

2018 IEEE 14th International Conference on Automation Science and Engineering (CASE 2018)

**Munich, Germany
20-24 August 2018**

Pages 1-790



**IEEE Catalog Number: CFP18ASE-POD
ISBN: 978-1-5386-3594-0**

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IEEE Catalog Number:	CFP18ASE-POD
ISBN (Print-On-Demand):	978-1-5386-3594-0
ISBN (Online):	978-1-5386-3593-3
ISSN:	2161-8070

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Hellgren, Mikael	KTH
Wikander, Jan	Royal Inst. of Tech. -KTH
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Chu, Xianghua	Univ. of Rostock
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Patel, Vatsal	Univ. of California Berkeley
Fer, Danyal	Univ. of California, San Francisco East Bay
Goldberg, Ken	UC Berkeley

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Chair: Fantuzzi, Cesare	Univ. Di Modena E Reggio Emilia
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Paranawithana, Ishara	Singapore Univ. of Tech. and Design
Yang, Liangjing	Massachusetts Inst. of Tech
Tan, U-Xuan	Singapore Univ. of Tech. and Design
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Saadatzi, Mohammad Nasser	Univ. of Louisville
Peetha, Srikanth	Univ. of Louisville
Popa, Dan	Univ. of Louisville
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Villani, Valeria	Univ. of Modena and Reggio Emilia
Czerniak, Julia	Inst. of Industrial Engineering and Ergonomics, RWTH Aachen
Loch, Frieder	Tech. Univ. of Munchen
Mertens, Alexander	Inst. of Industrial Engineering and Ergonomics, RWTH Aachen
Vogel-Heuser, Birgit	Tech. Univ. Munich
Fantuzzi, Cesare	Univ. Di Modena E Reggio Emilia
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Huang, Isabella	UC Berkeley
Bajcsy, Ruzena	Univ. of California, Berkeley

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Bengtsson, Kristofer	Sekvensa
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Yi, Jianqiang	Chinese Acad. of Sciences
Tan, Xiangmin	Inst. of Automation
Liu, Zhen	Inst. of Automation, Chinese Acad. of Sciences

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Co-Chair: Petitti, Antonio	Italian National Res. Council (CNR)
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Coratelli, Antonio	Pol. Di Bari
Di Paola, Donato	National Res. Council (CNR)
Colella, Roberto	Cnr Issia
Milella, Annalisa	Italian National Res. Council (CNR)
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Ponsignon, Thomas	Infineon Tech. AG
Ehm, Hans	Infineon Tech. AG
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Nandola, Naresh N.	Siemens Corp. Tech

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Wang, Li	Georgia Inst. of Tech
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Münz, Ulrich	Univ. of Stuttgart

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Obradovic, Dragan	Siemens AG

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Co-Chair: Vögeli, Desirée	Univ. of Stuttgart - Inst. of Industrial Automation and Software Engineering
Organizer: Weyrich, Michael	Univ. of Stuttgart, IAS
Organizer: Ryashentseva, Daria	Tech. Univ. Munich

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Müller, Timo	Univ. of Stuttgart
Vögeli, Desirée	Univ. of Stuttgart - Inst. of Industrial Automation And
Jung, Tobias	Univ. of Stuttgart
Jazdi, Nasser	Univ. of Stuttgart - Inst. of Industrial Automation And
Weyrich, Michael	Univ. of Stuttgart, IAS

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Fay, Alexander	Helmut-Schmidt-Univ. Hamburg

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Lüder, Arndt	Otto-V.-Guericke Univ
Rosendahl, Ronald	Otto-Von-Guericke Univ

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Cruz Salazar, Luis Alberto	Antonio Nariño Univ
Vogel-Heuser, Birgit	Tech. Univ. Munich
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Dagnino, Aldo	ABB Corp. Res

Bongiovi, Alessandro	ABB
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Zheng, Chun-Hong	National Kaohsiung Univ. of Science and Tech
Tseng, Chien-Ming	Metal Industries Res. & Development Center
Kao, Yung-Chou	National Chung Cheng Univ

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Chen, Xingzheng	Chongqing Univ
Li, Congbo	Chongqing Univ
Tang, Ying (Gina)	Rowan Univ

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Chang, Qing	Stony Brook Univ
Zou, Jing	Stony Brook Univ
Arinez, Jorge	General Motors Res. & Development Center
Xiao, Guoxian	General Motors Corp

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Lu, Lu	New Jersey Inst. of Tech
Wang, Cong	New Jersey Inst. of Tech
Li, Jiawei	New Jersey Inst. of Tech

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Co-Chair: Kalawoun, Rawan	Inst. Pascal, UMR 6602 - UCA/CNRS/SIGMA
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Barreto, Juan Pablo	RWTH Aachen Univ
Corves, Burkhard	RWTH Aachen Univ

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Li, Yanan	Tsinghua Univ
Meng, Deshan	Tsinghua Univ
Liu, Houde	Shenzhen Graduate School, Tsinghua Univ
Wang, Xueqian	Tsinghua Univ
Liang, Bin	Harbin Inst. of Tech
Yuan, Bo	Tsinghua Univ

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Kalawoun, Rawan	Inst. Pascal, UMR 6602 - UCA/CNRS/SIGMA
Lengagne, Sebastien	Inst. Pascal CNRS UMR 6602 / Univ. Blaise Pascal / IFMA
Mezouar, Youcef	SIGMA-Clermont

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Wu, Naiqi	Guangdong Univ. of Tech
Su, Rong	Nanyang Tech. Univ
Qiao, Yan	Macau Univ. of Science and Tech

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Bai, Danyu	Shenyang Univ. of Chemical Tech
Liang, Jie	Software Coll. Northeastern Univ
Miao, Yunhui	School of Ec. & Management, Shenyang Univ. of Chemicals
Zhang, Zhi-Hai	Tsinghua Univ

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Technical Program for Wednesday August 22, 2018

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Co-Chair: Saadatzi, Mohammad Nasser	Univ. of Louisville
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Khosravi, Abbas	Deakin Univ
Nahavandi, Saeid	Deakin Univ
Najdovski, Zoran	Deakin Univ
John Hilton, Stephen	Telstra
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Norinaga, Yu	Nara Inst. of Science and Tech
Ozawa, Yuto	Nara Inst. of Science and Tech
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Saadatzi, Mohammad Nasser	Univ. of Louisville
Popa, Dan	Univ. of Louisville
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Chen, Carolyn	Univ. of California, Berkeley
Miller, Lauren	Univ. of California, Berkeley
Song, William	Univ. of California, Berkeley
Viers, Joshua	Univ. of California, Merced
Vougioukas, Stavros	UC Davis
Carpin, Stefano	Univ. of California, Merced
Aparicio Ojea, Juan	Siemens
Goldberg, Ken	UC Berkeley

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Pu, Zhiqiang	Univ. of Chinese Acad. of Sciences; Inst. of Automati
Yi, Jianqiang	Chinese Acad. of Sciences
Tao, Xinlong	Univ. of Chinese Acad. of Sciences; Inst. of Automati
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Staub, Nicolas	LAAS-CNRS
Saska, Martin	Czech Tech. Univ. in Prague
Franchi, Antonio	LAAS-CNRS
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Zhu, Lingwei	Nara Inst. of Science and Tech
Fujisaki, Morihito	Yokogawa Electric Corp
Kanokogi, Hiroaki	Yokogawa Electric Corp
Matsubara, Takamitsu	Nara Inst. of Science and Tech
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Walz, Tanja	SEW Eurodrive GmbH
Schönung, Frank	SEW Eurodrive GmbH
Provost, Julien	Tech. Univ. of Munich
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San Miguel, Alberto	Univ. of Zaragoza
Civera, Javier	Univ. De Zaragoza
Mahulea, Cristian	Univ. De Zaragoza
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Chair: Chen, Chun-Hung	George Mason Univ
Organizer: Fullen, Marta	Fraunhofer IOSB-INA
Organizer: Eiteneuer, Benedikt	OWL Univ. of Applied Sciences
Organizer: Niggemann, Oliver	Fraunhofer Inst

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Deep Learning Based Efficient Anomaly Detection for Securing Process Control Systems against Injection Attacks (I), pp. N/A.

Potluri, Sasanka Otto-Von-Guericke Univ. Magdeburg
Diedrich, Christian Otto-Von-Guericke-Univ. Magdeburg

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Biswas, Gautam Vanderbilt Univ

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Longo, Claudio Santo Univ. of Modena and Reggio Emilia
Fantuzzi, Cesare Univ. Di Modena E Reggio Emilia
Monica, Francesco Univ. of Parma
Manfredotti, Luca Univ. of Modena and Reggio Emilia
Sorge, Marco Univ. of Modena and Reggio Emilia

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Xu, Xun Univ. of Auckland

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Ocker, Felix Tech. Univ. of Munich
Huang, Edward George Mason Univ
Vogel-Heuser, Birgit Tech. Univ. Munich
Chen, Chun-Hung George Mason Univ

WeAT4 Room 4

Artificial Intelligence Applied to Health-Care (Special Session)

Chair: Augusto, Vincent Mines Saint-Étienne
Co-Chair: Xie, Xiaolan Ec. Des Mines De Saint Etienne
Organizer: Augusto, Vincent Mines Saint-Étienne
Organizer: Xie, Xiaolan Ec. Des Mines De Saint Etienne

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Soler, Gregory Univ. of Lyon, INSA of Lyon, DISP EA 4570
Bouleux, Guillaume Univ. of Lyon, DISP INSA Lyon
Marcon, Eric Univ. Jean Monnet
Cantais, Aymeric Univ. Hospital (CHU) Saint Etienne

Pillet, Sylvie Univ. Hospital (CHU) Saint Etienne

Mory, Olivier Univ. Hospital (CHU) Saint Etienne

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Herazo-Padilla, Nilson Ec. Des Mines De Saint-Étienne
Augusto, Vincent Mines Saint-Étienne
Bongue, Bienvenu CETAF
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Provost, Julien Tech. Univ. of Munich

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Klement, Nathalie LISPEN

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Augusto, Vincent Mines Saint-Étienne
Garaix, Thierry Ec. Nationale Supérieure De Mines De Saint Etienne
Alfonso, Edgar Univ. De La Sabana
Bourdelin, Magali Hôpital Nord Ouest
Bontemps, Hervé Hôpital Nord Ouest

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Fan, Zhenghao Tsinghua Univ
Xie, Xiaolei Tsinghua Univ
Sanchez, Reynerio Univ. of Florida
Zhong, Xiang Univ. of Florida

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Cyber Physical Systems (Regular Session)

10:00-10:20 WeAT5.1

A Multi-Layered Distributed Cloud Network for Cyber-Physical Energy System, pp. 402-407.

Yang, Lei Xi'an Jiaotong Univ
Guan, Xiaohong Xi'an Jiaotong Univ
Wu, Jiang Xian Jiaotong Univ
Dai, Shihao Xi'an Jiaotong Univ

10:20-10:40 WeAT5.2

Specifying and Synthesizing Energy-Efficient Production System Controllers That Exploit Braking Energy Recuperation, pp. 408-413.

Gritzner, Daniel Leibniz Univ. Hannover
Knöchelmann, Elias Leibniz Univ. Hannover
Greenyer, Joel Leibniz Univ. Hannover
Eggers, Kai Leibniz Univ. Hannover
Tappe, Svenja Leibniz Univ. Hannover
Ortmaier, Tobias Leibniz Univ. Hannover

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10:40-11:00 WeAT5.3

Evaluation of Photogrammetry for Use in Industrial Production Systems, pp. 414-420.

Li, Jason	Chalmers Univ. of Tech
Berglund, Jonatan	Chalmers Univ. of Tech
Auris, Felix	Daimler AG
Hanna, Atieh	Volvo Group
Vallhagen, Johan	Volvo Group
Akesson, Knut	Chalmers Univ. of Tech

11:00-11:20 WeAT5.4

Digital Twin for Legacy Systems: Simulation Model Testing and Validation, pp. 421-426.

Khan, Adnan	Chalmers Univ. of Tech
Dahl, Martin	Chalmers Univ. of Tech
Falkman, Petter	Chalmers Univ. of Tech
Fabian, Martin	Department of Electrical Engineering

11:20-11:40 WeAT5.5

An Industry 4.0 Cyber-Physical Framework for Micro Devices Assembly, pp. 427-432.

Cecil, J.	Oklahoma State Univ
Albuhamood, Sadiq	Oklahoma State Univ
Cecil-Xavier, Aaron	Soaring Eagle Program

11:40-12:00 WeAT5.6

A Virtual Reality Enhanced Cyber Physical Framework to Support Simulation Based Training of Orthopedic Surgical Procedures, pp. 433-438.

Gupta, Avinash	Oklahoma State Univ
Cecil, J.	Oklahoma State Univ
Pirela-Cruz, Miguel	TEXAS Tech. HEALTH SCIENCES CENTER IN EL PASO

WeAT6 Room 6

Computer Vision in Automation (Regular Session)

Chair: Gulde, Thomas Reutlingen Univ

10:00-10:20 WeAT6.1

Computation of Homography between a Spherical Image and a Perspective Image, pp. 439-444.

Li, Shigang	Hiroshima City Univ
Wang, Xiaowei	Emaggo Tech. (Beijing) Co., Ltd
Kosaki, Takahiro	Hiroshima City Univ

10:20-10:40 WeAT6.2

An Automatic Visual Inspection Method Based on Statistical Approach for Defect Detection of Ship Hull Surfaces, pp. 445-450.

Jalalian, Athena	National Univ. of Singapore
Lu, Wenfeng	National Univ. of Singapore
Wong, Fook Seng	Keppel Offshore & Marine Tech. Center
Ahmed, Mariam	National Univ. of Singapore
Chew, Chee Meng	National Univ. of Singapore

10:40-11:00 WeAT6.3

HFR-Video-Based Image Pattern Recognition Using Pixel-Level Temporal Frequency Response Matching, pp. 451-456.

Shimasaki, Kohei	Hiroshima Univ
Okamura, Tomoaki	Department of System Cybernetics, Hiroshima Univ
Jiang, Mingjun	Hiroshima Univ

Takaki, Takeshi	Hiroshima Univ
Ishii, Idaku	Hiroshima Univ
Yamamoto, Kazuhiko	Department of Biotechnology and Chemistry, Kindai Univ

11:00-11:20 WeAT6.4

Iterative Refinement of Hand-Eye Calibration, pp. 457-462.

Liska, Jindrich	Univ. of West Bohemia
Chalus, Michal	Univ. of West Bohemia
Vanicek, Ondrej	Univ. of West Bohemia

11:20-11:40 WeAT6.5

RoPose: CNN-Based 2D Pose Estimation of Industrial Robots, pp. 463-470.

Gulde, Thomas	Reutlingen Univ
Ludl, Dennis	Reutlingen Univ
Curio, Cristóbal	Reutlingen Univ

11:40-12:00 WeAT6.6

Probabilistic Pose Estimation of Deformable Linear Objects, pp. 471-476.

Lai, Yujun	Univ. of Tech. Sydney
Poon, James	Kyoto Univ
Paul, Gavin	Univ. of Tech. Sydney
Han, Haifeng	Nara Inst. of Science and Tech
Matsubara, Takamitsu	Nara Inst. of Science and Tech

WeAT7 Room 7

Mechatronics (Regular Session)

Chair: Xu, Linsen	Hefei Inst. of Physical Science, Chinese Acad. of Sciences
Co-Chair: Kronthaler, Phillip	Univ. for Health Sciences, Medical Informatics and Tech. (UMIT)

10:00-10:20 WeAT7.1

RobCutt: A Framework of Underwater Biomimetic Vehicle-Manipulator System for Autonomous Interventions, pp. 477-482.

Tang, Chong	Inst. of Automation Chinese Acad. of Sciences
Wang, Rui	Inst. of Automation, Chinese Acad. of Sciences
Wang, Yu	Inst. of Automation Chinese Acad. of Sciences
Wang, Shuo	Chinese Acad. of Sciences
Freiherr von Lukas, Uwe	Fraunhofer IGD
Tan, Min	Inst. of Automation, Chinese Acad. of Sciences

10:20-10:40 WeAT7.2

An EtherCAT-Based Real-Time Control System Architecture for Humanoid Robots, pp. 483-490.

Sygulla, Felix	Tech. Univ. of Munich
Wittmann, Robert	Tech. Univ. München
Seiwald, Philipp	Tech. Univ. of Munich
Berninger, Tobias	TU Munich
Hildebrandt, Arne-Christoph	Tech. Univ. München
Wahrmann, Daniel	Tech. Univ. München
Rixen, Daniel	Tech. Univ. München

10:40-11:00 WeAT7.3

Model Based Control of a High Precision Dual Gantry Platform with Elastic Cross Coupling, pp. 491-498.

Kronthaler, Phillip	Univ. for Health Sciences, Medical Informatics and Tech
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Woittennek, Frank	Univ. for Health Sciences, Medical Informatics and Tech	Princeton NJ, USA
11:00-11:20	WeAT7.4	
<i>3D Wireless Power Transfer Based on 3D Printed Electronics</i> , pp. 499-505.		
Hou, Tao	Delft Univ. of Tech	
Song, Yu	Delft Univ. of Tech	
Elkhuizen, Willemijn	Delft Univ. of Tech	
Jiang, Jiehui	Shanghai Univ	
Geraedts, Jo	Delft Univ. of Tech	
11:20-11:40	WeAT7.5	
<i>Embedded Architecture of a Hydraulic Demolition Machine for Robotic Teleoperation in the Construction Sector</i> , pp. 506-513.		
Tanzini, Matteo	Scuola Superiore S.Anna	
Jacinto Villegas, Juan Manuel	Scuola Superiore Sant'Anna	
Satler, Massimo	Scuola Superiore Sant'Anna	
Niccolini, Marta	Scuola Superiore Sant'Anna	
Avizzano, Carlo Alberto	Scuola Superiore Sant'Anna	
11:40-12:00	WeAT7.6	
<i>A Multi-Mode Biomimetic Wall-Climbing Robot</i> , pp. 514-519.		
Xu, Jiajun	Univ. of Science and Tech. of China	
Xu, Linsen	Hefei Inst. of Physical Science, Chinese Acad. of Sciences	
Liu, Jinfu	Univ. of Science and Tech. of China	
Li, Xiaohu	Hefei Inst. of Physical Science, CAS	
Wu, Xuan	Hefei Inst. of Physical Science, Chinese Acad. of Science	
WeAT8	Room 8	
Innovative Decision and Control Approaches for Smart Factories and Supply Chains (Special Session)		
Chair: Reveliotis, Spiridon	Georgia Inst. of Tech	
Co-Chair: Jia, Qing-Shan	Tsinghua Univ	
Organizer: Basile, Francesco	Univ. Di Salerno	
Organizer: Dotoli, Mariagrazia	Pol. Di Bari	
Organizer: Jia, Qing-Shan	Tsinghua Univ	
Organizer: Reveliotis, Spiridon	Georgia Inst. of Tech	
Organizer: Seatzu, Carla	Univ. of Cagliari	
10:00-10:20	WeAT8.1	
<i>Preservation of Traffic Liveness in MPC Schemes for Guidepath-Based Transport Systems (I)</i> , pp. 520-527.		
Reveliotis, Spiridon	Georgia Inst. of Tech	
10:20-10:40	WeAT8.2	
<i>A Game-Theoretical Design Technique for Multi-Stage Supply Chains under Uncertainty (I)</i> , pp. 528-533.		
Cavone, Graziana	Univ. Degli Studi Di Cagliari	
Dotoli, Mariagrazia	Pol. Di Bari	
Epicoco, Nicola	DEE-Pol. Di Bari	
Morelli, Davide	Pol. of Bari	
Seatzu, Carla	Univ. of Cagliari	
10:40-11:00	WeAT8.3	
<i>Automatic Skill Matching for Production Machines (I)</i> , pp. 534-539.		
Quiros, Gustavo	Siemens Corp. Corp. Tech.	

Varró, András	Siemens Corp	
Eisen, Patrick	Siemens Corp	
Roelofs, Frank	Siemens AG	
Kob, Peter	Siemens AG	
11:00-11:20	WeAT8.4	
<i>Automated Generation of a Simulation Model for the Decentralized Control of Automated Warehouse Systems (I)</i> , pp. 540-546.		
Basile, Francesco	Univ. Di Salerno	
Chiacchio, Pasquale	Univ. Di Salerno	
Di Marino, Emiliano	UNISA	
11:20-11:40	WeAT8.5	
<i>SMT Solvers for Job-Shop Scheduling Problems: Models Comparison and Performance Evaluation (I)</i> , pp. 547-552.		
Roselli, Sabino Francesco	Chalmers Univ. of Tech	
Bengtsson, Kristofer	Sekvensa	
Akesson, Knut	Chalmers Univ. of Tech	
11:40-12:00	WeAT8.6	
<i>On Distributed Optimization for Supply Demand Coordination in Cyber Physical Energy Systems (I)</i> , pp. 553-558.		
Jia, Qing-Shan	Tsinghua Univ	
Wu, Junjie	Department of Automation, Tsinghua Univ	
Xu, Zhanbo	Xi'an Jiaotong Univ	
WeBT1	Room 1	
Intelligent Welding Manufacturing (Special Session)		
Chair: Zhang, Yuming	Univ. of Kentucky	
Organizer: Zhang, Yuming	Univ. of Kentucky	
Organizer: Feng, Zhili	Oak Ridge National Lab	
Organizer: Chen, Shan-Ben	Shanghai Jiao Tong Univ	
13:30-13:50	WeBT1.1	
<i>Detection of Weld Cracks Using Magneto-Optical Imaging (I)</i> , pp. 559-564.		
Gao, Xiangdong	Guangdong Univ. of Tech	
Xie, Yilong	Guangdong Univ. of Tech	
Du, Liangliang	Guangdong Univ. of Tech	
Chen, Ziqin	Guangdong Univ. of Tech	
Song, Yaowu	Guangdong Univ. of Tech	
Gao, Perry P.	US-China Youth Education Solutions Foundation	
13:50-14:10	WeBT1.2	
<i>Investigation on Shear and Tensile Strength of Laser Welded Electrical Sheet Stacks (I)</i> , pp. 565-569.		
Adelmann, Benedikt	Applied Laser and Photonics Group, Univ. of Applied Science	
Lutz, Christian	Applied Laser and Photonics Group, Univ. of Applied Science	
Hellmann, Ralf	Applied Laser and Photonics Group, Univ. of Applied Science	
14:10-14:30	WeBT1.3	
<i>Manual Welding with Robotic Assistance Compared to Conventional Manual Welding</i> , pp. 570-573.		
Erden, Mustafa Suphi	Heriot-Watt Univ	
14:30-14:50	WeBT1.4	
<i>Design and Development of a Low Cost Hybrid Sensor System for Welding Manufacturing</i> , pp. 574-579.		
Sigüenza, Michel	Pontificia Univ. Catolica Del Peru	

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Lean, Paul Pontifical Catholic Univ. of Peru
Cuellar, Francisco Pontificia Univ. Catolica Del Peru

Wang, Xiaonan Inst. of Automation, Chinese
Acad. of Sciences

WeBT2 Room 2 Service Robots (Regular Session)

Chair: Hashimoto, Manabu Graduate School of Computer
and Cognitive Sciences,
ChukyoUniversity
Co-Chair: Berenstein, Ron UC Berkeley

13:30-13:50 WeBT2.1

*Model-Less Estimation Method for Robot Grasping Parameters
Using 3D Shape Primitive Approximation*, pp. 580-585.

Torii, Takuya Chukyo Univ
Hashimoto, Manabu Graduate School of Computer
and Cognitive Sciences,
ChukyoUniver

13:50-14:10 WeBT2.2

*Real-Time Shape Recognition of a Deformable Link by Using Self-
Organizing Map*, pp. 586-591.

Xu, Shan Nankai Univ
Li, Gaofeng Nankai Univ
Song, Dezhen Texas A&M Univ
Sun, Lei Nankai Univ
Liu, Jingtai Nankai Univ

14:10-14:30 WeBT2.3

*An Open-Access Passive Modular Tool Changing System for
Mobile Manipulation Robots*, pp. 592-598.

Berenstein, Ron UC Berkeley
Wallach, Averell UC Berkeley
Elimbi Moudio, Marie Pelagie UC Berkeley
Cuellar, Peter Univ. of California, Berkeley
Goldberg, Ken UC Berkeley

14:30-14:50 WeBT2.4

*A Learning Method for a Daily Assistive Robot for Opening and
Closing Doors Based on Simple Instructions*, pp. 599-605.

Nagahama, Kotaro Shinshu Univ
Takeshita, Keisuke The Univ. of Tokyo
Yaguchi, Hiroaki The Univ. of Tokyo
Yamazaki, Kimitoshi Shinshu Univ
Yamamoto, Takashi Toyota Motor Corp
Inaba, Masayuki The Univ. of Tokyo

WeBT3 Room 3 Computer Vision for Manufacturing (Regular Session)

Chair: Yamazaki, Kimitoshi Shinshu Univ
Co-Chair: Hodapp, Jan Daimler AG

13:30-13:50 WeBT3.1

*Gripping Positions Selection for Unfolding a Rectangular Cloth
Product*, pp. 606-611.

Yamazaki, Kimitoshi Shinshu Univ

13:50-14:10 WeBT3.2

Surface Defect Saliency of Magnetic Tileface Defects, pp. 612-
617.

Huang, Yibin Inst. of Automation, Chinese
Acad. of Sciences
Qiu, Congying Columbia Univ
Yuan, Kui Chinese Acad. of Science
Guo, Yue Chinese Acad. of Sciences

14:10-14:30 WeBT3.3

*Vision Based Deformation and Wrinkle Detection for Semi-
Finished Fiber Products on Curved Surfaces*, pp. 618-623.

Gupta, Kashish Univ. of British Columbia
Körber, Marian German Aerospace Center
Krebs, Florian German Aerospace Center
Najjaran, Homayoun Univ. of British Columbia

14:30-14:50 WeBT3.4

*Training CNNs from Synthetic Data for Part Handling in Industrial
Environments*, pp. 624-629.

Andulkar, Mayur Chair of Automation Tech
Hodapp, Jan Daimler AG
Reichling, Thorsten Daimler AG
Reichenbach, Matthias Daimler AG
Berger, Ulrich Brandenburg Univ. of Tech.
Cottbus Senftenberg

WeBT4 Room 4 Industry Session: Manufacturing Automation (Regular Session)

Chair: Schütz, Daniel GEFASOFT GmbH
Co-Chair: Smieschek, Manfred RWTH Aachen

13:30-13:40 WeBT4.1

*Dynamic Generation of Shop Floor Gateway Configurations from
Standard System Engineering Models During Runtime*, pp. 630-
633.

Hujo, Dominik GEFASOFT GmbH
Schütz, Daniel GEFASOFT GmbH
Brunner, Benjamin Gefasoft GmbH

13:40-13:50 WeBT4.2

*Integration of Collaborative Robot in a Hard Steel Industrial
Environment*, pp. 634-637.

Menges, Baptiste Lab. Lorrain De Recherche En
Informatique Et Ses Applicat
Sarrey, Michaël Compagny
Henaff, Patrick Univ. of Lorraine, CNRS, INRIA,

13:50-14:00 WeBT4.3

*Simulation-Based Performance Assessment of Tool
Requalification Strategies in Wafer Fabs*, pp. 638-641.

Kopp, Denny Univ. of Hagen
Moench, Lars Univ. of Hagen
Pabst, Detlef Gbalfoundries
Stehli, Marcel Globalfoundries

14:00-14:10 WeBT4.4

*A New Condition Indicator for Slow-Rotating Roller Chains Based
on the Angle and Torque of the Driving Motor*, pp. 642-644.

Smieschek, Manfred RWTH Aachen
Hinrichs, Timo RWTH Aachen
Stollenwerk, André RWTH Aachen
Kowalewski, Stefan RWTH Aachen, Embedded
Software Lab
Preuß, Rüdiger KHS, Dortmund

14:10-14:20 WeBT4.5

*Cloud-Based Integration of Robot Engineering Data Using
AutomationML*, pp. 645-648.

Stark, Katharina ABB Forschungszentrum

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Goldschmidt, Thomas	ABB Digital
Doppelhamer, Jens	ABB Forschungszentrum
Bihani, Prerna	ABB AG Corp. Res. Center Germany
Goltz, Dieter	Logi.cals Automation Solutions & Services GmbH

14:20-14:30 WeBT4.6

Case Study on Operator Compliance to Scheduling Decisions in Semiconductor Manufacturing, pp. 649-652.

Waschneck, Bernd	Graduate School Advanced Manufacturing Engineering
Altenmüller, Thomas	Infineon Tech. AG
Bauernhansl, Thomas	Fraunhofer Inst. for Manufacturing Engineering and Automatio
Kyek, Andreas	Infineon Tech. AG

14:30-14:40 WeBT4.7

Enhancing Data Driven Models with Knowledge from Engineering Models in Manufacturing, pp. 653-656.

Auris, Felix	Daimler AG
Fisch, Jessica	Daimler AG
Brandl, Michael	Algoryx Simulation AB
Süß, Sebastian	Sick Stegmann GmbH
Soubar, Abedalhameed	Daimler AG
Diedrich, Christian	Otto-Von-Guericke-Univ. Magdeburg

WeBT5 Room 5

WIP Session: Innovative Concepts Seeding Industrial Future
(Regular Session)

Chair: Wimmer, Manuel	TU Wien
Co-Chair: Urniezius, Renaldas	Kaunas Univ. of Tech

13:30-13:35 WeBT5.1

Development and Investigation of Efficient Substrate Feeding and Dissolved Oxygen Control Algorithms for Design of Recombinant E. Coli Cultivation Process, pp. 657-660.

Galvanauskas, Vytautas	Kaunas Univ. of Tech
Simutis, Rimvydas	Kaunas Univ. of Tech
Levišauskas, Donatas	Kaunas Univ. of Tech
Butkus, Mantas	Kaunas Univ. of Tech
Urniesius, Renaldas	Kaunas Univ. of Tech

13:35-13:40 WeBT5.2

Uniform Parallel Machine Scheduling with Dedicated Machines, Job Splitting, and Setup Resources, pp. 661-663.

Kim, Hyun-Jung	Sungkyunkwan Univ
Lee, Jun-Ho	Konkuk Univ

13:40-13:45 WeBT5.3

Modelling Consistency Rules within Production System Engineering, pp. 664-667.

Lüder, Arndt	Otto-V.-Guericke Univ
Pauly, Johanna-Lisa	Otto-Von-Guericke Univ. Magdeburg
Wimmer, Manuel	TU Wien

13:45-13:50 WeBT5.4

CKF-Based Fast Error Compensation Filter Design for IR-UWB Indoor Positioning System for Building Automation, pp. 668-670.

Cho, Seong Yun	Kyungil Univ
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13:50-13:55 WeBT5.5

Support for Engineering Chain Migration towards Integrated Multi-Disciplinary Engineering Chains, pp. 671-674.

Lüder, Arndt	Otto-V.-Guericke Univ
Pauly, Johanna-Lisa	Otto-Von-Guericke Univ. Magdeburg
Rosendahl, Ronald	Otto-Von-Guericke Univ
Rinker, Felix	Vienna Univ. of Tech
Biffel, Stefan	TU Wien

13:55-14:00 WeBT5.6

*Time-Optimal Control of a Two-Mass Spring System for a Prescribed Continuous Output Path**, pp. 675-677.

Kim, Munyu	Korea Univ
Cho, Youngsu	Korea Univ
Jung, Dawoon	Korea University
Cheong, Joono	Korea Univ
Park, Dongil	Korea Inst. of Machinery and Materials (KIMM)

WeBT6 Room 6

Best Student Paper Award (Plenary Session)

13:30-13:50 WeBT6.1

A New Calibration Method of Line Scan Camera for High-Precision Two-Dimensional Measurement, pp. 678-683.

Zhang, Jiabin	Inst. of Automation, Chinese Acad. of Sciences, and Univ
Zhang, Zhengtao	Inst. of Automation, Chinese Acad. of Sciences
Shen, Fei	Inst. of Automation, Chinese Acad. of Sciences
Zhang, Feng	Inst. of Automation, the Chinese Acad. of Sciences
Su, Hu	Inst. of Automation, Chinese Acad. of Science

13:50-14:10 WeBT6.2

Case Study of an Energy-Saving Game for Public Buildings (I), pp. 684-689.

Cheng, Zhijin	Tsinghua Univ
Zhao, Qianchuan	Tsinghua Univ
Basar, Tamer	Univ. of Illinois at Urbana- Champaign

14:10-14:30 WeBT6.3

A System Architecture for Constraint-Based Robotic Assembly with CAD Information, pp. 690-696.

Arbo, Mathias	NTNU
Pane, Yudha Prawira	KU Leuven
Aertbelien, Erwin	KU Leuven
Decré, Wilm	Katholieke Univ. Leuven

14:30-14:50 WeBT6.4

FLUIDS - a First-Order Lightweight Urban Intersection Driving Simulator, pp. 697-704.

Zhao, Hankun	Univ. of California, Berkeley
Cui, Andrew	Choose One
Cullen, Schuyler	Samsung
Paden, Brian	MIT
Laskey, Michael	Univ. of California, Berkeley
Goldberg, Ken	UC Berkeley

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WeBT7	Room 7
Collaborative Intelligent Manufacturing (Special Session)	

Chair: Shen, Weiming	National Res. Council Canada
Co-Chair: Gao, Liang	Huazhong Univ. of Sci. & Tech
Organizer: Shen, Weiming	National Res. Council Canada
Organizer: Gao, Liang	Huazhong Univ. of Sci. & Tech

13:30-13:50	WeBT7.1
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An Approach of Service Modeling for the Demand-Driven Implementation of Human-Robot-Interaction in Manufacturing (I), pp. 705-710.

Delang, Kathleen	Fraunhofer Inst. for Machine Tools and Forming Tech
Todtermuschke, Marcel	Fraunhofer IWU
Bdiwi, Mohamad	Fraunhofer Inst. for Machine Tools and Forming Tech. IW
Putz, Matthias	Fraunhofer Inst. for Machine Tools and Forming Tech. IW

13:50-14:10	WeBT7.2
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Application of Generative Adversarial Networks for Intelligent Fault Diagnosis (I), pp. 711-715.

Cao, Sicán	Huazhong Univ. of Science and Tech
Wen, Long	Huazhong Univ. of Science and Tech
Li, Xinyu	Huazhong Univ. of Science and Tech
Gao, Liang	Huazhong Univ. of Sci. & Tech

14:10-14:30	WeBT7.3
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Equipment Health Assessment and Fault-Early Warning Algorithm Based on Improved SVDD (I), pp. 716-721.

Zhang, Lianlian	Tongji Univ
Qiao, Fei	Tongji Univ
Wang, Junkai	Tongji Univ

14:30-14:50	WeBT7.4
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Multiagent Manufacturing Scheduling: An Updated State of the Art Review (I), pp. 722-729.

Fazlirad, Alireza	Univ. of Calgary
Brennan, Robert	Univ. of Calgary

WeBT8	Room 8
Automation in Logistics and Intelligent and Knowledge Based Transportation Systems (Special Session)	

Chair: Fanti, Maria Pia	Pol. Di Bari
Co-Chair: Lieberoth-Leden, Christian	Tech. Univ. of Munich
Organizer: Fanti, Maria Pia	Pol. Di Bari
Organizer: Zhou, MengChu	New Jersey Inst. of Tech
Organizer: Vogel-Heuser, Birgit	Tech. Univ. Munich
Organizer: Mangini, Agostino Marcello	Pol. Di Bari

13:30-13:50	WeBT8.1
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A Cloud Computing Architecture for Eco Route Planning of Heavy Duty Vehicles (I), pp. 730-735.

Fanti, Maria Pia	Pol. Di Bari
Mangini, Agostino Marcello	Pol. Di Bari
Rotunno, Giuliana	Pol. Di Bari
Fiume, Giambattista	Univ. of Trieste
Favenza, Alfredo	Istituto Superiore Mario Boella
Gaetani, Manuel	Istituto Superiore Mario Boella

13:50-14:10	WeBT8.2
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Control Architecture and Transport Coordination for Autonomous Logistics Modules in Flexible Automated Material Flow Systems (I), pp. 736-743.

Lieberoth-Leden, Christian	Tech. Univ. of Munich
Fischer, Juliane	Tech. Univ. of Munich
Fottner, Johannes	Tech. Univ. of Munich
Vogel-Heuser, Birgit	Tech. Univ. Munich

14:10-14:30	WeBT8.3
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A New Cluster-Based Approach for the Vehicle Routing Problem with Time Windows (I), pp. 744-749.

Abbatecola, Lorenzo	Univ. of Trieste
Fanti, Maria Pia	Pol. Di Bari
Pedroncelli, Giovanni	Pol. Di Bari
Ukovich, Walter	Univ. of Trieste

14:30-14:50	WeBT8.4
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Multiobjective Optimization Approaches to Airline Crew Rostering Problems: A Case Study (I), pp. 750-755.

Zizhen, Zhang	Sun Yat-Sen Univ
Zhou, MengChu	New Jersey Inst. of Tech
Songshan, Guo	Sun Yat-Sen Univ

WeCT1	Room 1
Simulation Optimization for Cyber Physical Energy Systems I (Special Session)	

Chair: Jia, Qing-Shan	Tsinghua Univ
Co-Chair: Peng, Yijie	Peking Univ
Organizer: Jia, Qing-Shan	Tsinghua Univ
Organizer: Peng, Yijie	Peking Univ
Organizer: Song, Jie	Peking Univ

15:00-15:20	WeCT1.1
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A Distributed Algorithm for Sensor Fault Detection (I), pp. 756-761.

Zhang, Ziyou	Tsinghua Univ
Zhao, Qianchuan	Tsinghua Univ
Yang, Wen	Tsinghua Univ

15:20-15:40	WeCT1.2
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Fluctuation Reduction of Wind Power with Battery Energy Storage Systems (I), pp. 762-767.

Yang, Zhen	Tsinghua Univ
Xia, Li	Tsinghua Univ
Guan, Xiaohong	Xi'an Jiaotong Univ

15:40-16:00	WeCT1.3
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A New Particle Swarm Optimization Algorithm for Clustering (I), pp. 768-773.

Xu, Xiangping	Southeast Univ
Li, Jun	Southeast Univ

WeCT2	Room 2
AI-Based Methods (Regular Session)	

15:00-15:20	WeCT2.1
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Soft Sensors for Estimating Laundry Weight in Household Heat Pump Tumble Dryers, pp. 774-779.

Zambonin, Giuliano	Electrolux
Altinier, Fabio	Electrolux
Corso, Lorenzo	Electrolux
Sessolo, Mattia	Electrolux
Beghi, Alessandro	Univ. Di Padova

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Susto, Gian Antonio	Univ. of Padova
15:20-15:40	WeCT2.2
<i>Depth-Based Object Detection Using Hierarchical Fragment Matching Method</i> , pp. 780-785.	
Haghighi, Reza	Macquarie Univ
Rasouli, Mahdi	National Univ. of Singapore
Ahmed, Mariam	National Univ. of Singapore
Tan, Kim Pong	KTC-SHIPYARD Tech
Mamun, Abdullah Al	National Univ. of Singapore
Chew, Chee Meng	National Univ. of Singapore

15:40-16:00	WeCT2.3
<i>A Multiscale Concept Drift Detection Method for Learning from Data Streams</i> , pp. 786-790.	
Wang, XueSong	Tongji Univ
Kang, Qi	Tongji Univ
Zhou, MengChu	New Jersey Inst. of Tech
Yao, Siya	Tongji Univ

WeCT3	Room 3
Advanced Metaheuristics for Smart Shop Scheduling I (Special Session)	
Chair: Wang, Ling	Tsinghua Univ
Co-Chair: Gao, Liang	Huazhong Univ. of Sci. & Tech
Organizer: Wang, Ling	Tsinghua Univ
Organizer: Gao, Liang	Huazhong Univ. of Sci. & Tech

15:00-15:20	WeCT3.1
<i>A Combined Model for Short-Term Load Forecasting Based on Bird Swarm Algorithm (I)</i> , pp. 791-796.	
Cao, Zhengcai	Beijing Univ. of Chemical Tech
Liu, Lu	Beijing Univ. of Chemical Tech
Zhou, Meng	Beijing Univ. of Chemical Tech

15:20-15:40	WeCT3.2
<i>An Improved MOEA/D for Order Scheduling Problem in Automated Warehouse (I)</i> , pp. 797-802.	
Cao, Zhengcai	Beijing Univ. of Chemical Tech
Liu, Kaiwen	Beijing Univ. of Chemical Tech
Hu, Biao	Beijing Univ. of Chemical Tech

15:40-16:00	WeCT3.3
<i>A Self-Braking Symbiotic Organisms Search Algorithm for Bi-Objective Reentrant Hybrid Flow Shop Scheduling Problem (I)</i> , pp. 803-808.	
Cao, Zhengcai	Beijing Univ. of Chemical Tech
Gong, Sikai	Beijing Univ. of Chemical Tech
Zhou, Meng	Beijing Univ. of Chemical Tech
Liu, Kaiwen	Beijing Univ. of Chemical Tech

WeCT4	Room 4
Calibration and Identification (Regular Session)	
Chair: Acerbi, Federica	Univ. of Pavia
15:00-15:20	WeCT4.1
<i>Accuracy and Robustness against Covariate Shift of Water Chiller Models</i> , pp. 809-816.	
Acerbi, Federica	Univ. of Pavia
De Nicolao, Giuseppe	Univ. of Pavia, Italy
Obiltschnig, Josef	Infineon Tech
Richter, Patrick	Infineon Tech
De Luca, Cristina	Infineon Tech. Austria AG

15:20-15:40	WeCT4.2
<i>Collision Avoidance System for the RP Survey and Visual Inspection Train in the CERN Large Hadron Collider</i> , pp. 817-822.	
Grech, Leander	Univ. of Malta
Valentino, Gianluca	Univ. of Malta
Di Castro, Mario	CERN, European Organization for Nuclear Res
Veiga Almagro, Carlos	CERN

15:40-16:00	WeCT4.3
<i>Analysis of End-Of-State Impact on Manufacturing System Production Performance</i> , pp. 823-828.	
Zou, Jing	Stony Brook Univ
Chang, Qing	Stony Brook Univ
Huang, Jing	Stony Brook Univ
Arinez, Jorge	General Motors Res. & Development Center
Xiao, Guoxian	General Motors Corp

WeCT5	Room 5
Sensor Networks (Regular Session)	
Chair: Ding, Yu	Texas A&M Univ
Co-Chair: Zhou, Chenhao	National Univ. of Singapore

15:00-15:20	WeCT5.1
<i>Design of an Efficient Communication Architecture for Cyber-Physical Production Systems</i> , pp. 829-835.	
Kaestner, Florian	Ruhr-Univ. Bochum
Kuschnerus, Dirk	KROHNE Innovation GmbH
Spiegel, Christoph	KROHNE Innovation GmbH
Janßen, Benedikt	Ruhr-Univ. Bochum
Huebner, Michael	Ruhr-Univ. Bochum

15:20-15:40	WeCT5.2
<i>A Mixed Integer Programming Based Recursive Variance Reduction Method for Reliability Evaluation of Linear Sensor Systems</i> , pp. 836-842.	
Vijayaraghavan, Vishnu	Texas A&M Univ
Kianfar, Kiavash	Texas A&M Univ
Ding, Yu	Texas A&M Univ
Parsaei, Hamid	Texas A&M Univ. at Qatar

15:40-16:00	WeCT5.3
<i>Single Direction Traffic Rule for GRID System - an Innovative Automated Material Handling System</i> , pp. 843-848.	
Zhou, Chenhao	National Univ. of Singapore
Li, Haobin	National Univ. of Singapore
Lee, Loo Hay	National Univ. of Singapore
Chew, Ek Peng	National Univ. of Singapore

WeCT6	Room 6
Discrete Event Optimization (Regular Session)	
Chair: Lennartson, Bengt	Chalmers Univ. of Tech
Co-Chair: Fabian, Martin	Department of Electrical Engineering

15:00-15:20	WeCT6.1
<i>Compositional Optimization of Discrete Event Systems</i> , pp. 849-856.	
Hagebring, Fredrik	Chalmers Univ. of Tech
Lennartson, Bengt	Chalmers Univ. of Tech

15:20-15:40	WeCT6.2
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Towards Automatic Learning of Discrete-Event Models from Simulations, pp. 857-862.

Farooqui, Ashfaq Hussain	Chalmers Univ. of Tech
Falkman, Petter	Chalmers Univ. of Tech
Fabian, Martin	Department of Electrical Engineering

15:40-16:00 WeCT6.3

Relationship between Systematic Parameters and Operator's Kinesthetic Sensitivity in Master-Slave System, pp. 863-868.

Zhou, Dongbo	Tokyo Inst. of Tech. Department of Mechano-Micro Engin
Tadano, Kotaro	Tokyo Inst. of Tech

WeCT7 Room 7
Engineering Methods and Tools for the Development of Collaboration-Intensive Cyber Physical Systems I (Special Session)

Chair: Fay, Alexander	Helmut-Schmidt-Univ. Hamburg
Co-Chair: Terzimehic, Tarik	Fortiss GmbH
Organizer: Fay, Alexander	Helmut-Schmidt-Univ. Hamburg

15:00-15:20 WeCT7.1

Reference Architectures for Future Production Systems in the Field of Discrete Manufacturing (I), pp. 869-874.

Unverdorben, Stephan	Siemens AG
Böhm, Birthe	Siemens AG
Lüder, Arndt	Otto-V.-Guericke Univ

15:20-15:40 WeCT7.2

Hierarchical Simulation of Production Systems (I), pp. 875-880.

Smirnov, Denis	Siemens AG
Tim, Schenk	Siemens AG
Jan Christoph, Wehrstedt	Siemens AG

15:40-16:00 WeCT7.3

Using Design Space Exploration to Calculate Deployment Configurations of IEC 61499-Based Systems (I), pp. 881-886.

Terzimehic, Tarik	Fortiss GmbH
Voss, Sebastian	Fortiss GmbH
Wenger, Monika	Fortiss GmbH

WeDT1 Room 1
Simulation Optimization for Cyber Physical Energy Systems II (Special Session)

Chair: Jia, Qing-Shan	Tsinghua Univ
Co-Chair: Peng, Yijie	Peking Univ
Organizer: Jia, Qing-Shan	Tsinghua Univ
Organizer: Peng, Yijie	Peking Univ
Organizer: Song, Jie	Peking Univ

16:20-16:40 WeDT1.1

Dynamic Sampling for Feasibility Determination (I), pp. 887-892.

Peng, Yijie	Peking Univ
Song, Jie	Peking Univ
Xu, Jie	George Mason Univ
Chong, Edwin K. P.	Colorado State Univ

16:40-17:00 WeDT1.2

Cyber-Coordinated Simulation Models for Multi-Stage Additive Manufacturing of Energy Products (I), pp. 893-898.

Sun, Hongyue	Univ. at Buffalo
Pedrielli, Giulia	Arizona State Univ

Zhao, Guanglei	Univ. at Buffalo, State Univ. of New York
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Bragagnolo, Andrea	Pol. Di Milano
Zhou, Chi	Univ. at Buffalo, the State Univ. of New York

Pan, Rong	Arizona State Univ
Xu, Wenyao	UCLA

17:00-17:20 WeDT1.3

Efficient Sampling Procedure for Selecting the Largest Stationary Probability of a Markov Chain (I), pp. 899-905.

Li, Haidong	Peking Univ
Xu, Xiaoyun	Peking Univ. Coll. of Engineering
Peng, Yijie	Peking Univ
Chen, Chun-Hung	George Mason Univ

17:20-17:40 WeDT1.4

Solving Markov Decision Processes for Network-Level Post-Hazard Recovery Via Simulation Optimization and Rollout (I), pp. 906-912.

Sarkale, Yugandhar	Colorado State Univ
Nozhati, Saeed	Colorado State Univ
Chong, Edwin K. P.	Colorado State Univ
Ellingwood, Bruce R.	Colorado State Univ
Mahmoud, Hussam	Colorado State Univ

17:40-18:00 WeDT1.5

An Effective Tabu Search for Job Shop Scheduling with Parallel Machines, pp. 913-919.

Zubaran, Tadeu	UFRGS
Ritt, Marcus	Inst. De Informática, Univ. Federal Do Rio Grande Do

WeDT2 Room 2
Planning, Scheduling and Coordination (Regular Session)

Chair: Provost, Julien	Tech. Univ. of Munich
Co-Chair: Houssin, Laurent	LAAS-CNRS

16:20-16:40 WeDT2.1

Using Auxiliary Capacity Planning Strategy Genetic Algorithm for TFT-LCD Photolithography Scheduling to Empower Industry 3.5, pp. 920-925.

Kuo, Hsuan An	National Tsing Hua Univ
Chien, Chen-Fu	National Tsing Hua Univ

16:40-17:00 WeDT2.2

Optimization of Material Delivery Problem for Aircraft Moving Assembly Line, pp. 926-930.

Lu, Zhiqiang	Tongji Univ
Zhu, Hongwei	Tongji Univ
Hu, Xinming	Tongji Univ

17:00-17:20 WeDT2.3

Problem Reduction Approaches for Production Planning Using Clearing Functions, pp. 931-938.

Kacar, Baris	NCSU
Moench, Lars	Univ. of Hagen
Uzsoy, Reha	North Carolina State Univ

17:20-17:40 WeDT2.4

Event-Driven Production Rescheduling in Job Shop Environments - Application to Sheet Metal Production Processes, pp. 939-944.

Pfitzer, Florian	Tech. Univ. of Munich
Mieth, Carina	Tech. Univ. of Dortmund
Liertz, Wolfgang	TRUMPF GmbH

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Provost, Julien	Tech. Univ. of Munich
17:40-18:00	WeDT2.5
<i>Algorithms for the Flexible Cyclic Jobshop Problem</i> , pp. 945-950.	
Quinton, Félix	Univ. De Toulouse , UPS, 118 Route De Narbonne, F-31062 Tou
Hamaz, Idir	LAAS-CNRS, Univ. De Toulouse, CNRS, UPS, Toulouse, France
Houssin, Laurent	LAAS-CNRS

WeDT3	Room 3
Advanced Metaheuristics for Smart Shop Scheduling II (Special Session)	

Chair: Wang, Ling	Tsinghua Univ
Co-Chair: Gao, Liang	Huazhong Univ. of Sci. & Tech
Organizer: Wang, Ling	Tsinghua Univ
Organizer: Gao, Liang	Huazhong Univ. of Sci. & Tech

16:20-16:40 WeDT3.1

Many-Objective Flexible Job Shop Scheduling Problem: A Novel Imperialist Competitive Algorithm (I), pp. N/A.

Li, Ming	Wuhan Univ. of Tech
Lei, Deming	Wuhan Univ. of Tech

16:40-17:00 WeDT3.2

A Grouping Genetic Algorithm for the Intercell Scheduling Problem (I), pp. 956-961.

Wang, Shuai	Beijing Inst. of Tech
Du, Shaofeng	Inner Mongolia First Machinery Group Corp
Ma, Tao	Inner Mongolia First Machinery Group Corp
Li, Dongni	Beijing Inst. of Tech

17:00-17:20 WeDT3.3

An Improved NSGA-II Based Algorithm for Economical Hot Rolling Batch Scheduling under Time-Sensitive Electricity Prices (I), pp. 962-967.

Tan, Mao	Xiangtan Univ
Li, Miqing	Univ. of Birmingham
Wang, Ling	Tsinghua Univ

17:20-17:40 WeDT3.4

An Improved Differential Evolution Algorithm for Solving a Distributed Flexible Job Shop Scheduling Problem (I), pp. 968-973.

Wu, Xiuli	Univ. of Science and Tech. Beijing
Liu, Xiajing	Univ. of Science and Tech. Beijing

17:40-18:00 WeDT3.5

Hybridizing Tabu Search with Mathematical Programming for Solving a Single Row Layout Problem (I), pp. 974-980.

Yu, Meng	Beijing Univ. of Posts and Telecommunications
Zuo, Xingquan	Beijing Univ. of Posts and Telecommunications
Zhao, Xinchao	Beijing Univ. of Posts and Telecommunications
Wang, Chunlu	Beijing Univ. of Posts and Telecommunications

WeDT4	Room 4
Robots and Autonomous Vehicles (Regular Session)	

Chair: Hidaka, Koichi Tokyo Denki Univ

16:20-16:40 WeDT4.1

Towards Time-Optimal Trajectory Planning for Pick-And-Transport Operation with a Mobile Manipulator, pp. 981-987.

Thakar, Shantanu	Univ. of Southern California
Fang, Liwei	Univ. of Southern California
Shah, Brual C.	Univ. of Maryland, Coll. Park
Gupta, Satyandra K.	Univ. of Southern California

16:40-17:00 WeDT4.2

Pneumatic Shape-Shifting Fingers to Reorient and Grasp, pp. 988-993.

Chavan-Dafle, Nikhil	Massachusetts Inst. of Tech
Lee, Kyubin	Massachusetts Inst. of Tech
Rodriguez, Alberto	Massachusetts Inst. of Tech

17:00-17:20 WeDT4.3

Hybrid Exploration Method Based on a Sensor-Based and Frontier Based Exploration Algorithms for Autonomous Map Generation on Autonomous Transport Vehicle, pp. 994-999.

Hidaka, Koichi	Tokyo Denki Univ
Kameyama, Naoki	Tokyo Denki Univ

17:20-17:40 WeDT4.4

Design and Optimization of a Novel Swirling Sucker for Underwater Wall-Climbing Robots, pp. 1000-1005.

Liu, Xiangdong	Zhejiang Univ
Chen, Rui	Zhejiang Univ
Xue, Zhenfeng	Zhejiang Univ
Lei, Yong	Zhejiang Univ
Tian, Jinzhang	Changjiang Survey, Planning, Design and Res. Co., Ltd

17:40-18:00 WeDT4.5

Hierarchical Decentralized Robust Control Design for Modular and Reconfigurable Robots, pp. 1006-1011.

Gungor, Gokhan	Univ. of Waterloo
Fidan, Baris	Univ. of Waterloo
Melek, William	Univ. of Waterloo

WeDT5	Room 5
Intelligent and Flexible Manufacturing (Regular Session)	

Chair: Chen, Chao-Chun National Cheng Kung Univ
Co-Chair: Scholz, Steffen KIT

16:20-16:40 WeDT5.1

Smart Modular Reconfigurable Fully-Digital Manufacturing System with a Knowledge-Based Framework: Example of a Fabrication of Microfluidic Chips, pp. 1012-1017.

Scholz, Steffen	KIT
Elkaseer, Ahmed	KIT
Müller, Tobias	Karlsruhe Inst. of Tech
Gengenbach, Ulrich	Karlsruhe Inst. of Tech
Hagenmeyer, Veit	Karlsruhe Inst. of Tech. (KIT)

16:40-17:00 WeDT5.2

An Automated Liquid Manipulation by Using a Ferrofluid-Based Robotic Sheet, pp. N/A.

Tone, Tadayuki	Univ. of Tsukuba
Suzuki, Kenji	Univ. of Tsukuba

17:00-17:20 WeDT5.3

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Map-Reduce-Style Job Offloading Using Historical Manufacturing Behavior for Edge Devices in Smart Factory, pp. N/A.

Chen, Chao-Chun	National Cheng Kung Univ
Su, Wei-Tsung	Aletheia Univ
Hung, Min-Hsiung	Chinese Culture Univ
Lin, Zhong-Hui	IBM

17:20-17:40 WeDT5.4

Novel Formulation and Resolution of Job-Shop Scheduling Problems, pp. N/A.

Yan, Bing	Univ. of Connecticut
Bragin, Mikhail	Univ. of Connecticut
Luh, Peter	Univ. of Connecticut

17:40-18:00 WeDT5.5

A Cloud-Based Pluggable Manufacturing Service Scheme for Smart Factory (I), pp. 1040-1045.

Liu, Yu-Yang	National Cheng Kung Univ
Hung, Min-Hsiung	Chinese Culture Univ
Lin, Yu-Chuan	National Cheng Kung Univ
Chen, Chao-Chun	National Cheng Kung Univ
Gao, Wei-Lun	National Cheng Kung Univ
Cheng, Fan-Tien	National Cheng Kung Univ

WeDT6 Room 6
Optimization and Supervision of Production Systems (Regular Session)

Chair: Ju, Feng Arizona State Univ

16:20-16:40 WeDT6.1

On-Line Tool Wear Monitoring Via Sparse Coding Based on DCT and WPD (I), pp. 1046-1051.

Yu, Xiaolong	Univ. of Science and Tech. of China
Wang, Rongchuan	Chinese Acad. of Sciences
Shi, Yungao	Inst. of Advanced Manufacturing Tech. HefeiInstitutes
Zhu, Kunpeng	Chinese Acad. of Sciences

16:40-17:00 WeDT6.2

Condition-Based Real-Time Production Control for Smart Manufacturing Systems (I), pp. 1052-1057.

Wang, Feifan	Arizona State Univ
Lu, Yan	National Inst. of Tech. and Standards
Ju, Feng	Arizona State Univ

17:00-17:20 WeDT6.3

A Modified Heuristic Algorithm for Resource Constrained Multi-Project Scheduling Problem Based on Inspection and Rework, pp. 1058-1063.

Zhu, Hongwei	Tongji Univ
Lu, Zhiqiang	Tongji Univ
Hu, Xinming	Tongji Univ

17:20-17:40 WeDT6.4

Resolving Inconsistencies Optimally in the Model-Based Development of Production Systems, pp. 1064-1070.

Zou, Minjie	Tech. Univ. München
Lu, Boyang	Tech. Univ. Munich
Vogel-Heuser, Birgit	Tech. Univ. Munich

17:40-18:00 WeDT6.5

A Centralized Framework for System-Level Control and Management of Additive Manufacturing Fleets, pp. 1071-1078.

Balta, Efe	Univ. of Michigan
Tilbury, Dawn	Univ. of Michigan
Barton, Kira	Univ. of Michigan at Ann Arbor

WeDT7 Room 7

Engineering Methods and Tools for the Development of Collaboration-Intensive Cyber Physical Systems II (Special Session)

Chair: Fay, Alexander	Helmut-Schmidt-Univ. Hamburg
Co-Chair: Hildebrandt, Constantin	Helmut-Schmidt-Univ
Organizer: Fay, Alexander	Helmut-Schmidt-Univ. Hamburg

16:20-16:40 WeDT7.1

Ontology Building for Cyber-Physical Systems: A Domain Expert-Centric Approach (I), pp. 1079-1086.

Hildebrandt, Constantin	Helmut-Schmidt-Univ
Törsleff, Sebastian	Helmut-Schmidt-Univ
Caesar, Birte	Helmut-Schmidt-Univ. Inst. of Automation Tech
Fay, Alexander	Helmut-Schmidt-Univ. Hamburg

16:40-17:00 WeDT7.2

Model-Based Documentation of Context Uncertainty for Collaborative Cyber-Physical Systems - an Approach and Application to an Industry Automation Case Example (I), pp. 1087-1092.

Bandyszak, Torsten	Paluno - the Ruhr Inst. for Software Tech. Univ
Daun, Marian	Paluno - the Ruhr Inst. for Software Tech. Univ
Tenbergen, Bastian	State Univ. of New York at Oswego
Weyer, Thorsten	Paluno - the Ruhr Inst. for Software Tech. Univ

17:00-17:20 WeDT7.3

Online-Monitoring Autonomous Transport Robots with an R-Valued Temporal Logic (I), pp. 1093-1098.

Lorenz, Felix	Tech. Univ. Berlin
Schlingloff, Holger	Humboldt Univ

17:20-17:40 WeDT7.4

A Cross-Disciplinary Language for Change Propagation Rules (I), pp. 1099-1104.

Busch, Kiana	Karlsruhe Inst. of Tech. (KIT)
Werle, Dominik	Karlsruhe Inst. of Tech. (KIT)
Löper, Martin	Karlsruhe Inst. of Tech. (KIT)
Heinrich, Robert	Karlsruhe Inst. of Tech. (KIT)
Reussner, Ralf	Karlsruhe Inst. of Tech. (KIT)
Vogel-Heuser, Birgit	Tech. Univ. Munich

CASE 2018

Technical Program for Thursday August 23, 2018

ThAT1 Room 1 Automation in Life Sciences and Health-Care Systems (Regular Session)

Chair: Tan, U-Xuan Singapore Univ. of Tech. and Design

Co-Chair: Fleischer, Heidi Univ. of Rostock

10:00-10:20 ThAT1.1

Development of a Vision-Based Feature Extraction for Food Intake Estimation for a Robotic Assistive Eating Device, pp. 1105-1109.

Solis, Jorge Karlstad Univ. / Waseda Univ

Karlsson, Christoffer Karlstad Univ

Ogenvall, Mikael Karlstad Univ

Lindborg, Ann-Louise Camano Care

Takeda, Yukio Tokyo Inst. of Tech

Zhang, Cheng Waseda Univ

10:20-10:40 ThAT1.2

Evaluation of an Automated Sample Preparation System for Analysis of Methacrylates in Saliva, pp. 1110-1115.

Schedler, Martina Univ. Rostock

Fleischer, Heidi Univ. of Rostock

Bandomir, Jenny Celisca

Junginger, Steffen Univ. Rostock

Thurrow, Kerstin Univ. Rostock

10:40-11:00 ThAT1.3

Semi-Automatic Snore Detection in Polysomnography Based on Hierarchical Clustering, pp. 1116-1122.

Goh, Chun Fan Carnegie Mellon Univ

Samuelsson, Laura Univ. of Pittsburgh

Hall, Martica Univ. of Pittsburgh

Seet, Gim Lee, Gerald NTU

Shimada, Kenji Carnegie Mellon Univ

11:00-11:20 ThAT1.4

Ultrasound-Guided Involuntary Motion Compensation of Kidney Stones in Percutaneous Nephrolithotomy Surgery, pp. 1123-1129.

Paranawithana, Ishara Singapore Univ. of Tech. and Design

Li, Hsieh-Yu Singapore Univ. of Tech. and D

Yang, Liangjing Massachusetts Inst. of Tech

Lim, Terence Sey Kiat Changi General Hospital

Foong, Shaohui Singapore Univ. of Tech. and Design

Ng, Foo Cheong Changi General Hospital

Tan, U-Xuan Singapore Univ. of Tech. and Design

11:20-11:40 ThAT1.5

Reducing COPD Readmissions: A Causal Bayesian Network Model, pp. N/A.

Lee, Sujee Univ. of Wisconsin-Madison

Wang, Sijie Tsinghua Univ

Bain, Philip Dean Health System

Baker, Christine St. Mary's Hospital

Kundinger, Tammy St. Mary's Hospital

Sommers, Craig St. Mary's Hospital

Li, Jingshan Univ. of Wisconsin - Madison

11:40-12:00 ThAT1.6

Bottleneck Analysis to Improve Multidisciplinary Rounding Process in Intensive Care Units at Mayo Clinic, pp. N/A.

Lee, Hyo Kyung Univ. of Wisconsin-Madison

Dong, Yue Mayo Clinic

Pickering, Brian Mayo Clinic

Gajic, Ognjen Mayo Clinic

Li, Jingshan Univ. of Wisconsin - Madison

ThAT2 Room 2 Formal Methods in Robotics and Automation (Regular Session)

Chair: Wang, Hongpeng Nankai Univ

Co-Chair: Cha, Suhyun Tech. Univ. of Munich

10:00-10:20 ThAT2.1

Model for a Rigid, 3D Mechanism Inspired by Pop-Up Origami, and Its Application to a Re-Configurable, Physical Environment, pp. 1146-1151.

Bernard, Alexander Cornell Univ

Araujo de Aguiar, Carlos Cornell Univ

Henrique Cornell Univ

Green, Keith Evan Cornell Univ

10:20-10:40 ThAT2.2

Modeling and Validation of Free Road with Geometric Parameter Representation for Wheeled Mobile Robots, pp. 1152-1157.

Li, Pengpeng Nankai Univ

Wang, Hongpeng Nankai Univ

Mingyue, Zhu Inst. of Robotics and Automatic Information System, Nankai U

Liu, Jingtai Nankai Univ

10:40-11:00 ThAT2.3

Constructing Dependability Analysis Models of Reconfigurable Production Systems, pp. 1158-1163.

Marussy, Kristóf Budapest Univ. of Tech. and Ec

Majzik, Istvan Budapest Univ. of Tech. and Ec

11:00-11:20 ThAT2.4

Extension of the Plant Feature Approach Introducing Temporal Relations, pp. 1164-1169.

Jordan, Claudius V. Tech. Univ. of Munich

Cuevza Herrero, Judit Tech. Univ. of Munich

Provost, Julien Tech. Univ. of Munich

11:20-11:40 ThAT2.5

Achieving Delta Description of the Control Software for an Automated Production System Evolution, pp. 1170-1176.

Cha, Suhyun Tech. Univ. of Munich

Weigl, Alexander Karlsruher Inst. of Tech

Ulbrich, Mattias Karlsruhe Inst. of Tech

Beckert, Bernhard Karlsruhe Inst. of Tech

Vogel-Heuser, Birgit Tech. Univ. Munich

11:40-12:00 ThAT2.6

Mapping Chronicles to a K-Dimensional Euclidean Space Via Random Projections, pp. 1177-1182.

Sahuguède, Alexandre Univ. De Toulouse, LAAS-CNRS

Fergani, Soheib LAAS-CNRS

Le Corronc, Euriell LAAS-CNRS

Lelann, Marie-Véronique LAAS

ThAT3 Room 3 Factory Automation (Regular Session)

Chair: Jin, Ran Virginia Tech

Co-Chair: Katti, Badarinarth Tech. Univ. of Kaiserslautern

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10:00-10:20 ThAT3.1

Solving Unequal-Area Facility Layout Problems with Orbits in Fully Automatic System, pp. 1183-1188.

Hao, Xinru Department of Industrial Engineering, Tsinghua Univ. Beiji

Qi, Mingyao Graduate School at Shenzhen, Tsinghua Univ

10:20-10:40 ThAT3.2

SA-OPC-UA: Introducing Semantics to OPC-UA Application Methods, pp. 1189-1196.

Katti, Badarinath Tech. Univ. of Kaiserslautern

Plociennik, Christiane German Res. Center for Artificial Intelligence, Kaiserslautern

Schweitzer, Michael SAP SE, Walldorf

Ruskowski, Martin Deutsches Forschungszentrum Für Künstliche Intelligenz

10:40-11:00 ThAT3.3

Correctness Properties and Exemplified Applicability of a Signal Matching Algorithm with Multidimensional Tolerance Specifications, pp. 1197-1202.

Thönnessen, David RWTH Aachen Univ

Reinker, Niklas RWTH Aachen Univ

Rakel, Stefan RWTH Aachen Univ

Svetlakov, Andrei RWTH Aachen Univ

Kowalewski, Stefan RWTH Aachen, Embedded Software Lab

11:00-11:20 ThAT3.4

Data Fusion Pipelines for Autonomous Smart Manufacturing, pp. 1203-1208.

Chen, Xiaoyu Virginia Tech

Jin, Ran Virginia Tech

11:20-11:40 ThAT3.5

Interaction-Effect Search Algorithm for the KSA Scheme, pp. N/A.

Lin, Chin-Yi National Cheng Kung Univ

Hsieh, Yu-Ming National Cheng Kung Univ. Inst. of Manufacturing Infor

Cheng, Fan-Tien National Cheng Kung Univ

Yang, Yu-Ru National Cheng Kung Univ. Inst. of Manufacturing Infor

Adnan, Muhammad National Cheng Kung Univ. Inst. of Manufacturing Infor

11:40-12:00 ThAT3.6

Message-Oriented Middleware for Industrial Production Systems, pp. 1217-1223.

Sommer, Philipp Univ. of Stuttgart

Schellroth, Florian Univ. of Stuttgart

Fischer, Marc Timo Univ. of Stuttgart

Schlechtendahl, Jan Bosch Rexroth AG

ThAT4 Room 4

Logistics (Regular Session)

Chair: Wang, Zheng Southeast Univ

Co-Chair: Edoardo, Fadda Pol. Di Torino

10:00-10:20 ThAT4.1

An Autonomous Robotic System for Intralogistics Assisted by Distributed Smart Camera Network for Navigation, pp. 1224-1229.

Zhang, Xu Univ. of Erlangen-Nuremberg

Scholz, Michael Friedrich-Alexander-Univ. Erlangen-Nuremberg, Inst. For

Reitelshöfer, Sebastian Friedrich-Alexander-Univ. of Erlangen-Nuremberg

Franke, Jörg Univ. of Erlangen-Nuremberg

10:20-10:40 ThAT4.2

Integrated Ordering and Pricing Policy for Perishable Products with Inventory Inaccuracy, pp. 1230-1236.

Zhang, Yajun Southeast Univ

Wang, Zheng Southeast Univ

10:40-11:00 ThAT4.3

Forest-Based Tabu Search to the Split-Delivery Capacitated Arc-Routing Problem, pp. 1237-1242.

Lai, Qidong Sun Yat-Sen Univ

Zizhen, Zhang Sun Yat-Sen Univ

Xin, Jin Huazhong Univ. of Science and Tech

Qin, Hu Huazhong Univ. of Science and Tech

11:00-11:20 ThAT4.4

Sustainable Mobility and User Preferences by Crowdsourcing Data: The Open Agora Project, pp. 1243-1248.

Edoardo, Fadda Pol. Di Torino

Mana, Dario Pol. Di Torino

Perboli, Guido Pol. Di Torino

Valerio, Vallesio Pol. Di Torino

11:20-11:40 ThAT4.5

Linear Push Policies to Increase Grasp Access for Robot Bin Picking, pp. 1249-1256.

Danielczuk, Michael UC Berkeley

Mahler, Jeffrey Univ. of California, Berkeley

Correa, Christopher Univ. of California at Berkeley

Goldberg, Ken UC Berkeley

11:40-12:00 ThAT4.6

Balancing Trade-Offs between Utilization and Work-In-Process Inventory Levels in Flow Shop Production (I), pp. 1257-1262.

Li, Wei Univ. of Kentucky

Zhang, Zhi-Hai Tsinghua Univ

ThAT5 Room 5

Model Learning for Control (Regular Session)

Chair: Nuchkrua, Thanana Chung Cheng Univ

Co-Chair: Tan, Wei Chian Nanyang Tech. Univ. Register Global Tech. Centre Pte Ltd

10:00-10:20 ThAT5.1

Robot Model Learning with Gaussian Process Mixture Model, pp. 1263-1268.

Park, Sooho Carnegie Mellon Univ

Huang, Yu Carnegie Mellon Univ

Goh, Chun Fan Carnegie Mellon Univ

Shimada, Kenji Carnegie Mellon Univ

10:20-10:40 ThAT5.2

Material Classification through Knocking and Grasping by Learning of Structure-Borne Sound under Changing Acoustic Conditions, pp. 1269-1275.

Neumann, Michael Uni Bremen

Nottensteiner, Korbinian German Aerospace Center (DLR)

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Kossyk, Ingo	Cape Analytics GmbH
Marton, Zoltan-Csaba	German Aerospace Center (DLR)

10:40-11:00 ThAT5.3

Learning Traffic Behaviors by Extracting Vehicle Trajectories from Online Video Streams, pp. 1276-1283.

Ren, Xinhe	Univ. of California, Berkeley
Wang, David	Univ. of California, Berkeley
Laskey, Michael	Univ. of California, Berkeley
Goldberg, Ken	UC Berkeley

11:00-11:20 ThAT5.4

Learning-Based Adaptive Robust Control of Manipulated Pneumatic Artificial Muscle Driven by H₂-Based Metal Hydride, pp. 1284-1289.

Li, Kelin	Huazhong Univ. of Science and Tech
Nuchkrua, Thanana	National Chung Cheng Univ
Boonto, Sudchai	KMUTT

11:20-11:40 ThAT5.5

Learning with Corrosion Feature: For Automated Quantitative Risk Analysis of Corrosion Mechanism, pp. 1290-1295.

Tan, Wei Chian	Nanyang Tech. Univ. Register Global Tech
Goh, Phoi Chin	Lloyd's Register Global Tech. Centre
Chua, Kie Hian	Lloyd's Register Global Tech. Centre Pte Ltd
Chen, I-Ming	Nanyang Tech. Univ

11:40-12:00 ThAT5.6

Transfer Learning with PipNet: For Automated Visual Analysis of Piping Design, pp. 1296-1301.

Tan, Wei Chian	Nanyang Tech. Univ. Register Global Tech
Chen, I-Ming	Nanyang Tech. Univ
Pantazis, Dimitrios	Massachusetts Inst. of Tech
Pan, Sinno Jialin	Nanyang Tech. Univ

ThAT6	Room 6
Real-Time Modeling, Monitoring, and Control of Advanced Manufacturing Systems I (Special Session)	

Chair: Ju, Feng	Arizona State Univ
Co-Chair: Wu, Jianguo	Peking Univ
Organizer: Ju, Feng	Arizona State Univ
Organizer: Yan, Hao	Arizona State Univ
Organizer: Wu, Jianguo	Peking Univ

10:00-10:20 ThAT6.1

Energy Consumption Optimization in Two-Machine Bernoulli Serial Lines (I), pp. 1302-1307.

Yan, Chao-Bo	Xi'an Jiaotong Univ
Cheng, Xingrui	Xi'an Jiaotong Univ
Gao, Feng	Xi'an Jiaotong Univ
Guan, Xiaohong	Xi'an Jiaotong Univ

10:20-10:40 ThAT6.2

A Sequential Bayesian Partitioning Approach for Online Steady State Detection of Multivariate System (I), pp. 1308-1309.

Wu, Jianguo	Peking Univ
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10:40-11:00 ThAT6.3

Simulation-Predictive Control for Manufacturing Systems (I), pp. 1310-1315.

Pedrielli, Giulia	Arizona State Univ
Ju, Feng	Arizona State Univ

11:00-11:20 ThAT6.4

Equipment Deterioration Modeling and Causes Diagnosis in Semiconductor Manufacturing (I), pp. 1316-1321.

Rostami, Hamideh	Ec. Des Mines De Saint-Etienne
Blue, Jakey	Ec. Nationale Supérieure Des Mines De Saint-Etienne
Chen, Argon	National Taiwan Univ
Yugma, Claude	Ec. Des Mines De Saint-Etienne

11:20-11:40 ThAT6.5

NARNET-Based Prognostics Modeling for Deteriorating Systems under Dynamic Operating Conditions (I), pp. 1322-1327.

He, Anqi	Northeastern Univ
Jin, Xiaoning	Northeastern Univ

ThBT1	Room 1
Human-Robot Interaction (Regular Session)	

Chair: Aschemann, Harald	Univ. of Rostock
Co-Chair: Müller, Florian	Tech. Univ. Chemnitz

13:30-13:50 ThBT1.1

User Force-Dependent Variable Impedance Control in Human-Robot Interaction, pp. 1328-1335.

Müller, Florian	Tech. Univ. Chemnitz
Janetzky, Jan	HTWK Leipzig
Behrnd, Uwe	HTWK Leipzig
Jäkel, Jens	Hochschule Für Tech. Wirtschaft Und Kultur Leipzig
Thomas, Ulrike	Tech. Univ. of Chemnitz

13:50-14:10 ThBT1.2

Enabling Fixtureless Assemblies in Human-Robot Collaborative Workcells by Reducing Uncertainty in the Part Pose Estimate, pp. 1336-1342.

Kumbala, Nithyananda B	Univ. of Southern California
Marvel, Jeremy	National Inst. of Standards and Tech
Gupta, Satyandra K.	Univ. of Southern California

14:10-14:30 ThBT1.3

Full-Dynamics-Based Bilateral Teleoperation of Hydraulic Robotic Manipulators, pp. 1343-1350.

Lampinen, Santeri	Tampere Univ. of Tech
Koivumäki, Janne	Tampere Univ. of Tech
Mattila, Jouni	Tampere Univ. of Tech

14:30-14:50 ThBT1.4

A Cloud-Based Robust Semaphore Mirroring System for Social Robots, pp. 1351-1358.

Tian, Nan	Univ. of California, Berkeley
Kuo, Benjamin	Apple Inc
Ren, Xinhe	Univ. of California, Berkeley
Yu, Michael	Univ. of California Los Angeles
Zhang, Robert Zhe	CloudMinds Tech
Huang, Bill	CloudMinds Tech. Inc
Goldberg, Ken	UC Berkeley
Sojoudi, Somayeh	UC Berkeley

14:50-15:10 ThBT1.5

Safe and Efficient Human-Robot Collaboration Part II: Optimal Generalized Human-In-The-Loop Real-Time Motion Generation, pp. N/A.

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Weitschat, Roman	Robotics and Mechatronics Center (DLR)
Aschemann, Harald	Univ. of Rostock

Hu, Yitian	National Res. Council Canada
Newsham, Guy R.	National Res. Council Canada
Shen, Weiming	National Res. Council Canada

ThBT2	Room 2
Multi-Disciplinary Engineering for Cyber-Physical Production Systems (Special Session)	

Chair: Wimmer, Manuel	TU Wien
Co-Chair: Morgan, Ericsson	Linnaeus Univ
Organizer: Biffel, Stefan	TU Wien
Organizer: Thramboulidis, Kleonthis	Univ. of Patras
Organizer: Vollmar, Jan	Siemens AG

13:30-13:50 ThBT2.1

A Real-Time Container Architecture for Dependable Distributed Embedded Applications (I), pp. 1367-1374.

Telschig, Kilian	Siemens AG
Schoenberger, Dr. Andreas	Siemens AG
Knapp, Alexander	Univ. Augsburg

13:50-14:10 ThBT2.2

Applying Self-Adaptation to Automate the Management of Online Documentation of Telecom Systems (I), pp. 1375-1380.

Danny, Weyns	KU Leuven
Morgan, Ericsson	Linnaeus Univ
Welf, Lowe	SoftWerk
Frans, Frejdestedt	Ericsson
Johan, Thornadtsosson	Sigma Tech
Anna-Karin, Hulth	Sigma Tech

14:10-14:30 ThBT2.3

AutomationML, ISA-95 and Others: Rendezvous in the OPC UA Universe (I), pp. 1381-1387.

Wally, Bernhard	TU Wien
Huemer, Christian	TU Wien
Mazak, Alexandra	TU Wien
Wimmer, Manuel	TU Wien

14:30-14:50 ThBT2.4

Efficient Implementation of Task Automation to Support Multidisciplinary Engineering of CPS (I), pp. 1388-1393.

Maier, Rupert	Siemens AG, Corp. Tech
Unverdorben, Stephan	Siemens AG
Gepp, Michael	Siemens AG

14:50-15:10 ThBT2.5

From AutomationML to AutomationQL: A By-Example Query Language for CPPS Engineering Models (I), pp. 1394-1399.

Wimmer, Manuel	TU Wien
Mazak, Alexandra	TU Wien

ThBT3	Room 3
Big Data and Cloud Computing (Regular Session)	

Chair: Shen, Weiming	National Res. Council Canada
Co-Chair: Luo, Xin	Chongqing Inst. of Green and Intelligent Tech. Chinese Acad. of Sciences

13:30-13:50 ThBT3.1

Energy Performance Based Anomaly Detection in Non-Residential Buildings Using Symbolic Aggregate Approximation, pp. 1400-1405.

Ashouri, Araz	National Res. Council Canada
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13:50-14:10 ThBT3.2

Unconstrained Non-Negative Factorization of High-Dimensional and Sparse Matrices in Recommender Systems, pp. 1406-1413.

Luo, Xin	Chongqing Inst. of Green and Intelligent Tech. Chinese
Zhou, MengChu	New Jersey Inst. of Tech

14:10-14:30 ThBT3.3

Passive Network State Monitoring for Dynamic Resource Management in Industry 4.0 Fog Architectures, pp. 1414-1419.

Orive, Adrián	IK4-Ikerlan Tech. Res. Centre
Agirre, Aitor	IK4-Ikerlan Tech. Res. Centre
Bilbao, Josu	IK4-Ikerlan Tech. Res. Centre
Marcos, Marga	EIB, Univ. of the Basque Country

14:30-14:50 ThBT3.4

Dex-Net As a Service (DNaaS): A Cloud-Based Robust Robot Grasp Planning System, pp. 1420-1427.

Li, Pusong	UC Berkeley
DeRose, William	UC Berkeley
Mahler, Jeffrey	Univ. of California, Berkeley
Aparicio Ojea, Juan	Siemens
Goldberg, Ken	UC Berkeley
Tanwani, Ajay Kumar	UC Berkeley

14:50-15:10 ThBT3.5

Multi-User Multi-Provider Resource Allocation in Cloud Computing, pp. 1428-1433.

Zhang, Peiyun	Anhui Normal Univ
Wang, Xuelei	Anhui Normal Univ
Zhou, MengChu	New Jersey Inst. of Tech

ThBT4	Room 4
Innovative Tools and Methods for Automated, Accurate and Complex Tasks at Micro-Nanoscales I (Special Session)	

Chair: Lutz, Philippe	Femto-St - Umr Cnrs 6174 - Ufc/ensmm/utbm
Co-Chair: Popa, Dan	Univ. of Louisville
Organizer: Lutz, Philippe	Femto-St - Umr Cnrs 6174 - Ufc/ensmm/utbm
Organizer: Popa, Dan	Univ. of Louisville
Organizer: Cappelleri, David	Purdue Univ
Organizer: Clévy, Cédric	Franche-Comté Univ

13:30-13:50 ThBT4.1

Scene-Adaptive Fusion of Visual and Motion Tracking for Vision-Guided Micromanipulation in Plant Cells (I), pp. 1434-1440.

Paranawithana, Ishara	Singapore Univ. of Tech. and Design
Yang, Liangjing	Massachusetts Inst. of Tech
Chen, Zhong	National Inst. of Education, Nanyang Tech. Univ
Youcef-Toumi, Kamal	Massachusetts Inst. of Tech
Tan, U-Xuan	Singapore Univ. of Tech. and Design

13:50-14:10 ThBT4.2

Novel Strategy for High Precision Automated Robotic Positioning Based on Fabry-Perot Interferometry Principle (I), pp. 1441-1447.

Bettahar, Houari	Univ. De Franche Comté
Clévy, Cédric	Franche-Comté Univ

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Behague, Florent	FEMTO-ST Inst. AS2M Department, Univ. Bourgogne Franche Co
Courjal, Nadège	Univ. Bourgogne Franche- Comté, Univ. De Franche- Comté/CNRS/ENSMM
Lutz, Philippe	Femto-St - Umr Cnrs 6174 - Ufc/ensmm/utbm

14:10-14:30 ThBT4.3

Analysis of an Integrated 4-DoF Parallel Wrist for Dexterous Gripping (I), pp. 1448-1453.

Haouas, Wissem	Femto-St
Dahmouche, Redwan	Univ. De Franche Comté
Laurent, Guillaume J.	Univ. Bourgogne Franche- Comté, ENSMM

14:30-14:50 ThBT4.4

Precision Grasp Control with a Pneumatic Gripper and a Novel Fingertip Force Sensor (I), pp. 1454-1459.

Saadatzi, Mohammad Nasser	Univ. of Louisville
Das, Sumit Kumar	Univ. of Louisville
Wijayasinghe, Indika	Univ. of Louisville
Popa, Dan	Univ. of Louisville
Baptist, Joshua	Univ. of Louisville

14:50-15:10 ThBT4.5

A Step Toward Learning to Control Tens of Optically Actuated Microrobots in Three Dimensions (I), pp. 1460-1465.

Banerjee, Ashis	Univ. of Washington
Rajasekaran, Keshav	Univ. of Maryland
Parsa, Behnoosh	Univ. of Washington

ThBT5 Room 5

Industrial Robot (Regular Session)

Co-Chair: Barreto, Juan Pablo	RWTH Aachen Univ
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13:30-13:50 ThBT5.1

Hybrid Cells for Multi-Layer Prepreg Composite Sheet Layup, pp. 1466-1472.

Malhan, Rishi	Univ. of Southern California
Kabir, Ariyan M	Univ. of Southern California
Shembekar, Aniruddha	Univ. of Southern California
Shah, Brual C.	Univ. of Maryland, Coll. Park
Centea, Timotei	Univ. of Southern California
Gupta, Satyandra K.	Univ. of Southern California

13:50-14:10 ThBT5.2

Online Coverage Path Planning for a Mobile Robot Considering Energy Consumption, pp. 1473-1478.

Mitschke, Marcel	Univ. of Stuttgart
Uchiyama, Naoki	Toyohashi Univ. of Tech
Sawodny, Oliver	Univ. of Stuttgart

14:10-14:30 ThBT5.3

Automation of Train Cab Front Cleaning with a Robot Manipulator, pp. N/A.

Moura, Joao	Heriot-Watt Univ
Mccoll, William Alexander	Heriot Watt Univ
Taykaldirian, Gerard	Cranfield Univ
Tomiya, Tetsuo	Cranfield Univ
Erden, Mustafa Suphi	Heriot-Watt Univ

14:30-14:50 ThBT5.4

Matching the Free-Vibration Response of a Delta Robot with Pick-And-Place Tasks Using Multi-Body Simulation, pp. 1487-1492.

Barreto, Juan Pablo	RWTH Aachen Univ
Corves, Burkhard	RWTH Aachen Univ

14:50-15:10 ThBT5.5

Fusion of Human Demonstrations for Automatic Recovery During Industrial Assembly, pp. 1493-1500.

Muxfeldt, Arne	Tech. Univ. Braunschweig
Steil, Jochen J.	Tech. Univ. Braunschweig

ThBT6 Room 6

Real-Time Modeling, Monitoring, and Control of Advanced Manufacturing Systems II (Special Session)

Chair: Kang, Yunyi	Arizona State Univ
Co-Chair: Wu, Jianguo	Peking Univ
Organizer: Ju, Feng	Arizona State Univ
Organizer: Yan, Hao	Arizona State Univ
Organizer: Wu, Jianguo	Peking Univ

13:30-13:50 ThBT6.1

Real-Time Production Performance Analysis Using Machine Degradation Signal: A Two-Machine Case (I), pp. 1501-1506.

Kang, Yunyi	Arizona State Univ
Yan, Hao	Arizona State Univ
Ju, Feng	Arizona State Univ

13:50-14:10 ThBT6.2

Transients of Synchronous Serial Production Lines with Non-Exponential Reliability Machines (I), pp. 1507-1512.

Yang, Mengzhuo	Voucher #
Zhang, Liang	Univ. of Connecticut
Denno, Peter	National Inst. of Standards and Tech

14:10-14:30 ThBT6.3

Data-Driven Downtime Bottleneck Detection in Open Flow Lines (I), pp. 1513-1518.

Zhang, Mengyi	Pol. Di Milano
Matta, Andrea	Pol. Di Milano

14:30-14:50 ThBT6.4

Geometric Simulation of Infeed Grinding Process of Silicon Wafer Using GPU, pp. 1519-1524.

Inui, Masatomo	Ibaraki Univ
Ebina, Yutaro	Ibaraki Univ
Maezaki, Tomohiro	Ibaraki Univ
Zhou, Libo	Ibaraki Univ

14:50-15:10 ThBT6.5

An Approach to Automatically Assign Mechatronic Components to an Existing or Identified Classification, pp. 1525-1529.

Süß, Sebastian	Sick Stegmann GmbH
Auris, Felix	Daimler AG
Diedrich, Christian	Otto-Von-Guericke-Univ. Magdeburg

ThCT1 Room 1

Innovative Engineering Methods (Special Session)

Chair: Drath, Rainer	Univ. of Applied Sciences Pforzheim
Co-Chair: Hua, Yingbing	Karlsruhe Inst. of Tech. (KIT)
Organizer: Drath, Rainer	Univ. of Applied Sciences Pforzheim

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15:40-16:00 ThCT1.1

Modeling and Exchange of IO-Link Configurations with AutomationML (I), pp. 1530-1535.

Drath, Rainer Univ. of Applied Sciences Pforzheim
Rentschler, Markus Balluff GmbH

16:00-16:20 ThCT1.2

Model-Driven Consistency Preservation in AutomationML (I), pp. 1536-1541.

Ananieva, Sofia FZI Res. Center of Information Tech
Burger, Erik Karlsruhe Inst. of Tech
Stier, Christian FZI Res. Center for Information Tech

16:20-16:40 ThCT1.3

Concept Learning in AutomationML with Formal Semantics and Inductive Logic Programming (I), pp. 1542-1547.

Hua, Yingbing Karlsruhe Inst. of Tech. (KIT)
Hein, Björn Karlsruhe Inst. of Tech. (KIT)

16:40-17:00 ThCT1.4

Process Simulation on Single-Board Computers - the Digital Twin in the Field (I), pp. 1548-1555.

Härle, Christian Pforzheim Univ
Barth, Mike HS Pforzheim
Fay, Alexander Helmut-Schmidt-Univ. Hamburg

ThCT2 Room 2
Discrete Event Dynamic Automation Systems (Regular Session)

Chair: Rettberg, Achim Carl Von Ossietzky Univ. Oldenburg
Co-Chair: Outafraout, Karima Univ. of Cadi Ayyad, FSTG

15:40-16:00 ThCT2.1

Shortest Legal Firing Sequence of Net Condition/Event Systems Using Integer Linear Programming, pp. 1556-1561.

Zhang, Jiafeng Xidian Univ
Li, Hongyi Xidian Univ. China
Frey, Georg Saarland Univ
Li, Zhiwu Xidian Univ

16:00-16:20 ThCT2.2

Characterizing the Worst-Case Wafer Delay in a Cluster Tool Operated in a K-Cyclic Schedule, pp. 1562-1567.

Roh, Dong-Hyun KAIST
Lee, Tae-Eog KAIST

16:20-16:40 ThCT2.3

A Colored Hybrid Petri Net-Based Modeling Approach for Performance Analysis of a Multi-Modal Transportation System, pp. 1568-1573.

Outafraout, Karima Univ. of Cadi Ayyad, FSTG
Chakir El Alaoui, El houcin Univ. of Cadi Ayyad, FSTG
Nait-Sidi-Moh, Ahmed Univ. of Picardie Jules Vernes, INSSET,

16:40-17:00 ThCT2.4

An Approach for Architectural Design of Automotive Systems Using MARTE and SysML, pp. 1574-1580.

Goncalves, Fabiola Federal Univ. of Uberlandia
Soares, Michel S. Federal Univ. of Sergipe
Pereira, Carlos E. Federal Univ. of Rio Grande do Sul

Rettberg, Achim

Carl von Ossietzky Univ. Oldenburg

ThCT3 Room 3
Energy and Environment-Aware Automation (Regular Session)

Chair: Wang, Junfeng Huazhong Univ. of Science and Tech

Co-Chair: Peng, Tao Zhejiang Univ

15:40-16:00 ThCT3.1

Systematic Design Method of Controller Using Discrete Fuzzy PI Control and Particle Swarm Optimization, pp. 1581-1586.

Jongmin, Cheon Korea Electrotechnology Res. Inst

16:00-16:20 ThCT3.2

Automated Process State Identification for Metal Additive Manufacturing Based on Power Data (I), pp. 1587-1592.

Lu, Zedi Zhejiang Univ
Peng, Tao Zhejiang Univ
Chen, Wei Zhejiang Univ

16:20-16:40 ThCT3.3

Fuzzy Petri Net Based Intelligent Machine Operation of Energy Efficient Manufacturing System (I), pp. 1593-1598.

Fei, Zicheng Huazhong Univ. of Science and Tech
Li, Shiqi Huazhong Univ. of Science and Tech
Chang, Qing Stony Brook Univ
Wang, Junfeng Huazhong Univ. of Science and Tech
Huang, Yaqin Huazhong Univ. of Science and Tech

16:40-17:00 ThCT3.4

Plug-and-Play Power Management Control of All-Electric Vehicles Using Multi-Agent System and On-Line Gaussian Learning, pp. 1599-1604.

Chu, Kang-Ching Univ. of Michigan
Bucsan, George Toyota Res. Inst. of North America
Ishigaki, Masanori Toyota Central R & D
Iwai, Atsushi Toyota Central R & D Labs, Inc
Chou, Chungchih Toyota Res. Inst. of North America
Saitou, Kazuhiro Univ. of Michigan

ThCT4 Room 4
Innovative Tools and Methods for Automated, Accurate and Complex Tasks at Micro-Nanoscales II (Special Session)

Chair: Lutz, Philippe Femto-St - Umr Cnrs 6174 - Ufc/ensmm/utbm

Co-Chair: Popa, Dan Univ. of Louisville
Organizer: Lutz, Philippe Femto-St - Umr Cnrs 6174 - Ufc/ensmm/utbm

Organizer: Popa, Dan Univ. of Louisville
Organizer: Cappelleri, David Purdue Univ
Organizer: Clévy, Cédric Franche-Comté Univ

15:40-16:00 ThCT4.1

Enhancing In-Hand Dexterous Micro-Manipulation for Real-Time Applications (I), pp. 1605-1611.

Bafumba Liseli, Joël Univ. Bourgogne Franche-Comté
Dahmouche, Redwan Univ. De Franche Comté

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Kumar, Pardeep FEMTO-ST Inst. Univ.
Bourgogne Franche-Comte

Seon, Jean-Antoine Aalto Univ

Gauthier, Michael FEMTO-ST Inst

16:00-16:20 ThCT4.2

Automated Electric-Field-Based Nanowire Characterization, Manipulation, and Assembly (I), pp. 1612-1617.

Yu, Kaiyan Binghamton Univ

Yi, Jingang Rutgers Univ

Shan, Jerry Rutgers Univ

16:20-16:40 ThCT4.3

A Virtual Capture Framework for Assembly Tasks, pp. 1618-1623.

Petit, Damien Osaka Univ

Ramirez-Alpizar, Ixchel Osaka Univ

Georgina

He, Qiming Osaka Univ

Harada, Kensuke Osaka Univ

16:40-17:00 ThCT4.4

An Integrated Workflow to Automatically Fabricate Flexible Electronics by Functional Printing and SMT Component Mounting, pp. 1624-1629.

Gengenbach, Ulrich Karlsruhe Inst. of Tech

Ungerer, Martin Karlsruhe Inst. of Tech. (KIT)

Aytac, Emre Karlsruhe Inst. of Tech

Koker, Liane Karlsruhe Inst. of Tech. (KIT)

Stiller, Peter Karlsruhe Inst. of Tech

Reichert, Klaus-Martin Karlsruhe Inst. of Tech

Hagenmeyer, Veit Karlsruhe Inst. of Tech. (KIT)
