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Technical Program of 2018 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)

Technical Program for Tuesday July 10, 2018

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Co-Chair: Meng, Wei	Wuhan Univ. of Tech
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Co-Chair: Patton, Ron	Univ. of Hull
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Chair: Ruppert, Michael G.	The Univ. of Newcastle
Co-Chair: Sadeghian, Hamed	TNO
Organizer: Ruppert, Michael G.	The Univ. of Newcastle
Organizer: Yong, Yuen Kuan	The Univ. of Newcastle
Organizer: Sadeghian, Hamed	TNO

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Chair: Maria Joseph, Felix Orlando	Indian Inst. of Tech. Roorkee

Co-Chair: McDaid, Andrew	The Univ. of Auckland
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Chai, Ziqi (Shanghai Jiao Tong Univ. School of Mechanical Engineering), Sun, Yuxin (Shanghai Jiao Tong Univ), Xiong, Zhenhua (Shanghai Jiao Tong Univ)	
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KANG, Xueyang (Tech. Univ. of Munich), YIN, Shengjiong (Tongji Univ), FENG, Yinglong (Tech. Univ. of Munich)	
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Flexible Manipulators and Structures 1 (Regular Session)	
Chair: Lan, Chao-Chieh	National Cheng Kung Univ
Co-Chair: Devaraj, Harish	Univ. of Auckland
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Mohd Faudzi, Ahmad Athif (Univ. Teknologi Malaysia), Azmi, Nor Iskandar (Univ. Teknologi Malaysia), Sayahkarajy, Mostafa (Univ. Teknologi Malaysia), Wong, Liang Xuan (Univ. Teknologi Malaysia), Suzumori, Koichi (Tokyo Inst. of Tech)	
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Zhang, Weihao (Shanghai Jiao Tong Univ), Yang, Zhixiong (Shanghai Jiao Tong Univ), Dong, Tianlai (Shanghai Jiao Tong Univ), Xu, Kai (Shanghai Jiao Tong Univ)	
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<i>Accurate Force Control of Flexible Manipulator Based on Mismatch of Stiffness in Load Side Observer</i> , pp. 353-358.	
Nakamura, Akiko (Yokohama National Univ), Shimono, Tomoyuki (Yokohama National Univ)	

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Chair: Tao, Kai	Northwestern Pol. Univ
Co-Chair: Wang, Fei	Southern Univ. of Science and Tech. (SUSTech)
Organizer: Tao, Kai	Northwestern Pol. Univ
Organizer: Wang, Fei	Southern Univ. of Science and Tech. (SUSTech)
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<i>Low Power-Cost, Self-Organized and Reconfigurable Control Strategy of Multi Sensors Inspired by Biological Mechanism for Target Detection (I)</i> , pp. 365-369.	
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<i>Enhanced Performance of a Rotary Energy Harvester with Bipolar Charged Electrets (I)</i> , pp. 370-374.	
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<i>Vibrational Energy Loss Analysis of a MEMS Disk Resonator Gyroscope (I)</i> , pp. 385-390.	
Xie, Jianbing (Northwestern Pol. Univ), Yang, Jin (Northwestern Pol. Univ), Zhou, Jinqiu (Northwestern Pol. Univ)	
15:40-16:00	TuBT5.6
<i>Low-Profile Rotational Electret Energy Harvester for Battery-Less Wearable Device (I)</i> , pp. 391-394.	
Miyoshi, Tomoya (The Univ. of Tokyo), Adachi, Mitsuru (The Univ. of Tokyo), Tanaka, Yuki (The Univ. of Tokyo), Suzuki, Yuji (The Univ. of Tokyo)	
16:00-16:20	TuBT5.7
<i>Vibration-Driven Micro Energy Harvesting with Piezoelectric Materials (I)</i> , pp. 395-400.	
Kuwano, Hiroki (Tohoku Univ), Le, Van Minh (Tohoku Univ), Nguyen, Hoang Hung (Tohoku Univ), Oguchi, Hiroyuki (Tohoku Univ)	
TuBT6	301-G053
Modeling, Design & Optimization in Mechatronics 1 (Regular Session)	
Chair: Chase, Geoff	Univ. of Canterbury
Co-Chair: Patton, Ron	Univ. of Hull
14:00-14:20	TuBT6.1
<i>Data-Driven Optimal Power Flow Management in an Electric Dual-Drive Topology for Vehicle Electrification</i> , pp. 401-406.	
De Keyser, Arne (Ghent Univ), Crevecoeur, Guillaume (Ghent Univ)	
14:20-14:40	TuBT6.2
<i>Topology Optimization of Leaf Flexures for Stiffness Ratio Maximization in Compliant Mechanisms</i> , pp. 407-412.	
Pinskier, Josh (Monash Univ), Shirinzadeh, Bijan (Monash Univ)	
14:40-15:00	TuBT6.3
<i>Modeling and Optimization of Non-Linear Herschel-Bulkley Fluid Model Based Magnetorheological Valve Geometry</i> , pp. 413-420.	
Keshav, Manjeet (Indian Inst. of Tech. Madras), Chandra Mohan, Sujatha (Indian Inst. of Tech. Madras, Chennai)	

15:00-15:20

TuBT6.4

Comparison Analysis of a Transformable Wheel, pp. 421-426.

Zhou, Faliang (National Univ. of Defence Tech), Xu, Xiaojun (NUDT), Xu, Haijun (NUDT), Zhang, Xiang (NUDT)

15:20-15:40

TuBT6.5

Six DOFs Motion Platform Using Omni-Spherical Wheels, pp. 427-431.

Son, Hungsun (Ulsan National Inst. of Science and Tech), Lee, seong-min (Ulsan National Inst. of Science and Tech. (UNIST))

15:40-16:00

TuBT6.6

Development of Vacuum Suction Unit Using Flame Extinguishment, pp. 432-437.

Han, Ting (Zhejiang Univ), Li, Xin (Zhejiang Univ)

Technical Program for Wednesday July 11, 2018

WAT1	301-G050
Emerging Technologies in Bio-Mechatronic Rehabilitation Robotics (Invited Session)	
Chair: Meng, Wei	Wuhan Univ. of Tech
Co-Chair: Chang, Jen-Yuan (James)	National Tsing Hua Univ
Organizer: Xie, Shane	Univ. of Leeds
Organizer: Chang, Jen-Yuan (James)	National Tsing Hua Univ
Organizer: Pei, Yu-Cheng	Chang Gung Memorial Hospital
Organizer: Meng, Wei	Wuhan Univ. of Tech
10:30-10:50	WAT1.1
<i>Design of a Lightweight Forearm Exoskeleton for Fine-Motion Rehabilitation (I)</i> , pp. 438-443.	
Su, Yin-Yu (National Cheng Kung Univ. Department of Mechanical Engineer), WU, KUAN-YI (National Cheng Kung Univ), Lin, Ching-Hui (National Cheng Kung Univ. Department of Mechanical Engineer), Yu, Ying-Lung (National Cheng Kung Univ. Department of Mechanical Engineer), Lan, Chao-Chieh (National Cheng Kung Univ)	
10:50-11:10	WAT1.2
<i>A Novel Design and Fabrication of Tactile Sensor for Humanoid Robot Finger (I)</i> , pp. 444-447.	
Chou, Min-Chieh (Industrial Tech. Res. Inst), Chang, Jen-Yuan (James) (National Tsing Hua Univ), Yang, Chieh (Industrial Tech. Res. Inst), Lin, Guan-Ting (Industrial Tech. Res. Inst), Kao, Tune-Hune (Industrial Tech. Res. Inst), Huang, Meng-Chi (Industrial Tech. Res. Inst)	
11:10-11:30	WAT1.3
<i>Walking Support Orthosis with an Lower Thigh Rotation Mechanism for Patients with Knee Osteoarthritis</i> , pp. 448-453.	
Itami, Taku (Mie Univ), Yano, Ken'ichi (Mie Univ), Mori, Ichidai (Keiai Orthopedic Appliance Co., Ltd), Kameda, Kazuhiro (Keiai Orthopedic Appliance Co., Ltd), Aoki, Takaaki (Gifu Univ), Kishida, Toshitsugu (Musculoskeletal Functional Anatomy Res. Inst), Hayashi, Norio (Musculoskeletal Functional Anatomy Res. Inst), Matsui, Naruki (Meikou Brace CO., Ltd), Sugawara, Masanori (Meikou Brace CO., Ltd), Shinoda, Nobuyuki (Meikou Brace CO., Ltd)	
11:30-11:50	WAT1.4
<i>Development of a Reconfigurable Wrist Rehabilitation Device with an Adaptive Forearm Holder</i> , pp. 454-459.	
Xu, Dong (Tongji Zhejiang Coll), Zhang, Mingming (Tongji Zhejiang Coll), Sun, Ya (The Jiaxing Second Hospital Rehabilitation Medical Centre), Zhang, Xu (Tongji Zhejiang Coll), Xu, Han (Tongji Zhejiang Coll), Li, Yibin (Tongji Zhejiang Coll), Li, Xiaolong (Tongji Zhejiang Coll), Xie, Sheng Quan (Univ. of Leeds)	
WAT2	303-G13
Unmanned Aerial Vehicles (Regular Session)	
Chair: Foong, Shaohui	Singapore Univ. of Tech. and Design
Co-Chair: Stol, Karl	Univ. of Auckland
10:30-10:50	WAT2.1
<i>Optimized Transition Path of a Transformable HOVering Rotorcraft (THOR)</i> , pp. 460-465.	
Sufiyan, Danial (Singapore Univ. of Tech. & Design), Win, Luke Soe Thura (Singapore Univ. of Tech. & Design), Low, Jun En (Singapore Univ. of Tech. & Design), Kyi Hla Win, Shane (Singapore Univ. of Tech. & Design), Soh, Gim Song (Singapore Univ. of Tech. and Design), Foong, Shaohui (Singapore Univ. of Tech. and Design)	
10:50-11:10	WAT2.2
<i>Constrained Estimation-Based Nonlinear Model Predictive Control for UAV-Elastic Tool Interaction</i> , pp. 466-471.	
Koçer, Başaran Bahadır (Nanyang Tech. Univ), Tjahjowidodo, Tegoeh (Nanyang Tech. Univ), Seet, Gim Lee, Gerald (NTU)	
11:10-11:30	WAT2.3
<i>Nonlinear Predictive UAV-Elastic Tool Interaction Control in Real-Time</i> , pp. 472-477.	
Koçer, Başaran Bahadır (Nanyang Tech. Univ), Seet, Gim Lee, Gerald (NTU), Tjahjowidodo, Tegoeh (Nanyang Tech. Univ)	
11:30-11:50	WAT2.4
<i>A Multirotor Platform Employing a Three-Axis Vertical Articulated Robotic Arm for Aerial Manipulation Tasks</i> , pp. 478-485. Attachment	
Paul, Hannibal (Ritsumeikan Univ), Ono, Koji (Ritsumeikan Univ), Ladig, Robert (Ritsumeikan Univ), Shimonomura, Kazuhiro (Ritsumeikan Univ)	
11:50-12:10	WAT2.5
<i>Automated Perching of a Multirotor UAV Atop round Timber Posts</i> , pp. 486-491.	
Lin, Tzu-Jui (Univ. of Auckland), Long, Siyu (David) (Univ. of Auckland), Stol, Karl (Univ. of Auckland)	
12:10-12:30	WAT2.6
<i>Towards a Stable Three-Mode Transformable HOVering Rotorcraft (THOR)</i> , pp. 492-497.	
Low, Jun En (Singapore Univ. of Tech. & Design), Win, Luke Soe Thura (Singapore Univ. of Tech. & Design), Lee, Jiong Le (Singapore Univ. of Tech. & Design), Soh, Gim Song (Singapore Univ. of Tech. and Design), Foong, Shaohui (Singapore Univ. of Tech. and Design)	

WAT3	303-G16
Sensing and Robotics for Coverage Optimization (Invited Session)	
Chair: Chen, Xiang	Univ. of Windsor
Co-Chair: Liu, Dikai	Univ. of Tech. Sydney
Organizer: Chen, Xiang	Univ. of Windsor
Organizer: Liu, Dikai	Univ. of Tech. Sydney
Organizer: Lee, Kok-Meng	Georgia Inst. of Tech
10:30-10:50	WAT3.1
<i>Grid Map Guided Indoor 3D Reconstruction for Mobile Robots with RGB-D Sensors (I)</i> , pp. 498-503.	
Zhang, Boyu (Nankai Univ), Zhang, Xuebo (Nankai Univ), Chen, Xiang (Univ. of Windsor), Fang, Yongchun (Nankai Univ)	
10:50-11:10	WAT3.2
<i>Modeling and Optimizing the Coverage Performance of the LiDAR Sensor Network (I)</i> , pp. 504-509.	
Farzadpour, Farsam (Univ. of Windsor), Church, Philip (Neptec Tech. Corp), Chen, Xiang (Univ. of Windsor)	
11:10-11:30	WAT3.3
<i>Machine Perception Based on Field Reconstruction for Conductivity and Hidden Geometrical Feature Characterization (I)</i> , pp. 510-515.	
Li, Min (Georgia Inst. of Tech), Lee, Kok-Meng (Georgia Inst. of Tech)	
11:30-11:50	WAT3.4
<i>Active Planning of Robot Navigation for 3D Scene Exploration (I)</i> , pp. 516-520.	
Chen, Wenzhou (Zhejiang Univ), Liu, Yong (Zhejiang Univ)	
11:50-12:10	WAT3.5
<i>High-Resolution 3D Optical Sensing and Real-Time 3D Video Data Streaming (I)</i> , pp. 521-526.	
Bell, Tyler (Purdue Univ), Zhang, Song (Purdue Univ)	
12:10-12:30	WAT3.6
<i>Performance Evaluation of an Evolutionary Multiobjective Optimization Based Area Partitioning and Allocation Approach (I)</i> , pp. 527-532.	
Hassan, Mahdi (Univ. of Tech. Sydney), Liu, Dikai (Univ. of Tech. Sydney)	
WAT4	303-G14
Actuators 2 (Regular Session)	
Chair: Fujii, Fumitake	Graduate School of Science and Tech. for Innovation, Yamaguchi Univ
Co-Chair: Lamarque, Frédéric	Univ. De Tech. De Compiègne
10:30-10:50	WAT4.1
<i>Robust Force Control of Piezoelectric Precision Positioning Actuators Using Self-Sensing Method</i> , pp. 533-538.	
Fallahinia, Navid (Univ. of Utah), Zareinejad, Mohammad (Amirkabir Univ. of Tech), Talebi, Ali (Amirkabir Univ. of Tech), Ghafarirad, Hamed (Amirkabir Univ. of Tech)	
10:50-11:10	WAT4.2
<i>Two-Types Force Controllers for a Prismatic Actuation Module Redundantly Driven by Multiple Sheet-Type Dielectric Elastomer Actuators</i> , pp. 539-544.	
Kubota, Hiroki (Kyushu Univ), Tahara, Kenji (Kyushu Univ)	
11:10-11:30	WAT4.3
<i>Displacement Improvement from Variable Pre-Stretch Diaphragm Type Dielectric Elastomer Actuator</i> , pp. 545-550.	
Vo, Tran Vy Khanh (National Univ. of Singapore), Mathew, Anup Teejo (National Univ. of Singapore), Short, Joel Stephen (Singapore Inst. of Manufacturing Tech), Quek, Zhan Fan (Singapore Inst. of Manufacturing Tech), Ang Jr, Marcelo H (National Univ. of Singapore), Koh, Soo Jin Adrian (National Univ. of Singapore)	
11:30-11:50	WAT4.4
<i>An Extension of Modified Bouc-Wen Model to Capture Frequency Dependent Hysteresis of a Bimorph Piezo Actuator Exhibiting Odd Harmonic Oscillation</i> , pp. 551-556.	
Fujii, Fumitake (Yamaguchi Univ), Tatebatake, Ken'ichi (Yamaguchi Univ)	
11:50-12:10	WAT4.5
<i>Design of an Innovative Cylindrical Spring with a Negative Stiffness</i> , pp. 557-562.	
Chavanne, Jonathan (Ec. Pol. Fédérale De Lausanne (EPFL)), Civet, Yoan (EPFL), Perriard, Yves (Ec. Pol. Fédérale De Lausanne (EPFL))	
WAT5	302-G20

MEMS and Nano Devices (Regular Session)	
Chair: Aw, Kean C.	The Univ. of Auckland
Co-Chair: Sun, Dong	City Univ. of Hong Kong
10:30-10:50	WAT5.1
<i>Modeling and Analysis of Flexure-Based Nano Positioning Devices Driven by Voice Coil Actuator</i> , pp. 563-568.	
Huang, Xiaolu (Ningbo Inst. of Materials Tech. & Engineering, Chinese), Yang, Bao (Univ. of Chinese Acad. of Sciences; Ningbo Inst. of Ma), Zhang, Chi (Ningbo Inst. of Material Tech. and Engineering, CAS), Chen, Silu (Ningbo Inst. of Material Tech. and Engineering, CAS), Chen, Jinhua (Ningbo Inst. of Material Tech. and Engineering, CAS)	
10:50-11:10	WAT5.2
<i>Micro-Reactive Inkjet Printer for 2D and 3D Hydrogel Structures</i> , pp. 569-573.	
Teo, Mei (Univ. of Auckland), Stuart, Logan (The Univ. of Auckland), Aw, Kean C. (The Univ. of Auckland), Stringer, Jonathan (Univ. of Auckland)	
11:10-11:30	WAT5.3
<i>Reduction of Residual Vibration in Displacement-Amplified Micro-Electromagnetic Actuators with Non-Linear Dynamics Using Input Shaping</i> , pp. 574-579.	
Eaglin, Gerald (Univ. of Louisiana at Lafayette), Vaughan, Joshua (Univ. of Louisiana at Lafayette), Nabae, Hiroyuki (Tokyo Inst. of Tech)	
11:30-11:50	WAT5.4
<i>Design and Fabrication of Electromagnetic Induction Type MEMS Generators with Ceramic Magnetic Circuit</i> , pp. 580-585.	
Kaneko, Minami (Nihon Univ), Kudo, Kazuya (Nihon Univ), Mishima, Kaito (Nihon Univ), Ebisawa, Kazuki (Nihon Univ), Saito, Ken (Coll. of Science and Tech. Nihon Univ), Uchikoba, Fumio (Nihon Univ)	
11:50-12:10	WAT5.5
<i>Error Contributions During MEMS Gyroscope Calibration by Chip-Scale Micro-Stage with Capacitive Motion Sensor</i> , pp. 586-592.	
Chen, Yi (Univ. of Michigan), Aktakka, Ethem Erkan (Univ. of Michigan), Woo, Jong-Kwan (Univ. of Michigan, Ann Arbor), Najafi, Khalil (Univ. of Michigan), Oldham, Kenn (Univ. of Michigan)	
WAT6	301-G053
Learning and Neural Control in Mechatronics (Regular Session)	
Chair: Lee, Jangmyung	Busan National Univ. Busan, Korea
Co-Chair: Kukreja, Sunil, L.	National Univ. of Singapore
10:30-10:50	WAT6.1
<i>Data-Driven Model-Free Iterative Tuning Approach for Smooth and Accurate Tracking</i> , pp. 593-598.	
Li, Xiaocong (SIMTech, A*STAR), Chen, Si-Lu (Inst. of Advanced Manufacturing Tech. Ningbo Inst), Ma, Jun (National Univ. of Singapore), Teo, Chek Sing (SIMTech), Tan, Kok Kiong (National Univ. of Singapore)	
10:50-11:10	WAT6.2
<i>Helical Contouring Control with Online Iterative Learning Control</i> , pp. 599-603.	
Dao, Viet-Tu (National Chung Cheng Univ), Chen, Shyh-Leh (National Chung Cheng Univ)	
11:10-11:30	WAT6.3
<i>High Dynamic Control of a Flexure Fast Tool Servo Using On-Line Sequential Extreme Learning Machine</i> , pp. 604-609.	
Wu, Zelong (Guangdong Univ. of Tech), Tang, Hui (Guangdong Univ. of Tech), Chen, Xin (Guangdong Univ. of Tech), Gao, Jian (Guangdong Univ. of Tech), He, Yunbo (Guangdong Univ. of Tech), Xu, Ying (Guangdong Univ. of Tech), chen, xun (Guangdong Univ. of Tech), To, Suet (The Hong Kong Pol. Univ), Li, Yangmin (The Hong Kong Pol. Univ), Cui, Chengqiang (Guangdong Univ. of Tech)	
11:30-11:50	WAT6.4
<i>Pump-Pressure-Compensation-Based Adaptive Neural Torque Control of a Hydraulic Excavator with Open Center Valves</i> , pp. 610-615.	
Li, Yong (Zhejiang Univ), Wang, Qingfeng (Zhejiang Univ)	
11:50-12:10	WAT6.5
<i>Deep Learning Based on Smooth Driving</i> , pp. 616-621.	
Kim, Kiseo (Pusan National Univ), Kim, Dongeon (Pusan National Univ), Lee, Jangmyung (Busan National Univ. Busan, Korea)	
12:10-12:30	WAT6.6
<i>Disturbance Observer-Based H_∞ Control of the T-S Fuzzy Model under Imperfect Premise Matching</i> , pp. 622-627.	
Hwang, Soungwan (Yonsei Univ. Seoul), Park, Jin Bae (Yonsei Univ. Seoul), Joo, Young Hoon (Kunsan National Univ)	
WBT1	301-G050
Human Machine Interfaces 2 (Regular Session)	
Chair: PETRUSHIN, Alexey	Fondazione Istituto Italiano Di Tecnologia

Co-Chair: Meng, Wei	Wuhan Univ. of Tech
13:30-13:50	WBT1.1
<i>Effect of a Click-Like Feedback on Motor Imagery in EEG-BCI and Eye-Tracking Hybrid Control for Telepresence</i> , pp. 628-633.	
PETRUSHIN, Alexey (Istituto Italiano Di Tecnologia), Tessadori, Jacopo (Fondazione Istituto Italiano Di Tecnologia (IIT)), Barresi, Giacinto (Istituto Italiano Di Tecnologia), Mattos, Leonardo (Istituto Italiano Di Tecnologia)	
13:50-14:10	WBT1.2
<i>Tactical-Level Input with Multimodal Feedback for Unscheduled Takeover Situations in Human-Centered Automated Vehicles</i> , pp. 634-639.	
Manawadu, Udara Eshan (Waseda Univ), Kawano, Takahiro (Waseda Univ), Hayashi, Hiroaki (Waseda Univ), Ema, Takaaki (Waseda Univ), Kamezaki, Mitsuhiro (Waseda Univ), Sugano, Shigeki (Waseda Univ)	
14:10-14:30	WBT1.3
<i>Design of a 3-D Printed 6-Dof Joystick with Force Sensing</i> , pp. 640-645.	
Asad, Talha Bin (School of Mechanical Engineering, Shanghai Jiao Tong Univ), Han, Yong (Shanghai Jiao Tong Univ), Xiong, Zhenhua (Shanghai Jiao Tong Univ)	
14:30-14:50	WBT1.4
<i>Comparative Study of Soft Motion for Motion Copying System with Environmental Variations</i> , pp. 646-651.	
Okano, Toshiaki (Keio Univ), Oboe, Roberto (Univ. of Padova), Ohnishi, Kouhei (Keio Univ), Murakami, Toshiyuki (Keio Univ)	
14:50-15:10	WBT1.5
<i>Analysis of Estimation Performance of Load-Side Torque and Load-Side Velocity Observers for Human Interaction Control Based on Torsion Torque Control</i> , pp. 652-657.	
Kawai, Yusuke (Nagaoka Univ. of Tech), Yokokura, Yuki (Nagaoka Univ. of Tech), Ohishi, Kiyoshi (Nagaoka Univ. of Tech), Miyazaki, Toshimasa (Nagaoka Univ. of Tech)	
WBT2	303-G13
Mobile Robots 1 (Regular Session)	
Chair: Jiang, Zainan	Harbin Inst. of Tech
Co-Chair: Shi, Yan	Beihang Univ
13:30-13:50	WBT2.1
<i>Development and Design of AIV Using Hub Motor Embedded in Mecanum Wheel</i> , pp. 658-663.	
Huang, Jung-Tang (National Taipei Univ. of Tech), Hu, Jun-Yan (National Taipei Univ. of Tech), LO, JUN-WEI (National Taipei Univ. of Tech), CAI, QI-DONG (National Taipei Univ. of Tech)	
13:50-14:10	WBT2.2
<i>Conceptual Design of a Wheel-Track Hybrid Mobile Robot</i> , pp. 664-669.	
Han, Zechao (NUDT), Xu, Haijun (NUDT), Xu, Xiaojun (NUDT), Zhang, Xiang (NUDT)	
14:10-14:30	WBT2.3
<i>Soft Simple Compact Valve Inducing Self-Excited Vibration Aimed for Mobile Robots Unnecessary for Electricity</i> , pp. 670-675.	
Miyaki, Yuji (Tokyo Inst. of Tech), Tsukagoshi, Hideyuki (Tokyo Inst. of Tech)	
14:30-14:50	WBT2.4
<i>Design of Claw-Like Hand-Foot Fusion Mechanism for the Multi-Legged Robot</i> , pp. 676-681.	
Ni, Fenglei (Harbin Inst. of Tech), Zhang, Shengyu (Harbin Inst. of Tech), Jiang, Zainan (Harbin Inst. of Tech), Liu, Hong (Harbin Inst. of Tech)	
14:50-15:10	WBT2.5
<i>Contextual Online Learning Selection of Finite State Machines for Mobile Robots</i> , pp. 682-687.	
Cui, Chuanzhe (Huazhong Univ. of Sci. & Tech), Zhou, Pan (Huazhong Univ. of Sci. & Tech), Gao, Liang (Huazhong Univ. of Sci. & Tech)	
15:10-15:30	WBT2.6
<i>Survey on Bioinspired Adhesive Methods and Design and Implementation of a Multi-Mode Biomimetic Wall-Climbing Robot</i> , pp. 688-693.	
XU, Jiajun (Univ. of Science and Tech. of China), Xu, Linsen (Hefei Inst. of Physical Science, CAS(Changzhou Inst. Of)), LIU, Jinfu (Univ. of Science and Tech. of China), LI, Xiaohu (Hefei Inst. of Physical Science, CAS), WU, Xuan (Hefei Inst. of Physical Science, CAS(Changzhou Inst. Of))	
WBT3	303-G16
Sensors and Sensing Systems 2 (Regular Session)	
Chair: Lee, Jangmyung	Busan National Univ. Busan, Korea
Co-Chair: Aoyama, Tadayoshi	Nagoya Univ

13:30-13:50	WBT3.1
<i>A Soft Time Synchronization Framework for Multi-Sensors in Autonomous Localization and Navigation</i> , pp. 694-699. Hu, Hang (Shanghai Jiao Tong Univ), Wu, Jianhua (Shanghai Jiao Tong Univ), Xiong, Zhenhua (Shanghai Jiao Tong Univ)	
13:50-14:10	WBT3.2
<i>Position Control of a Soft Prosthetic Finger with Limited Feedback Information</i> , pp. 700-705. Kumbay Yildiz, Solen (Hacettepe Univ), Mutlu, Rahim (Univ. of Wollongong), Alici, Gursel (Univ. of Wollongong)	
14:10-14:30	WBT3.3
<i>Fault-Tolerant Control of a Novel Powered Wheelchair Driven by Rim Motors with Hall Effect Sensors</i> , pp. 706-711. Yang, Yee-Pien (National Taiwan Univ), Shih, Hua Yu (National Taiwan Univ)	
14:30-14:50	WBT3.4
<i>Multithread Active Vision-Based Modal Analysis Using Multiple Vibration Distribution Synthesis Method</i> , pp. 712-717. Aoyama, Tadayoshi (Nagoya Univ), Li, Liang (Hiroshima Univ), Jiang, Mingjun (Hiroshima Univ), Takaki, Takeshi (Hiroshima Univ), Ishii, Idaku (Hiroshima Univ), Yang, Hua (Huazhong Univ. of Science and Tech), Umemoto, Chikako (Keisoku Res. Consultant Co), Matsuda, Hiroshi (Nagasaki Univ), Chikaraishi, Makoto (Hiroshima Univ), Fujiwara, Akimasa (Hiroshima Univ)	
14:50-15:10	WBT3.5
<i>Experimental Evaluation of Piezoelectric Self-Sensing During Terrestrial Locomotion of a Miniature Legged Robot</i> , pp. 718-723. Zhang, Buyi (Univ. of Michigan, Ann Arbor), Qu, Jinhong (Univ. of Michigan), Oldham, Kenn (Univ. of Michigan)	
15:10-15:30	WBT3.6
<i>Development of a Wind Tunnel Experimental Setup for Testing Multirotor Unmanned Aerial Vehicles in Turbulent Conditions</i> , pp. 724-729. Bannwarth, Jérémie Xavier Joseph (Univ. of Auckland), Chen, Zhenrong Jeremy (Univ. of Auckland), Stol, Karl (Univ. of Auckland), MacDonald, Bruce (Univ. of Auckland), Richards, Peter John (Univ. of Auckland)	
WBT4	303-G14
Flexible Manipulators and Structures 2 (Regular Session)	
Chair: Lan, Chao-Chieh	National Cheng Kung Univ
Co-Chair: Devaraj, Harish	Univ. of Auckland
13:30-13:50	WBT4.1
<i>An Adaptive-Compliance Manipulator for Contact-Based Aerial Applications</i> , pp. 730-735. Hamaza, Salua (Bristol Robotics Lab. Univ. of Bristol; Univ. O), Georgilas, Ioannis (Univ. of Bath), Richardson, Thomas (Univ. of Bristol)	
13:50-14:10	WBT4.2
<i>A Soft Robotic Gripper Module with 3D Printed Compliant Fingers for Grasping Fruits</i> , pp. 736-741. Liu, Chih-Hsing (National Cheng Kung Univ), Chiu, Chen-Hua (National Cheng Kung Univ), Chen, Ta-Lun (National Cheng Kung Univ), Pai, Tzu-Yang (National Cheng Kung Univ), Chen, Yang (NCKU), Hsu, Mao-Cheng (NCKU)	
14:10-14:30	WBT4.3
<i>Towards Accurate Shape Reconstruction of Compact Bionic Handling Arm</i> , pp. 742-747. Attachment Singh, Inderjeet (CRISTAL, CNRS UMR 9189, Univ. of Lille1), Amara, Yacine (Ec. Militaire Pol), Singh, Manarshhhot (Pol. Lille), Merzouki, Rochdi (CRISTAL, CNRS UMR 9189, Univ. of Lille1)	
14:30-14:50	WBT4.4
<i>Continuum Delta Robot: A Novel Translational Parallel Robot with Continuum Joints</i> , pp. 748-755. Attachment Yang, Zhixiong (Shanghai Jiao Tong Univ), Zhu, Xiangyang (Shanghai Jiao Tong Univ), Xu, Kai (Shanghai Jiao Tong Univ)	
14:50-15:10	WBT4.5
<i>Experimental Verification of a Completely Soft Gripper for Grasping and Classifying Beam Members in Truss Structures</i> , pp. 756-761. Bykerk, Lili (Univ. of Tech. Sydney), Liu, Dikai (Univ. of Tech. Sydney)	
15:10-15:30	WBT4.6
<i>Design and Analysis of a Large-Range Flexure-Based Parallel Mechanism Based on Matrix Method</i> , pp. 762-767. Yu, Hongtao (Univ. of Chinese Acad. of Sciences · Ningbo Inst), Zhang, Chi (Ningbo Inst. of Material Tech. and Engineering, CAS), Yang, Bao (Univ. of Chinese Acad. of Sciences; Ningbo Inst. of Ma), Chen, Silu (Ningbo Inst. of Material Tech. and Engineering, CAS), Yang, Guilin (Ningbo Inst. of Material Tech. and Engineering, CAS)	
WBT5	302-G20
Energy Harvesting for Self-Powered Health Monitoring (Invited Session)	
Chair: Cao, Junyi	Xi'an Jiao Tong Univ
Co-Chair: Zhao, Liya	Univ. of Tech. Sydney
Organizer: Cao, Junyi	Xi'an Jiao Tong Univ

Organizer: Zhao, Liya	Univ. of Tech. Sydney
Organizer: Liang, Junrui	ShanghaiTech Univ
13:30-13:50	WBT5.1
<i>Capturing Energy through a Shoe-Mounted Piezoelectric Energy Harvester (I)</i> , pp. 768-773.	
Fan, Kangqi (Xidian Univ), Liu, Zhaohui (Xidian Univ)	
13:50-14:10	WBT5.2
<i>Piezoelectric Spring Pendulum Oscillator for Animal/Human Motion Energy Harvesting</i> , pp. 774-779.	
Wu, Yipeng (Nanjing Univ. of Aeronautics and Astronautics), Qiu, Jinhao (Nanjing Univ. of Aeronautics and Astronautics), Ji, Hongli (Nanjing Univ. of Aeronautics and Astronautics), Zhou, Shengpeng (Nanjing Univ. of Aeronautics and Astronautics)	
14:10-14:30	WBT5.3
<i>Performance Enhancement of an Aeroelastic Energy Harvester for Efficient Power Harvesting from Concurrent Wind Flows and Base Vibrations (I)</i> , pp. 780-785.	
Zhao, Liya (Univ. of Tech. Sydney)	
14:30-14:50	WBT5.4
<i>Development of Self-Powered Smart Bearing for Health Condition Monitoring (I)</i> , pp. 786-791.	
Cao, Junyi (Xi'an Jiao Tong Univ)	
14:50-15:10	WBT5.5
<i>Design of a Novel Piezoelectric Energy Harvester for Scavenging Energy from Human Walking</i> , pp. 792-797.	
Wen, Shihao (Univ. of Macau), Xu, Qingsong (Univ. of Macau)	
15:10-15:30	WBT5.6
<i>Energy Harvesting from Horizontal and Vertical Backpack Movements During Walking (I)</i> , pp. 798-803.	
Wang, Junlong (ShanghaiTech Univ), Liang, Junrui (ShanghaiTech Univ)	
WBT6	301-G053
Manufacturing (Regular Session)	
Chair: Lin, Ming-Tsung	National Formosa Univ
Co-Chair: Zhong, Ray Y	The Univ. of Auckland
13:30-13:50	WBT6.1
<i>Optimization of Process Parameters for Rubber Curing in Relation to Vulcanization Requirements and Energy Consumption</i> , pp. 804-809.	
Bosselmann, Steffen (Leibniz Univ. Hannover), Frank, Tobias (Leibniz Univ. Hannover), Wielitzka, Mark (Leibniz Univ. Hannover), Ortmaier, Tobias (Leibniz Univ. Hanover)	
13:50-14:10	WBT6.2
<i>A Force Control Method with Positive Feedback for Industrial Finishing Applications</i> , pp. 810-815.	
MA, ZHENG (National Univ. of Singapore), Ang Jr, Marcelo H (National Univ. of Singapore), HONG, GEOK SOON (National Univ. of Singapore), Poo, Jim A.N. (National Univ. of Singapore), Lin, Wei (SIMTech, A*STAR)	
14:10-14:30	WBT6.3
<i>Local Corner Smoothing with Kinematic and Real-Time Constraints for Five-Axis Linear Toolpath</i> , pp. 816-821.	
Lin, Ming-Tsung (National Formosa Univ), Lee, Jih-Chieh (National Formosa Univ), Shen, Chien-Chun (National Formosa Univ), Lee, Chien-Yi (Industrial Tech. Res. Inst), Wang, Jo-Ting (National Formosa Univ)	
14:30-14:50	WBT6.4
<i>Automatic Logistics in a Smart Factory Using RFID-Enabled AGVs</i> , pp. 822-826.	
Oliver, Zou (Univ. of Auckland), Zhong, Ray Y (The Univ. of Auckland)	
14:50-15:10	WBT6.5
<i>Towards Printing Mechatronics: Considerations for 3D-Printed Conductive Coupling</i> , pp. 827-832.	
Popa, Andrei-Alexandru (Univ. of Southern Denmark), Mai, Christian (Univ. of Southern Denmark), Duggen, Lars (Univ. of Southern Denmark), Jouffroy, Jerome (Univ. of Southern Denmark)	
15:10-15:30	WBT6.6
<i>Soil Transport Experiment by Peristaltic Transport Machine for Compact Automatic Transportation System of Excavated Soil</i> , pp. 833-838.	
Ashigaki, Kyota (Chuo Univ), Hagiwara, Daiki (Chuo Univ), Negishi, Kai (Chuo Univ), Yoshihama, Shun (Chuo Univ), Ueda, Masahiro (TAKENAKA Corp), Habu, Hiroto (JAXA), Nakamura, Taro (Chuo Univ)	
WCT1	301-G050
Rehabilitation Robots 1 (Regular Session)	
Chair: Maria Joseph, Felix Orlando	Indian Inst. of Tech. Roorkee
Co-Chair: Zhang, Yanxin	The Univ. of Auckland

16:00-16:20	WCT1.1
<i>A Bilateral Training System for Upper-Limb Rehabilitation: A Follow-Up Study</i> , pp. 839-844.	
Sheng, Bo (Univ. of Auckland), Zhang, Yanxin (The Univ. of Auckland), Tang, Lihua (Univ. of Auckland), Xie, Sheng Quan (Univ. of Leeds), Deng, Chao (Huazhong Univ. of Science & Tech)	
16:20-16:40	WCT1.2
<i>A Human-Centered Control Framework for Robotic Sit-To-Stand Assistance</i> , pp. 845-850.	
Li, Jiawei (New Jersey Inst. of Tech), Lu, Lu (New Jersey Inst. of Tech), Zhao, Leidi (New Jersey Inst. of Tech), Wang, Cong (New Jersey Inst. of Tech), Huo, Xiaoye (New Jersey Inst. of Tech)	
16:40-17:00	WCT1.3
<i>The Applicability of an Assistive Walking Device Integrating Overload Protection Mechanism Using a Torque Limiter</i> , pp. 851-856.	
Zhuang, Jyun Rong (Waseda Univ), Nagayoshi, Hayato (Waseda Univ), Kondo, Hirotochi (Kondo Kagaku, Co., Ltd), Lee, Hee-hyol (Waseda Univ), Tanaka, Eiichiro (Waseda Univ)	
17:00-17:20	WCT1.4
<i>A Hybrid Multi-Joint Robotic Shoulder Exoskeleton for Stroke Rehabilitation</i> , pp. 857-862.	
Niyetkaliyev, Aibek (Univ. of Wollongong), SARIYILDIZ, Emre (Univ. of Wollongong), Alici, Gursel (Univ. of Wollongong)	
17:20-17:40	WCT1.5
<i>Redundancy Resolution of an Index Finger Exoskeleton Using Self Organizing Map</i> , pp. 863-868.	
Maria Joseph, Felix Orlando (Indian Inst. of Tech. Roorkee)	
17:40-18:00	WCT1.6
<i>An Exoskeleton Type 4-DOF Force Feedback Device Using Magnetorheological Fluid Clutches and Artificial Muscles</i> , pp. 869-874.	
Onozuka, Yuki (Chuo Univ), Suzuki, Ryo (Chuo Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ)	
WCT2	303-G13
Underwater Robotics (Regular Session)	
Chair: Kim, Kwang	Univ. of Nevada, Las Vegas (UNLV)
Co-Chair: Liu, Bo	Inst. of Systems Engineering, China Acad. of Engineering Physics
16:00-16:20	WCT2.1
<i>Whale Rover for Bio-Logging</i> , pp. 875-880.	
Tsuchiya, Kosuke (Yamagata Univ), Suzuki, Akihito (Yamagata Univ), Tsumaki, Yuichi (Yamagata Univ), Mori, Kyoichi (Teikyo Univ. of Science)	
16:20-16:40	WCT2.2
<i>Ground Effect on the Hydrodynamic Performance of a Flexible Hinge-Connected Fin</i> , pp. 881-886.	
Liu, Bo (Inst. of Systems Engineering, China Acad. of Engineering P), Guo, Zhongze (Inst. of Systems Engineering, China Acad. of Engineering P)	
16:40-17:00	WCT2.3
<i>Water Jetting Excavation and Consideration of Earth Auger Shape to Reduce Drilling Torque for Seabed Robotic Explorer</i> , pp. 887-892.	
Isaka, Keita (Chuo Univ), Tadami, Naoaki (Chuo Univ), Fujiwara, Ami (Chuo Univ), Nakatake, Toyoharu (Chuo Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ), Sugawara, Makoto (Japan Agency for Marine-Earth Science and Tech), Yoshida, Hiroshi (Japan Agency for Marine-Earth Science and Tech)	
17:00-17:20	WCT2.4
<i>Design and Experimental Study on a Shallow Water Underwater Glider</i> , pp. 893-898.	
Liu, Yanji (Univ. of Shanghai Jiao Tong), Ma, Jie (Univ. of Shanghai Jiao Tong), Liu, Yanbo (Shanghai Industrial Tech. Inst), Zhang, Guichen (Shanghai Maritime Univ), Tan, Xiaoling (Shanghai GrandTop Electric Tech. CO., Ltd)	
17:20-17:40	WCT2.5
<i>Model Comparison of a VideoRay Pro 4 Underwater ROV</i> , pp. 899-904.	
Pedersen, Simon (Aalborg Univ), Enevoldsen, Thomas Thuesen (Aalborg Univ. Esbjerg), Einarsson, Emil Már (Aalborg Univ)	
WCT3	303-G16
Path Planning, Navigation and Space Exploration (Regular Session)	
Chair: Zhong, Ray Y	The Univ. of Auckland
Co-Chair: Nakamura, Taro	Chuo Univ
16:00-16:20	WCT3.1
<i>Re-Planning Using Delaunay Triangulation for Real Time Motion Planning in Complex Dynamic Environments</i> , pp. 905-911.	
Qureshi, Ahmed (Univ. of California, San Diego), Tahir, Zaid (National Univ. of Science and Tech), Tariq, GULIAFSHAN (National	

Univ. of Science and Tech), Ayaz, Yasar (National Univ. of Sciences and Tech. (NUST))	
16:20-16:40	WCT3.2
<i>Modeling and Simulation of FLC-Based Navigation Algorithm for Small Gas Pipeline Inspection Robot</i> , pp. 912-917. Zhao, Wen (Waseda Univ), Kamezaki, Mitsuhiro (Waseda Univ), Yoshida, Kento (Waseda Univ), Konno, Minoru (Tokyo Gas Co. Ltd), Onuki, Akihiko (Tokyogas), Sugano, Shigeki (Waseda Univ)	
16:40-17:00	WCT3.3
<i>Undelayed Initialization of Inverse Depth Parameterized Landmarks in UKF-SLAM with Error State Formulation</i> , pp. 918-923. Ammann, Nikolaus (German Aerospace Center (DLR))	
17:00-17:20	WCT3.4
<i>Development of Both-Ends Supported Flexible Auger for Lunar Earthworm-Type Excavation Robot LEAVO</i> , pp. 924-929. Fujiwara, Ami (Chuo Univ), Nakatake, Toyoharu (Chuo Univ), Tadami, Naoaki (Chuo Univ), Isaka, Keita (Chuo Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ), SAWADA, HIROTAKA (JAXA), Kubota, Takashi (Jaxa Isas)	
17:20-17:40	WCT3.5
<i>Study on Bearing Performance for Inching Worm Locomotion Using Characteristics of Wheel Subsidence on Loose Soil</i> , pp. 930-935. Fujiwara, Daisuke (Shibaura Inst. of Tech), Iizuka, Kojiro (Shibaura Inst. of Tech)	
WCT4	303-G14
Pneumatic Actuated Systems (Regular Session)	
Chair: Alici, Gursel	Univ. of Wollongong
Co-Chair: Kogiso, Kiminao	The Univ. of Electro-Communications
16:00-16:20	WCT4.1
<i>Development of Contraction Force Control System of Peristaltic Crawling Robot for Sewer Pipe Inspection</i> , pp. 936-941. Mano, Yuki (Chuo-Univ), Ishikawa, Ryutaro (Chuo-Univ), Yamada, Yasuyuki (Chuo Univ), Nakamura, Taro (Chuo Univ)	
16:20-16:40	WCT4.2
<i>One Soft Robot: A Complementary Design & Control Strategy for a Pneumatically Powered Soft Robot</i> , pp. 942-949. Morley-Drabble, Courtney (The Univ. of Queensland), Singh, Surya (The Univ. of Queensland)	
16:40-17:00	WCT4.3
<i>3D Printed Helical Soft Pneumatic Actuators</i> , pp. 950-955. HU, Weiping (Univ. of Wollongong), Li, Weihua (Univ. of Wollongong), Alici, Gursel (Univ. of Wollongong)	
17:00-17:20	WCT4.4
<i>Soft Pneumatic Manipulator Capable of Sliding under the Human Body and Its Application to Preventing Bedsores</i> , pp. 956-961. Nakamura, Tomoyuki (Tokyo Inst. of Tech), Tsukagoshi, Hideyuki (Tokyo Inst. of Tech)	
17:20-17:40	WCT4.5
<i>Efficient Algorithm for Constructing a Load-Dependent McKibben Pneumatic Artificial Muscle Model</i> , pp. 962-967. Okabe, Atsushi (The Univ. of Electro-Communications), Kogiso, Kiminao (The Univ. of Electro-Communications)	
17:40-18:00	WCT4.6
<i>Development of a Pneumatic Robotic System for Bilateral Upper Limb Interactive Training with Variable Resistance</i> , pp. 968-973. Xu, Han (Tongji Zhejiang Coll), Zhang, Mingming (Tongji Zhejiang Coll), Li, Yibin (Tongji Zhejiang Coll), Xu, Dong (Tongji Zhejiang Coll), Fu, Jianming (The Jiaying Second Hospital Rehabilitation Medical Centre), Zhang, Xu (Tongji Zhejiang Coll), Li, Xiaolong (Tongji Zhejiang Coll), Xie, Sheng Quan (Univ. of Leeds)	
WCT5	302-G20
Micro/Nano Manipulation (Regular Session)	
Chair: Avci, Ebubekir	Massey Univ
Co-Chair: Xu, Qingsong	Univ. of Macau
16:00-16:20	WCT5.1
<i>An Auto-Focusing Approach for Micro Objects at Different Focal Planes</i> , pp. 974-979. Lofroth, Matthew (Massey Univ), Avci, Ebubekir (Massey Univ)	
16:20-16:40	WCT5.2
<i>Finite Element Analysis of a New Multi-DOF Flexible Micro-Displacement Manipulator Based on Ferrofluid</i> , pp. 980-985. Li, Chunfang (Beihang Univ), Wu, Shuai (Beihang Univ), Yu, Bo (Beihang Univ), Jiao, Zongxia (Beihang Univ)	
16:40-17:00	WCT5.3

Development of a Micromanipulation Platform with Passive-Active Hybrid Release Strategy for Single-Cell Separation, pp. 986-990.

Crimp, Daniel Patrick (Massey Univ), Avci, Ebubekir (Massey Univ)

17:00-17:20 WCT5.4

Design and Analysis of a Novel 3-DOF Large Range Micropositioning Mechanism, pp. 991-996.

Al-Jodah, Ammar (Monash Univ. Melbourne, Australia), Shirinzadeh, Bijan (Monash Univ), Ghafarian, Mohammadali (Monash), Tian, Yanling (Tianjin Univ), Clark, Leon Scott (Monash Univ)

17:20-17:40 WCT5.5

Design of a Novel Parallel Monolithic 6-DOF Compliant Micromanipulation Mechanism, pp. 997-1002.

Ghafarian, Mohammadali (Monash Univ), Shirinzadeh, Bijan (Monash Univ), Das, Tilok Kumar (Monash Univ), Al-Jodah, Ammar (Monash Univ), Wei, Weichen (Monash Univ)

WCT6 301-G053
Modeling, Design & Optimization in Mechatronics 2 (Regular Session)

Chair: Ji, Jingjing

Huazhong Univ. of Science and Tech

Co-Chair: Kukreja, Sunil, L.

National Univ. of Singapore

16:00-16:20 WCT6.1

Optimal Design of an Elastomeric Engine Mount with Desired Stiffness Using Topology Optimization, pp. 1003-1008.

Liu, Chih-Hsing (National Cheng Kung Univ), Chiang, Yen-Pin (National Cheng Kung Univ), Hsu, Yi-Yao (National Cheng Kung Univ)

16:20-16:40 WCT6.2

Outer-Linearization-Based Optimization Algorithm for Decentralized Control Design in Flexure-Linked H-Gantry, pp. 1009-1014.

Ma, Jun (National Univ. of Singapore), Chen, Si-Lu (Inst. of Advanced Manufacturing Tech. Ningbo), Liang, Wenyu (National Univ. of Singapore), Li, Xiaocong (SIMTech), Teo, Chek Sing (SIMTech), Tay, Arthur (National Univ. of Singapore), Mamun, Abdullah Al (National Univ. of Singapore), Tan, Kok Kiong (National Univ. of Singapore)

16:40-17:00 WCT6.3

A Low-Cost Hardware-In-The-Loop Agent-Based Simulation Testbed for Autonomous Vehicles, pp. 1015-1020.

Barker, Ray (The Univ. of Western Australia), Hurst, Aaron (The Univ. of Western Australia), Shrubsall, Ridge (The Univ. of Western Australia), Hassan, Ghulam Mubashar (The Univ. of Western Australia), French, Tim (The Univ. of Western Australia)

17:00-17:20 WCT6.4

Actuator-Based Optimization Motion Cueing Algorithm, pp. 1021-1026.

Ellensohn, Felix (Tech. Univ. of Munich), Oberleitner, Florian (Tech. Univ. Munich), Schwienbacher, Markus (Bmw Ag), Venrooij, Joost (Bmw Ag), Rixen, Daniel (Tech. Univ. München)

17:20-17:40 WCT6.5

An Intelligent Gripper Design for Autonomous Aerial Transport with Passive Magnetic Grasping and Dual-Impulsive Release, pp. 1027-1032.

Fiaz, Usman Amin (Univ. of Maryland, Coll. Park), Abdelkader, Mohamed (King Abdullah Univ. of Science and Tech), Shamma, Jeff (King Abdullah Univ. of Science and Tech)

17:40-18:00 WCT6.6

Reliability Analysis of a Novel Magneto-Rheological Regenerative Suspension System under Road Excitation, pp. 1033-1038.

Zhang, Hailong (Nanjing Normal Univ), Zhang, Tinghui (Nanjing Normal Univ), Shen, Shuyu (Nanjing Normal Univ), wang, enrong (Nanjing Normal Univ), Subhash, Rakheja (Concordia Univ), Su, Chunyi (Concordia Univ)

Technical Program for Thursday July 12, 2018

ThAT1	301-G050
Physical Human-Robot Interactions and Human Assistive Systems (Invited Session)	
Chair: Ueda, Jun	Georgia Inst. of Tech
Co-Chair: Yi, Jingang	Rutgers Univ
Organizer: Ueda, Jun	Georgia Inst. of Tech
Organizer: Lee, Kok-Meng	Georgia Inst. of Tech
Organizer: Yi, Jingang	Rutgers Univ
10:30-10:50	ThAT1.1
<i>A Real-Time Pre-Impact Fall Detection and Protection System (I)</i> , pp. 1039-1044.	
Zhong, Zhichao (Zhejiang Univ), Chen, Feiyu (Zhejiang Univ), Zhai, Qian (Zhejiang Univ), Fu, Zhiqiang (Zhejiang Univ), Ferreira, João (ISEC), Liu, Yanjie (Harbin Inst. of Tech), Yi, Jingang (Rutgers Univ), Liu, Tao (Zhejiang Univ)	
10:50-11:10	ThAT1.2
<i>Biomechanical Energy Harvester with Continuously Variable Transmission: Prototyping and Preliminary Evaluation (I)</i> , pp. 1045-1050.	
Ikawa, Yutaro (Nara Inst. of Science and Tech), Kobayashi, Taisuke (Nara Inst. of Science and Tech), Matsubara, Takamitsu (Nara Inst. of Science and Tech)	
11:10-11:30	ThAT1.3
<i>Strength Capacity Estimation of Human Upper Limb in Human-Robot Interactions with Muscle Synergy Models (I)</i> , pp. 1051-1056.	
Chen, Siyu (Rutgers Univ), Yi, Jingang (Rutgers Univ), Liu, Tao (Zhejiang Univ)	
11:30-11:50	ThAT1.4
<i>Design Criteria for Developing an Anatomy-Based Ankle-Foot-Orthosis: A State-Of-The-Art Review and Needs of Mind, Motor and Motion Recovery Following Stroke (I)</i> , pp. 1057-1062.	
Jiang, Jiaoying (Huazhong Univ. of Science and Tech), Lee, Kok-Meng (Georgia Inst. of Tech), Ji, Jingjing (Huazhong Univ. of Science and Tech)	
11:50-12:10	ThAT1.5
<i>Coordination of Whole Body Muscles During Assisted Assembly Tasks (I)</i> , pp. 1063-1068.	
Qiu, Yingxin (Georgia Inst. of Tech), Okabe, Atsushi (The Univ. of Electro-Communications), Murali, Keerthana (Georgia Inst. of Tech), Gao, Dalong (General Motors), Ueda, Jun (Georgia Inst. of Tech)	
12:10-12:30	ThAT1.6
<i>Distributed Parameter Element Method for Design Analysis of Electrical Muscle Stimulation</i> , pp. 1069-1074.	
Lin, Chun-Yeon (Georgia Inst. of Tech), Lee, Kok-Meng (Georgia Inst. of Tech), Li, Junwei (Huazhong Univ. of Science and Tech), Bai, Kun (Huazhong Univ. of Science and Tech)	
ThAT2	303-G13
Mobile Robots 2 (Regular Session)	
Chair: Iversen, Simon	Univ. of Southern Denmark
Co-Chair: Funabara, Yuki	Nagoya Univ
10:30-10:50	ThAT2.1
<i>Long-Mover: Flexible Tube In-Pipe Inspection Robot for Long Distance and Complex Piping</i> , pp. 1075-1080.	
Miyasaka, Kentaro (Tokyo Inst. of Tech), Kawano, Ginjiro (Tokyo Inst. of Tech), Tsukagoshi, Hideyuki (Tokyo Inst. of Tech)	
10:50-11:10	ThAT2.2
<i>Autonomous Navigation of Electric Wheelchairs in Urban Areas on the Basis of Self-Generated 2D Drivable Maps</i> , pp. 1081-1086.	
Nijijima, Shun (Tokyo Univ. of Science, National Inst. of Advanced Indu), Sasaki, Yoko (National Inst. of Advanced Industrial Science and Tech), Mizoguchi, Hiroshi (Tokyo Univ. of Science)	
11:10-11:30	ThAT2.3
<i>An Inchworm-Inspired Rigid-Reinforced Soft Robot with Combined Functions of Locomotion and Manipulation</i> , pp. 1087-1091.	
Wang, Tao (Xi'an Jiaotong Univ), zhang, jinhua (Xi'an Jiaotong Univ), Gen, Zhao (Xi'an Jiaotong Univ), Hong, Jun (Xi'an Jiaotong Univ), Wang, Michael Yu (Hong Kong Univ. of Science & Tech), Yue, Li (Xi'an Jiaotong Univ)	
11:30-11:50	ThAT2.4
<i>A Mechanical Design for Efficient Hopping of Planetary Rover on Soft Soil</i> , pp. 1092-1097.	
Sakamoto, Kosuke (The Univ. of Tokyo), Kubota, Takashi (Jaxa Isas), Otsuki, Masatsugu (Japan Aerospace Exploration Agency), Maeda, Takao (Chuo Univ), Yoshikawa, Kent (JAXA)	
11:50-12:10	ThAT2.5
<i>Step-Height Detection for the Umbrella Wheel Stair-Climber Using Model Prediction</i> , pp. 1098-1105.	

Iversen, Simon (Univ. of Southern Denmark), Jouffroy, Jerome (Univ. of Southern Denmark)	
12:10-12:30	ThAT2.6
<i>Majority Rule Sensor Fusion System with Particle Filter for Robust Robot Localization</i> , pp. 1106-1111.	
Ohashi, Nozomu (Nagoya Univ), Funabora, Yuki (Nagoya Univ), Doki, Shinji (Nagoya Univ), Doki, Kae (Aichi Inst. of Tech)	
ThAT3	303-G16
Fault Detection and Diagnosis (Regular Session)	
Chair: Dhupia, Jaspreet	The Univ. of Auckland
Co-Chair: Zhang, Jianfu	Tsinghua Univ
10:30-10:50	ThAT3.1
<i>Study on Health Assessment and Residual Useful Life Prediction of Wind Turbine</i> , pp. 1112-1117.	
Deng, Chao (Huazhong Univ. of Science & Tech), Technology, Huazhong University of Science (Huazhong Univ. of Science and Tech), Liang, Pengfei (Huazhong Univ. of Science and Tech. School of Mechanic), WU, JUN (Huazhong Univ. of Science and Tech)	
10:50-11:10	ThAT3.2
<i>Modeling Method for Bolted Joint Interfaces Based on Transversely Isotropic Virtual Materials</i> , pp. 1118-1123.	
Zha, Yunjian (Tsinghua Univ), Zhang, Jianfu (Tsinghua Univ), Yu, Dingwen (Tsinghua Univ), Feng, Pingfa (Tsinghua Univ), Lin, zhihang (Tsinghua Univ)	
11:10-11:30	ThAT3.3
<i>a Critical Investigation of Hilbert-Huang Transform Based Envelope Analysis for Fault Diagnosis of Gears</i> , pp. 1124-1129.	
Dev Choudhury, Madhurjya (Univ. of Auckland), Hong, Liu (Wuhan Univ. of Tech), Dhupia, Jaspreet (The Univ. of Auckland)	
11:30-11:50	ThAT3.4
<i>"Dynamic Closest Point" Identification and Estimation for Tumbling Target Capturing</i> , pp. 1130-1135.	
Hu, Zhonghua (Harbin Inst. of Tech. Shenzhen Graduate School), Xu, Wenfu (Harbin Inst. of Tech), Yan, Lei (Harbin Inst. of Tech. Shenzhen Graduate School), Peng, Jianqing (Harbin Inst. of Tech. Shenzhen Graduate School), Liang, Bin (Harbin Inst. of Tech)	
ThAT4	303-G14
Actuators 3 (Regular Session)	
Chair: Makarow, Artemi	TU Dortmund Univ
Co-Chair: Xie, Sheng Quan	Univ. of Leeds
10:30-10:50	ThAT4.1
<i>Preliminary Design of a Pseudo-Inertia Adjustable Mechanism Based on Bidirectional Releasing of Stored Kinetic Energy</i> , pp. 1136-1142.	
Zhang, Peizhi (Waseda Univ), Kamezaki, Mitsuhiro (Waseda Univ), Otsuki, Kenshiro (Waseda Univ), He, Shan (Waseda Univ), Aguirre Dominguez, Gonzalo (Waseda Univ. Sugano Lab), Sugano, Shigeki (Waseda Univ)	
10:50-11:10	ThAT4.2
<i>A Piezoelectric Two-Degree-Of-Freedom Nanostepping Motor with a Positioning Sensor</i> , pp. 1143-1147.	
Cheng, Chiao-Hua (National Chiao Tung Univ), Hung, Shao-Kang (National Chiao Tung Univ)	
11:10-11:30	ThAT4.3
<i>Optimization of an Optically Controlled Bistable Micro-Actuator</i> , pp. 1148-1153.	
Shi, Zhichao (Univ. De Tech. De Compiègne), Al Hajjar, Hani (Univ. De Tech. De Compiègne), Prelle, Christine (Univ. De Tech. De Compiègne), Liu, Xingxing (China Agricultural Univ), Ilou, Lucie (Univ. De Tech. De Compiègne), Lamarque, Frédéric (Univ. De Tech. De Compiègne)	
11:30-11:50	ThAT4.4
<i>Design and of Control System of Simulating on Rotational Speed and Torque of Central Transmission System Test Rig for Earth-Moving Vehicle (I)</i> , pp. 1154-1159.	
Ma, Yuxiang (Beihang Univ), Li, Yunhua (BeiHang Univ)	
11:50-12:10	ThAT4.5
<i>A Multi-Information Particle Swarm Optimization Algorithm for Weapon Target Assignment of Multiple Kill Vehicle (I)</i> , pp. 1160-1165.	
Yang, Liman (Beihang Univ), Zhai, Zhuangzhuang (Beihang Univ), Li, Yunhua (Beihang Univ), Huang, Yuntao (Beijing Aerospace Automatic Control Inst)	
ThAT5	302-G20
Control, Simulation and Condition Monitoring for Electromechanical Systems (Invited Session)	
Chair: Li, Yunhua	BeiHang Univ
Co-Chair: Shi, Yan	BeiHang Univ

Organizer: Li, Yunhua	BeiHang Univ
Organizer: Li, Yun-Ze	BeiHang Univ
Organizer: Yang, Liman	BeiHang Univ
10:30-10:50	ThAT5.1
<i>The Identification of Sputum Situation Based on the Sound from the Respiratory Tract (I)</i> , pp. 1166-1171.	
Niu, Jinglong (School of Automation Science and Electrical Engineering, BeiHang), Shi, Yan (BeiHang Univ), Shen, Dongkai (BeiHang University), Wang, Yixuan (BeiHang Univ), Xu, Weiqing (BeiHang Univ), Cai, Maolin (BeiHang Univ), Li, Yunhua (BeiHang Univ)	
10:50-11:10	ThAT5.2
<i>Study on PMSM Power Consumption of Dual-Variable Electro-Hydraulic Actuator Controlled by Displacement-Pressure Regulation Pump (I)</i> , pp. 1172-1177.	
Li, Dong (BeiHang Univ), li, yangyang (School of Automation Science and Electrical Engineering), Li, Yunhua (BeiHang Univ), Yang, Liman (BeiHang Univ), Zhang, Peng (BeiHang Univ. of Automation Science and Electrical E), Dong, Sujun (BeiHang Univ)	
11:10-11:30	ThAT5.3
<i>Design and Verification of Model-Based Nonlinear Controller for Fluidic Soft Actuators</i> , pp. 1178-1183.	
Wang, Tao (Zhejiang Univ), Zhang, Yunce (Zhejiang Univ), Chen, Zheng (Zhejiang Univ)	
11:30-11:50	ThAT5.4
<i>Analysis of Power Loss of Permanent Magnet Synchronous Motors in More-Electric-Aircraft Considering the Impact of Temperature (I)</i> , pp. 1184-1189.	
Wang, Shengnan (BeiHang Univ), Li, Yunhua (BeiHang Univ), Li, Yun-Ze (BeiHang Univ), Xiong, Kai (BeiHang Univ)	
11:50-12:10	ThAT5.5
<i>Effective Control for Wireless Sensor and Mobile Actuator Network in Regulation of Environmental Density Function</i> , pp. 1190-1195.	
Lin, Mu-Tai (National Cheng Kung Univ), Liu, Yen-Chen (National Cheng Kung Univ)	
ThAT6	301-G053
Image Processing and Machine Vision (Regular Session)	
Chair: Ryde, Julian	United Tech. Res. Center
Co-Chair: Witkowski, Ulf	South Westphalia Univ. of Applied Sciences
10:30-10:50	ThAT6.1
<i>Robustness Improvement of Long Range Landmark Tracking for Mobile Robots</i> , pp. 1196-1201.	
Kovács, Gábor (Chuo Univ), Hoshi, Naoaki (Chuo Univ), Kunii, Yasuharu (Chuo Univ)	
10:50-11:10	ThAT6.2
<i>Nonlinear Distortion Calibration of an Optical Flow Sensor for Monocular Visual Odometry</i> , pp. 1202-1207.	
Ng, Matthew (Singapore Univ. of Tech. and Design), Foong, Shaohui (Singapore Univ. of Tech. and Design)	
11:10-11:30	ThAT6.3
<i>RenderMap: Exploiting the Link between Perception and Rendering for Dense Mapping</i> , pp. 1208-1215.	
Ryde, Julian (United Tech. Res. Center), Ding, Xuchu (Exyn Tech)	
11:30-11:50	ThAT6.4
<i>Learning Vision Based Navigation with a Smartphone Mobile Robot</i> , pp. 1216-1221.	
Witkowski, Ulf (South Westphalia Univ. of Applied Sciences), Bolte, Philipp (South Westphalia Univ. of Applied Sciences), Sitte, Joaquin (Queensland Univ. of Tech)	
11:50-12:10	ThAT6.5
<i>Vision Based Neural Network Control of Robot Manipulators with Unknown Sensory Jacobian Matrix</i> , pp. 1222-1227.	
Lyu, Shangke (Nanyang Tech. Univ), Cheah, C. C. (Nanyang Tech. Univ)	
ThBT1	301-G050
Rehabilitation Robots 2 (Regular Session)	
Chair: Devaraj, Harish	Univ. of Auckland
Co-Chair: McDaid, Andrew	The Univ. of Auckland
13:30-13:50	ThBT1.1
<i>Socks Type Actuator That Provides Exercise for Ankle and Toes from the Medical Point of View</i> , pp. 1228-1233.	
Sasanuma, Hayato (Tokyo Inst. of Tech), Tsukagoshi, Hideyuki (Tokyo Inst. of Tech), Okui, Manabu (Chuo Univ)	
13:50-14:10	ThBT1.2
<i>Robotic Amputated Lower Limb for In-Vitro Testing of Osseointegrated Prostheses Devices</i> , pp. 1234-1239.	
Gosha, Dillan (Univ. of Auckland), Perera, Ashani (Univ. of Auckland), Devaraj, Harish (Univ. of Auckland), McDaid, Andrew (The	

Univ. of Auckland)	
14:10-14:30	ThBT1.3
<i>Improvement of Supporting Robot for Lower Limb and Evaluation of Output Force in Vertical Direction</i> , pp. 1240-1245. Inamura, Natsuki (Yokohama National Univ. Kanagawa Inst. of Industrial S), Shimono, Tomoyuki (Yokohama National Univ), Mizoguchi, Takahiro (Kanagawa Acad. of Science and Tech), Nozaki, Takahiro (Keio Univ), Ishii, Shinichiro (Kanagawa Univ. of Human Services), Ohnishi, Kouhei (Keio Univ)	
14:30-14:50	ThBT1.4
<i>A Feasibility Study of Robot-Assisted Ankle Training Triggered by Combination of SSVEP Recognition and Motion Characteristics</i> , pp. 1246-1251. Zeng, Xiangfeng (Huazhong Univ. of Science and Tech), Zhu, Guoli (Huazhong Univ. of Science and Tech), Li, Ping (Huazhong Univ. of Science and Tech), lu, huaiqing (Huazhong Univ. of Science and Tech), Zhang, Mingming (The Univ. of Auckland), Xie, Sheng Quan (Univ. of Leeds)	
14:50-15:10	ThBT1.5
<i>Development and Evaluation of a Worker-Wear Assistance Suit with the Adjustable and Concealable Elastic Structure for the Manual Handling Workers</i> , pp. 1252-1256. LIAO, Yun-Ting (Waseda Univ), Kodama, Kenji (Asahicho Corp), Ishioka, Toshifumi (Asahicho Corp), Lee, Hee-hyol (Waseda Univ), Tanaka, Eiichiro (Waseda Univ)	
ThBT2	303-G13
Legged Robots (Regular Session)	
Chair: Oldham, Kenn	Univ. of Michigan
Co-Chair: Endo, Gen	Tokyo Inst. of Tech
13:30-13:50	ThBT2.1
<i>Approximated Model Matching Control for Running Robots with Series Elastic Actuators</i> , pp. 1257-1262. Chang, Junho (Tokyo Inst. of Tech), Takano, Rin (Tokyo Inst. of Tech), Yamakita, Masaki (Tokyo Inst. of Tech)	
13:50-14:10	ThBT2.2
<i>Optimal Periodic Hopping Trajectory Generation for Legged Robots</i> , pp. 1263-1268. Ahn, DongHyun (Kookmin Univ), Cho, Baek-Kyu (Kookmin Univ)	
14:10-14:30	ThBT2.3
<i>Dynamic Motion Generation in a Hexapod Robot Using Fixed-Point Trajectories of a Simple Model with Period Scaling</i> , pp. 1269-1275. Lu, Wei-Chun (National Taiwan Univ), Lin, Pei-Chun (National Taiwan Univ)	
14:30-14:50	ThBT2.4
<i>A Study of Gliding Locomotion by Leg-Wheeled Robot with Reduced DOF</i> , pp. 1276-1281. Nohara, Kento (Tokai Univ), Inagaki, Katsuhiko (TOKAI Univ)	
14:50-15:10	ThBT2.5
<i>Helicopter Lands on Uneven Terrain by Means of Articulated Robotic Legs – Modelling, Simulation and Control Approach</i> , pp. 1282-1287. Melia Boix, Daniel (Edinburgh Napier Univ), Goh, Keng (Edinburgh Napier Univ), McWhinnie, James (Edinburgh Napier Univ)	
ThBT3	303-G16
Identification and Estimation in Mechatronics 2 (Regular Session)	
Chair: Tjahjowidodo, Tegoeh	Nanyang Tech. Univ
Co-Chair: Zhang, Fangfang	Qilu Univ. of Tech. (Shandong Acad. of Sciences)
13:30-13:50	ThBT3.1
<i>Adaptive Tracking Control and Parameter Identification for Uncertain Complex-Variable Chaotic Systems</i> , pp. 1288-1293. Zhang, Fangfang (Qilu Univ. of Tech. (Shandong Acad. of Sciences)), Sun, Kai (Qilu Univ. of Tech. (Shandong Acad. of Sciences)), Chen, Yawen (Univ. of Otago), Zhang, Haipo (Univ. of Otago)	
13:50-14:10	ThBT3.2
<i>Signal Compression Method Based Heart Rate Model Estimation and PI Control for Cardiac Rehabilitation with Treadmill</i> , pp. 1294-1298. Li, Hong Ying (Pusan National Univ), Kim, Hwan Young (Pusan National Univ), Lee, Min Cheol (Pusan National Univ)	
14:10-14:30	ThBT3.3
<i>Synchronization Control of Dual-Drive System in Gantry-Type Machine Tools Based on Extended State Observer</i> , pp. 1299-1304. Li, Ping (Huazhong Univ. of Science and Tech), Zhu, Guoli (Huazhong Univ. of Science and Tech), He, Boning (Huazhong Univ. of Science and Tech), Zeng, Xiangfeng (Huazhong Univ. of Science and Tech)	

14:30-14:50	ThBT3.4
<i>A Novel Frequency Estimation Method for Accurate Bearing Fault Frequencies Identification</i> , pp. 1305-1310. Heryadi, Budi (Inst. Teknologi Bandung), Tjahjowidodo, Tegoeh (Nanyang Tech. Univ), Nurprasetio, Ignatius Pulung (Inst. Teknologi Bandung), Abidin, Zainal (Inst. Teknologi Bandung)	
14:50-15:10	ThBT3.5
<i>Experimental Determination of Compliance Values for a Machining Robot</i> , pp. 1311-1316. Karim, Ali (Univ. of Stuttgart), Corcione, Emilio (Univ. of Stuttgart), Jäger, Julius (Univ. of Stuttgart), Verl, Alexander (Univ. of Stuttgart)	
15:10-15:30	ThBT3.6
<i>Parameters Identification and Adaptation for Condition Monitoring of a Reciprocating Pump Via Torque Analysis</i> , pp. 1317-1322. Singh, Karanjot (Nanyang Tech. Univ), Tjahjowidodo, Tegoeh (Nanyang Tech. Univ), Eriksson, Tobias (ABB Pte Ltd), Rajan, Balakrishnan (Nanyang Tech. Univ)	

ThBT4	303-G14
Control Application in Mechatronics (Regular Session)	
Chair: Rösmann, Christoph	TU Dortmund Univ
Co-Chair: Zhu, Xiacong	Zhejiang Univ
13:30-13:50	ThBT4.1
<i>Position Tracking Control of a Magnetorheological Fluid Actuation System</i> , pp. 1323-1328. Cao, Jian (Hefei Univ. of Tech), Wang, Linyuan (Zhejiang Univ), Si, Chen (Zhejiang Univ), Zhu, Xiacong (Zhejiang Univ), Yao, Bin (Zhejiang Univ)	
13:50-14:10	ThBT4.2
<i>Novel Interpolation Design for Five-Axis Tool Center Point Path Generation</i> , pp. 1329-1331. Tsai, Meng-Shiun (National Chung-Cheng Univ), Tang, Pu-Yang (National Chung Cheng Univ), Wu, Yu-Chan (National Chung Cheng Univ), Ho, Chih-Kai (National Chung Cheng Univ)	
14:10-14:30	ThBT4.3
<i>Exploiting Sparse Structures in Nonlinear Model Predictive Control with Hypergraphs</i> , pp. 1332-1337. Rösmann, Christoph (TU Dortmund Univ), Krämer, Maximilian (TU Dortmund Univ), Makarow, Artemi (TU Dortmund Univ), Hoffmann, Frank (TU Dortmund Univ), Bertram, Torsten (TU Dortmund Univ)	
14:30-14:50	ThBT4.4
<i>Development and Examination of Encrypted Control Systems</i> , pp. 1338-1343. Kogiso, Kiminao (The Univ. of Electro-Communications), Baba, Rikuna (The Univ. of Electro-Communications), Kusaka, Masahiro (The Univ. of Electro-Communications)	
14:50-15:10	ThBT4.5
<i>Automatic Pressure Compensation in a Fluid Syringe for Blood Glucose Enzyme Dispensing System</i> , pp. 1344-1348. Wang, Chen-Chou (National Taipei Univ. of Tech), Cheng, Yuan-Hwei (National Taipei Univ. of Tech), Shaw, Jinsiang (National Taipei Univ. of Tech)	
15:10-15:30	ThBT4.6
<i>Contouring Control of a 5-DOF Dual-Arm Robot for Machining Based on Equivalent Errors</i> , pp. 1349-1353. Kornmaneesang, Woraphrut (National Chung Cheng Univ), Chen, Shyh-Leh (National Chung Cheng Univ)	

ThBT5	302-G20
Energy Harvesting (Regular Session)	
Chair: Wu, Yipeng	Nanjing Univ. of Aeronautics and Astronautics
Co-Chair: Liang, Junrui	ShanghaiTech Univ
13:30-13:50	ThBT5.1
<i>Design and Evaluation of a Knee Support Exoskeleton Using Variable Non-Active Interval for Energy Storage</i> , pp. 1354-1359. Babin, Vincent (Tohoku Univ), Paez Granados, Diego Felipe (Univ. of Tsukuba), Kinugawa, Jun (Tohoku Univ), Kosuge, Kazuhiro (Tohoku Univ)	
13:50-14:10	ThBT5.2
<i>Electromechanical Modelling and Experimental Verification of Cantilevered Permendur Energy Harvester</i> , pp. 1360-1365. Ghodsi, Mojtaba (Sultan Qaboos Univ), Ziaiefar, Hamidreza (Sultan Qaboos Univ), Alam, Khurshid (Sultan Qaboos Univ), Mohammadzaheri, Morteza (Sultan Qaboos Univ), Al-Yahmedi, Amur (Sultan Qaboos Univ), Ghodsi, Mohammad Hadi (Yazd Univ), Omar, Farag (United Arab Emirates Univ)	
14:10-14:30	ThBT5.3
<i>Maximum Energy Output of a Two-Phased Self-Priming Dielectric Elastomer Generator</i> , pp. 1366-1371.	

Mathew, Anup Teejo (National Univ. of Singapore), Koh, Soo Jin Adrian (National Univ. of Singapore)	
14:30-14:50	ThBT5.4
<i>Enhancement of Piezoelectric Energy Harvesting Using ABH Structural Tailoring</i> , pp. 1372-1377.	
Liang, Yukun (Nanjing Univ. of Aeronautics and Astronautics), Ji, Hongli (Nanjing Univ. of Aeronautics and Astronautics), Qiu, Jinhao (Nanjing Univ. of Aeronautics and Astronautics), Cheng, Li (The Hong Kong Pol. Univ), Wu, Yipeng (Nanjing Univ. of Aeronautics and Astronautics), Zhang, Chao (Nanjing Univ. of Aeronautics and Astronautics)	
14:50-15:10	ThBT5.5
<i>Modeling and Characterization of a Tunable Dual-Frequency Piezoelectric Energy Harvester</i> , pp. 1378-1383.	
Bouhedma, Sofiane (Univ. of Rostock), Hartwig, Haldor (Univ. of Rostock), Hohlfeld, Dennis (Univ. of Rostock)	
ThBT6	301-G053
Modeling, Design & Optimization in Mechatronics 3 (Regular Session)	
Chair: Singh, Surya	The Univ. of Queensland
Co-Chair: Ji, Jingjing	Huazhong Univ. of Science and Tech
13:30-13:50	ThBT6.1
<i>Proof of Concept for Using Non-Linear Springs to Integrate Deformable Components' Behavior into a Real-Time Capable Overall System Simulation for Robotics</i> , pp. 1384-1389.	
Kaufmann, Dorit (RWTH Aachen Univ), Rossmann, Juergen (RWTH Aachen Univ)	
13:50-14:10	ThBT6.2
<i>A Compact Ratchet Clutch Mechanism for Fine Tendon Termination and Adjustment</i> , pp. 1390-1395.	
Gerez, Lucas (The Univ. of Auckland), Liarokapis, Minas (The Univ. of Auckland)	
14:10-14:30	ThBT6.3
<i>Interactive Calibration and Visual Programming of Reconfigurable Robotic Workcells</i> , pp. 1396-1401	
Priggemeyer, Marc (RWTH-Aachen Univ), Losch, Daniel (RWTH Aachen Univ), Rossmann, Juergen (RWTH Aachen Univ)	
14:30-14:50	ThBT6.4
<i>Experimental Investigation on Flying Motion of Transverse Brachiation Robot</i> , pp. 1402-1407.	
Yang, Zong-Han (National Taiwan Univ. of Science and Tech), Lin, Chi-Ying (National Taiwan Univ. of Science and Tech)	
14:50-15:10	ThBT6.5
<i>Cascaded Evolutionary Multi-Objective System Optimization for a Proportional Directional Control Valve</i> , pp. 1408-1413.	
Makarow, Artemi (TU Dortmund Univ), Braun, Jan Holger (TU Dortmund Univ), Rösmann, Christoph (TU Dortmund Univ), Schoppel, Georg (Bosch Rexroth AG), Glowatzky, Ingo (Bosch Rexroth AG), Bertram, Torsten (TU Dortmund Univ)	
15:10-15:30	ThBT6.6
<i>A Proposal of Super Long Reach Articulated Manipulator with Gravity Compensation Using Thrusters</i> , pp. 1414-1419.	
Endo, Gen (Tokyo Inst. of Tech), Hagiwara, Tetsuo (Yokohama KH Tech. Corp), Nakamura, Yoshihide (Tokyo Inst. of Tech), Nabae, Hiroyuki (Tokyo Inst. of Tech), Suzumori, Koichi (Tokyo Inst. of Tech)	
ThCT2	303-G13
Vehicle Control (Regular Session)	
Chair: Erler, Philipp	TU Darmstadt
Co-Chair: Chae, Heeseo	HanwhaTechwin
16:00-16:20	ThCT2.1
<i>Nonlinear Predictive Control of Combustion and Emissions in Direct Injection Engines with Nozzle Aging</i> , pp. 1420-1426.	
Hofmann, Oliver (Tech. Univ. of Munich), Ponn, Thomas (Tech. Univ. of Munich), Buchmann, Robert (Tech. Univ. of Munich), Rixen, Daniel (Tech. Univ. of Munich)	
16:20-16:40	ThCT2.2
<i>Investigating the Perception of Powertrain Shuffle with a Longitudinal Dynamic Driving Simulator</i> , pp. 1427-1431.	
Erler, Philipp (TU Darmstadt), Menig, Angela (TU Darmstadt), Uphaus, Frank (Daimler AG), André Malonga Makosi, Christoph (Daimler AG), Rinderknecht, Stephan (TU Darmstadt), Vogt, Joachim (TU Darmstadt)	
16:40-17:00	ThCT2.3
<i>The Anti-Tampering Process and Case Study by the Operating Mode of Various Unmanned Ground Vehicles</i> , pp. 1432-1437.	
Chae, Heeseo (Hanwha Land Systems), Lee, Chang Seong (Hanwha Land Systems), Kim, Tae Hyoung (Hanwha Land Systems)	
17:00-17:20	ThCT2.4
<i>Trajectory Tracking for Autonomous Turf-Care Vehicle Using Liouvillian Models</i> , pp. 1438-1443.	
Mai, Christian (Univ. of Southern Denmark), Top, Søren (Ass. Professor), Jouffroy, Jerome (Univ. of Southern Denmark)	

ThCT6	301-G053
AI-Enabled Intelligent Systems in Smart Manufacturing and Automation (Invited Session)	
Chair: Chang, Jen-Yuan (James)	National Tsing Hua Univ
Co-Chair: LYU, NING-YUAN	Industrial Tech. Res. Inst
Organizer: Chang, Jen-Yuan (James)	National Tsing Hua Univ
16:00-16:20	ThCT6.1
<i>Industrial Anomaly Detection and One-Class Classification Using Generative Adversarial Networks (I)</i> , pp. 1444-1449.	
Lai, Yu-Ting (National Chiao Tung Univ), Hu, Jwu-Sheng (National Chiao Tung Univ. and Industrial Tech. Res. Ins), Tsai, Ya-Hui (Industrial Tech. Res. Inst. (ITRI)), chiu, wei-yao (Industrial Tech. Res. Inst. (ITRI))	
16:20-16:40	ThCT6.2
<i>Navigation with Image Tracking for a Quadrotor UAV (I)</i> , pp. 1450-1455.	
Chang, Keng-Hao (Justin) (Industrial Tech. Res. Inst), Shiao, Ying Shing (National Changhua Univ. of Education), LYU, NING-YUAN (Industrial Tech. Res. Inst)	
16:40-17:00	ThCT6.3
<i>Defect Detection on Randomly Textured Surfaces by Convolutional Neural Networks (I)</i> , pp. 1456-1461.	
Jung, Shing Yun (National Chiao Tung Univ), Tsai, Ya-Hui (Industrial Tech. Res. Inst. (ITRI)), chiu, wei-yao (Industrial Tech. Res. Inst. (ITRI)), Hu, Jwu-Sheng (National Chiao Tung Univ. and Industrial Tech. Res. Ins), Sun, Chuen-Tsai (National Chiao Tung Univ)	
17:00-17:20	ThCT6.4
<i>A Tri-Dipole Based Location and Orientation Estimation Method in Near Magnetic Field (I)</i> , pp. 1462-1467.	
Lo, Sheng-Wen (Industrial Tech. Res. Inst), Sun, Kuan-Chun (Industrial Tech. Res. Inst), Hsieh, Shih-Ho (National Chiao-Tung Univ), Hu, Jwu-Sheng (National Chiao Tung Univ. and Industrial Tech. Res. Ins), Chang, Jen-Yuan (James) (National Tsing Hua Univ)	