact Hovercraft Vehicle, pp. 1516-1521.	
Hein, Soe Myat	National Univ. of Singapore
Liaw, Hwee Choo	National Univ. of Singapore
14:10-14:30	FrBT4.3
Velocity-Free Image-Cased Control of Unmanned Aerial Vehicles, pp. 1522-1527.	
Mebarki, Rafik	Univ. degli Studi di Napoli Federico II
Siciliano, Bruno	Univ. degli Studi di Napoli Federico II
14:30-14:50	FrBT4.4
A Novel Cost Effective Method for Vehicle Tire-Road Friction Coefficient Estimation, pp. 1528-1533.	
Li, Boyuan	Univ. of Wollongong
Du, Haiping	Univ. of Wollongong
Li, Weihua	Univ. of Wollongong
14:50-15:10	FrBT4.5
A Sliding Mode Controller with Disturbance Observer for a Farm Vehicle Operating in the Presence of Wheel Slips, pp. 1534-1539.	
Taghia, Javad	Univ. of New South Wales
Katupitiya, Jayantha	The Univ. of New South Wales
15:10-15:30	FrBT4.6
Teleoperation of an Unmanned Car Via Robust Adaptive Backstepping Control Approach, pp. 1540-1545.	
Mohajerpoor, Reza	Amirkabir Univ. of Tech.
Salavati Dezfuli, Saeed	Amirkabir Univ. of Tech.
Bahadori, Behnam	Azad Univ.

FrBT5	Keira
Underwater Robotics (Regular Session)	
Chair: Tan, Xiaobo	Michigan State Univ.
Co-Chair: Valentinis, Francis	DSTO
13:30-13:50	FrBT5.1
Control of an Underactuated-Slender-Hull Unmanned Underwater Vehicle Using Port-Hamiltonian Theory, pp. 1546-1551.	
Valentinis, Francis	DSTO
Perez, Tristan	The Univ. of Newcastle
Donaire, Alejandro	The Univ. of Newcastle
13:50-14:10	FrBT5.2
A Dynamic Model for Robotic Fish with Flexible Pectoral Fins, pp. 1552-1557.	
Bazaz Behbahani, Sanaz	Michigan State Univ.
Wang, Jianxun	Michigan State Univ.
Tan, Xiaobo	Michigan State Univ.
14:10-14:30	FrBT5.3
Design and Development of an LED-Based Optical Communication System for Autonomous Underwater Robots, pp. 1558-1563.	
Tian, Bin	Michigan State Univ.
Zhang, Feitian	Michigan State Univ.
Tan, Xiaobo	Michigan State Univ.
14:30-14:50	FrBT5.4
Neural Controller for Swimming Modes and Gait Transition on an Ostraciiform Fish Robot, pp. 1564-1569.	
Wang, Wei	Peking Univ.
Guo, Jiajie	Huazhong Univ. of Science and Tech.
Wang, Zijian	Beihang Univ.
Xie, Guangming	Peking Univ.
14:50-15:10	FrBT5.5
An Analysis of Homeostatic Motion Control System for a Hybrid-Driven Underwater Glider, pp. 1570-1575.	
Isa, Khalid	Univ. Tun Hussein Onn Malaysia (UTHM)
Arshad, Mohd Rizal	Univ. Sains Malaysia (USM)

FrBT6	Belmore
Modeling, Simulation and Design (Regular Session)	
Chair: Hashimoto, Hideki	Chuo Univ.
Co-Chair: Bae, Joonbum	UNIST
13:30-13:50	FrBT6.1
Positioning Method for Pipeline Security Pre-Warning System Based on the Third-Order Cumulant Algorithm, pp. 1576-1578.	
Feng, Hao	Tianjin Univ.
Li, Jian	State Key Lab. of Precision Inst. & Tech.
Chen, Shili	Tianjin Univ.
An, Yang	Tianjin Univ.
Zeng, Zhou-Mo	Tianjin Univ.
Jin, Shijiu	Tianjin Univ.
13:50-14:10	FrBT6.2
Optimal Design of Harmonic Drive Servo, pp. 1579-1584.	
Malmquist, Daniel	KTH Royal Inst. of Tech.
Wikander, Jan	KTH Royal Inst. of Tech.
Frede, Daniel	KTH Royal Inst. of Tech.
14:10-14:30	FrBT6.3
The Novel Hybrid Energy Storing Unit Design for Hybrid Excavator by the Effective Integration of Ultracapacitor and Battery, pp. 1585-1590.	
Wang, Hongmei	The State Key Lab. of Fluid Power Transmission and Control
Wang, Qingfeng	Zhejiang Univ.
Hu, Baozan	The State Key Lab. of Fluid Power Transmission and Control
Feng, Qiang	The State Key Lab. of Fluid Power Transmission and Control
14:30-14:50	FrBT6.4
Skill-Based Simulation Model for Optimizing Strategy in Golf, pp. 1591-1596.	
Sugawara, Shogo	Hokkaido Univ.
Suzuki, Keiji	Hokkaido Univ.
Kawamura, Hidenori	Hokkaido Univ.
14:50-15:10	FrBT6.5
Design, Modeling, and Simulation of a 2-DOF Microgripper for Grasping and Rotating of Optical Fibers, pp. 1597-1602. Attachment	
Shi, Xiaohui	Beihang Univ.
Chen, Weihai	Beijing Univ. of Aeronaurics and Astronautics
Zhang, Jianbin	Beijing Univ. of Aeronautics & Astronautics
Chen, Wenjie	Singapore Inst. of Manufacturing Tech.
15:10-15:30	FrBT6.6
Automated Construction of Gear Racks, Spur Gears and Helical Gears Using Matlab & STL Files for Rapid Manufacturing, pp. 1603-1608.	
Traeger, Mattias F.	Tech. Univ. München
Krieger, Yannick S.	Tech. Univ. München
Lueth, Tim C.	Tech. Univ. München

FrCT1	Throsby
Fault Detection and Diagnosis in Mechatronics (Regular Session)	
Chair: Yang, Guilin	Singapore Inst. of Manufacturing Tech.
Co-Chair: Ang Jr, Marcelo H	National Univ. of Singapore
16:00-16:20	FrCT1.1
A Robust Fault Detection Approach on the Basis of Virtual Sensors Collocated with Fault Excitations, pp. 1609-1614.	
Wang, Zhentao	Tech. Univ. Darmstadt
Borsdorf, Matthias	Inst. for Mechatronic System in Mechanical Engineering, TU D
Rinderknecht, Stephan	TU Darmstadt
16:20-16:40	FrCT1.2
Feature Extraction for Bearing Fault Diagnosis Using Composite Multiscale Entropy, pp. 1615-1618.	
Wu, Shuen-De	National Taiwan Normal Univ.
Wu, Chiu-Wen	National Taiwan Normal Univ.
Lin, Shiou-Gwo	National Taiwan Ocean Univ.
Wang, Chun-Chieh	Industrial Tech. Res. Inst.
Lee, Kung-Yen	National Taiwan Univ.
16:40-17:00	FrCT1.3
Contacting Mechanical Impedance of Human Finger Based on Uncertain System, pp. 1619-1624.	
Bi, Qian	Zhejiang Univ.
Yang, Can-Jun	Zhejiang Univ.
Deng, Xue-Lei	Zhejiang Univ.
Fan, Jinchang	the State Key Lab. of Fluid Power Transmission and Control, Zhej
17:00-17:20	FrCT1.4
Detecting Broken Reciprocating Compressor Valves in the Pv Diagram, pp. 1625-1630.	
Pichler, Kurt	Linz Center of Mechatronics
Lughofer, Edwin	Johannes Kepler Univ. Linz
Pichler, Markus	Linz Center of Mechatronics
Buchegger, Thomas	Linz Center of Mechatronics
Klement, Erich Peter	Johannes Kepler Univ. Linz
Huschenbett, Matthias	Hoerbiger Service America
17:20-17:40	FrCT1.5
A Time-Domain Fault Detection Method Based on an Electrical Machine Stator Current Measurement for Planetary Gear-Sets, pp. 1631-1636.	
Hong, Liu	Nanyang Tech. Univ.
Dhupia, Jaspreet Singh	Nanyang Tech. Univ.
17:40-18:00	FrCT1.6
A Calibration Framework for Industrial Robotic Work Cells, pp. 1637-1642.	
Tao, Pey Yuen	SIMTech
Yang, Guilin	Singapore Inst. of Manufacturing Tech.
Tomizuka, Masayoshi	Univ. of California

FrCT2	McCabe
Medical Robotics/Mechatronics III (Regular Session)	
Chair: Yao, Bin	Purdue Univ.
Co-Chair: Jager, Edwin W. H.	Linkoping Univ.
16:00-16:20	FrCT2.1
Kinematic Analysis of a 5 DOF Upper-Limb Exoskeleton with a Tilted and Vertically Translating Shoulder Joint (I), pp. 1643-1648.	
Jung, Yeongtae	UNIST
Bae, Joonbum	UNIST
16:20-16:40	FrCT2.2
A Teleoperation System with an Exoskeleton Interface (I), pp. 1649-1654.	
Jo, Inseong	UNIST
Park, Yeon gyu	UNIST(Ulsan National Inst. of Science and Tech.
Bae, Joonbum	UNIST
16:40-17:00	FrCT2.3
Compensation and Calibration of Gravitational Forces in a Force-Feedback Enabled Surgical Robot, pp. 1655-1660.	
Schwalb, Willem Heinrich	Monash Univ.
Shirinzadeh, Bijan	Monash Univ.
Zhong, Yongmin	Monash Univ.
Smith, Julian	Monash Univ.
17:00-17:20	FrCT2.4
Conducting Polymer Actuators for Medical Devices and Cell Mechanotransduction, pp. 1661-1666.	
Jager, Edwin W. H.	Linkoping Univ.
17:20-17:40	FrCT2.5
Investigation of a Biomimetic Fingertip's Ability to Discriminate Fabrics Based on Surface Textures, pp. 1667-1674.	
Katudampe Vithanage, Damith Suresh Chathuranga	Ritsumeikan Univ.
Ho, Van	Ritsumeikan Univ.
Hirai, Shinichi	Ritsumeikan Univ.

FrCT3	Hoskins
Sensors and Sensing Systems III (Regular Session)	
Chair: Chen, Liang-Chia	National Taiwan Univ.
Co-Chair: Starr, Joseph	Virginia Tech. Department of Mechanical Engineering
16:00-16:20	FrCT3.1
Application of Thermal Infrared Stereo Vision in Fire Environments, pp. 1675-1680.	
Starr, Joseph	Virginia Tech. Department of Mechanical Engineering
Lattimer, Brian Y.	Virginia Tech. Department of Mechanical Engineering
16:20-16:40	FrCT3.2
Optical Sensing by Polystyrene Microspheres, pp. 1681-1685.	
Miri, Narges	Univ. of Adelaide
Mohammadzaheri, Morteza	Univ. of Adelaide
Chen, Lei	Univ. of Adelaide
16:40-17:00	FrCT3.3
An Acoustic Emission Event Determination Method for Acoustic Emission Testing of Tank Bottom Based on Cluster Analysis, pp. 1686-1691.	
Wang, Wei-Kui	Tianjin Univ.
Li, Yi-Bo	Tianjin Univ.
Li, Yi-Nan	Tianjin Univ.
Zhang, Yu	Tianjin Univ.
17:00-17:20	FrCT3.4
Algorithm of Markerless Long Distance 6-DOF Motion Detection System Based on Laser Distance Sensors, pp. 1692-1695.	
Kim, Young-Keun	KAIST
Kim, Kyung-Soo	KAIST(Korea Advanced Inst. of Science and Tech.
Kim, Soohyun	KAIST(Korea Advanced Inst. of Science and Tech.
17:20-17:40	FrCT3.5
Decentralized Multi-Camera Fusion for Robust and Accurate Pose Estimation, pp. 1696-1701.	
Assa, Akbar	Ryerson Univ.
Sharifi, Farrokh	ryerson

FrCT4 Kembla

Vibration and Noise Control (Regular Session)

Chair: Tomizuka, Masayoshi — Univ. of California

Co-Chair: Kim, Keehoon — Korea Inst. of Science and Tech.

16:00-16:20 FrCT4.1

A New Magnetorheological Elastomer Isolator in Shear - Compression Mixed Mode, pp. 1702-1706.

Fu, Jie — Chongqing Univ.

Yu, Miao — Coll. of Optoelectronic Engineering, Chongqing Univ.

16:20-16:40 FrCT4.2

Reduced-Complexity and Robust Youla Parameterization for Discrete-Time Dual-Input-Single-Output Systems, pp. 1707-1712.

Chen, Xu — Univ. of California, Berkeley

Tomizuka, Masayoshi — Univ. of California

16:40-17:00 FrCT4.3

An Application of Nonlinear Feature Extraction - a Case Study for Low Speed Slewing Bearing Condition Monitoring and Prognosis, pp. 1713-1718.

Caesarendra, Wahyu — Univ. of Wollongong

Kosasih, Buyung — Univ. of Wollongong

Tieu, Kiet — Univ. of Wollongong

Moodie, Craig — Univ. of Wollongong

17:00-17:20 FrCT4.4

H-Infinity and State-Feedback Controllers for Vibration Suppression in a Single-Link Flexible Robot, pp. 1719-1724.

Duarte, Franklyn — Inst. of Electrical Information Tech. Clausthal Univ.

Ballesteros, Pablo — Inst. of Electrical Information Tech. Clausthal Univ.

Bohn, Christian — Inst. of Electrical Information Tech. Clausthal Univ.

17:20-17:40 FrCT4.5

Analytical Modeling of Disk-Type Piezoelectric Variable Friction Tactile Displays, pp. 1725-1730.

Son, Kwon Joong — American Univ. in Dubai

Kim, MinKyu — Korea Inst. of Science and Tech.

Kim, Keehoon — Korea Inst. of Science and Tech.

17:40-18:00 FrCT4.6

Active Damping of Aircraft Engine Shafts Using Integral Force Feedback and Piezoelectric Stack Actuators, pp. 1731-1736.

Borsdorf, Matthias — TU Darmstadt

Schittenhelm, Rudolf Sebastian — TU Darmstadt

Wang, Zhentao — Tech. Univ. Darmstadt

Bös, Johannes — TU Darmstadt

Rinderknecht, Stephan — TU Darmstadt

FrCT5 Keira

Innovative Technologies for the Next Generation of Robotic Hands (Regular Session)

Chair: Siciliano, Bruno — Univ. Napoli Federico II

Co-Chair: Palli, Gianluca — Univ. of Bologna

16:00-16:20 FrCT5.1

A Model-Based Strategy for Mapping Human Grasps to Robotic Hands Using Synergies, pp. 1737-1742.

Ficuciello, Fanny — Univ. degli Studi di Napoli Federico II

Palli, Gianluca — Alma Mater Studiorum Univ. di Bologna

Melchiorri, Claudio — Alma Mater Studiorum Univ. di Bologna

Siciliano, Bruno — Univ. degli Studi di Napoli Federico II

16:20-16:40 FrCT5.2

Modelling and Control of Robotic Joints Based on Sliding Pairs, pp. 1743-1748.

Palli, Gianluca — Univ. of Bologna

Melchiorri, Claudio — Univ. of Bologna

16:40-17:00 FrCT5.3

Active Robot Hand Compliance Using Operational Space and Integral Sliding Mode Control, pp. 1749-1754.

Jalani, Jamaludin — Univ. Tun Hussein Onn Malaysia & Univ. of Bristol, UK

Mahyuddin, Muhammad Nasiruddin — Univ. of Bristol, UK

Herrmann, Guido — Univ. of Bristol, UK

Melhuish, Chris — Bristol Robotics Lab. UK

17:00-17:20 FrCT5.4

Mechatronic Design of Innovative Robot Hands: Integration and Control Issues, pp. 1755-1760.

Palli, Gianluca — Univ. of Bologna

Pirozzi, Salvatore — Seconda Univ. degli Studi di Napoli

Natale, Ciro — Seconda Univ. di Napoli

De Maria, Giuseppe — Seconda Univ. degli Studi di Napoli

Melchiorri, Claudio — Univ. of Bologna

17:20-17:40 FrCT5.5

Comparative Evaluation of Straight and Curved Beam Flexures for Selectively Compliant Mechanisms, pp. 1761-1766.

Berselli, Giovanni — Univ. di Modena e Reggio Emilia

Parvari Rad, Farid — Univ. di Bologna

Vertechy, Rocco — Scuola Superiore Sant'Anna

Parenti Castelli, Vincenzo — Univ. di Bologna

FrCT6	Belmore
Modeling and Design of Mechatronic Systems II (Regular Session)	
Chair: Berselli, Giovanni	Univ. di Modena e Reggio Emilia
Co-Chair: Dudley, John James	Univ. of Queensland
16:00-16:20	FrCT6.1
Modeling and Design of Mechatronics System with Sysml, Simscape and Simulink, pp. 1767-1773.	
Abdul Rahman, Mohd Azizi	Shibaura Inst. ofTechnology
Mizukawa, Makoto	Shibaura Inst. of Tech.
16:20-16:40	FrCT6.2
Pitch Control for a Constant-Speed Wind Turbine Using Equivalent-Input-Disturbance Approach, pp. 1774-1779.	
Zhang, Jie	Waseda Univ.
She, Jinhua	Tokyo Univ. of Tech.
Yokoyama, Ryuichi	Waseda Univ.
Zhou, Yicheng	FUJITSU LIMITED
Wu, Min	Central South Univ.
16:40-17:00	FrCT6.3
On Designing Optimal Trajectories for Servo-Actuated Mechanisms through Highly Detailed Virtual Prototypes, pp. 1780-1785.	
Berselli, Giovanni	Univ. di Modena e Reggio Emilia
Pellicciari, Marcello	Univ. of Modena and Reggio Emilia
Balugani, Federico	Univ. of Modena and Reggio Emilia
Meike, Davis	Daimler AG
Leali, Francesco	Univ. of Modena and Reggio Emilia
17:00-17:20	FrCT6.4
Dimensioning and Evaluation of the Elastic Element in a Variable Torsion Stiffness Actuator, pp. 1786-1791.	
Schuy, Jochen	Tech. Univ. Darmstadt
Beckerle, Philipp	Tech. Univ. Darmstadt
Faber, Jakob	TU Darmstadt
Wojtusch, Janis Nikolas Harald	TU Darmstadt
Rinderknecht, Stephan	TU Darmstadt
von Stryk, Oskar	Tech. Univ. Darmstadt
17:20-17:40	FrCT6.5
Why the Mining Industry Needs a Reference Architecture for Automation Initiatives, pp. 1792-1797.	
Dudley, John J.	Univ. of Queensland
McAree, P. Ross	Univ. of Queensland
17:40-18:00	FrCT6.6
Integrated Modeling and Analysis of an Extendable Double-Link Two Wheeled Mobile Robot, pp. 1798-1803.	
Abdul Rahman, Muhammad Taqiuddin	International Islamic Univ. Malaysia
Ahmad, Salmiah	International Islamic Univ. Malaysia
Akmeliawati, Rini	International Islamic Univ. Malaysia