2010 IEEE Conference on Automation Science and Engineering

(CASE 2010)

Toronto, Ontario, Canada
21 – 24 August 2010

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#### SuAPL
**Grand Ball Room**

**Commercializing Disruptive Technology** (Plenary Session)

- Chair: Wen, John  
  Rensselaer Pol. Inst.

- **SuAPL.1 Commercializing Disruptive Technology**
  Greiner, Helen  
  CyPhy Works, Inc.

#### SuA1

**Best Application Paper Finalists** (Regular Session)

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- Fatikow, Sergej  
  Univ. of Oldenburg
- Eichhorn, Volkmar  
  Univ. of Oldenburg
- Jasper, Daniel  
  Univ. of Oldenburg
- Weigel-Jech, Michael  
  Carl von Ossietzky Univ.
- Niewiera, Florian  
  Carl von Ossietzky Univ.
- Krohs, Florian  
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**10:50-11:10**

  - Sun, Biao  
    Tsinghua Univ.
  - Luh, Peter  
    Univ. of Connecticut
  - Jia, Qing-Shan  
    Tsinghua Univ.
  - Jiang, Ziyan  
    Dept. of Building Science, Tsinghua Univ.
  - Wang, Fulin  
    Tsinghua Univ.
  - Song, Chen (Steven)  
    United Tech. Res. Center

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  - Chang, Bo  
    Aalto Univ.
  - Jääskeläinen, Mirva  
    Helsinki Univ. of Tech.
  - Zhou, Quan  
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  - Krishnan, Lakshmi  
    Rensselaer Pol. Inst.
  - Snelson, Todd  
    Rensselaer Pol. Inst.
  - W alczyk, Daniel  
    Rensselaer Pol. Inst.
  - Puffer, Raymond  
    Rensselaer Pol. Inst.

**11:50-12:10**

  - Chen, Nanhu  
    Rensselaer Pol. Inst.
  - Potsaid, Benjamin  
    Massachusetts Inst. of Tech.
  - Wen, John  
    Rensselaer Pol. Inst.
  - Barry, Scott  
    Thorlabs, Inc.
  - Cable, Alex  
    Thorlabs, Inc.

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<td>Fanti, Maria Pia</td>
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- **SuA3.1 Accelerating Shortest Path Computations in Hardware**, pp. 63-68.
  - Lam, Siew Kei  
    Nanyang Tech. Univ.
  - Srikanth, Thambipillai  
    Nanyang Tech. Univ.

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  - Steneberg, Steffen C.  
    Tech. Univ. Hamburg-Harburg
  - Fröhlich, Ralf  
    Tech. Univ. Hamburg-Harburg

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  - Fanti, Maria Pia  
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  - Stecco, Gabriella  
    Univ. of Trieste
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    Univ. of Trieste

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  - Driessel, Rene  
    Univ. of Hagen
  - Hoening, Udo  
    Univ. of Hagen
  - Moench, Lars  
    Univ. of Hagen
  - Schiffmann, Wolfram  
    Univ. of Hagen

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- **SuA3.5 A MILP-Based Batch Scheduling for Two-Stage Hybrid Flowshop with Sequence-Dependent Setups in Semiconductor Assembly and Test Manufacturing**, pp. 87-92.
  - Xiao, Jing  
    Tsinghua Univ.
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Tayyaba, Shahzadi Asian Inst. of Tech. (AIT), Bangkok, Thailand
Afzulpurkar, Nitin Asian Inst. of Tech.

15:10-15:30 SuB3.5
Ghanbari, Ali Univ. of Canterbury
Nock, Volker Univ. of Canterbury
Blaikie, Richard Univ. of Canterbury
Chen, XiaoQi Univ. of Canterbury
Chase, Geoff Univ. of Canterbury
Wang, Wenhui Univ. of Canterbury

SuB4
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Chair: Zhang, Biao ABB Inc.
Co-Chair: Chen, Heping ABB Inc.
Co-Chair: Wang, Jianjun ABB Inc.
Organizer: Zhang, Biao ABB Inc.
Organizer: Wang, Jianjun ABB Inc.

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Schnattinger, Georg Tech. Univ. Muenchen
Passenberg, Benjamin Tech. Univ. Muenchen
Stursberg, Olaf Univ. of Kassel

13:50-14:10 SuB4.2
Rodriguez, Alberto Carnegie Mellon Univ.
Bourne, David Carnegie Mellon Univ.
Mason, Matthew T. Carnegie Mellon Univ.
Rossano, Gregory ABB Corp. Res.
Wang, Jianjun ABB Inc.

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Gonzalez-Galvan, Emilio J. Univ. Autonoma de San Luis Potosi
Chavez, Cesar Alejandro Univ. Autonoma de San Luis Potosi
Mendoza, Marco Octavio Univ. Autonoma de San Luis Potosi
Loredo-Flores, Ambrocio Univ. Autonoma de San Luis Potosi
Reyes-Cortes, Fernando Univ. Autonoma de Puebla
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Li, Jingshan IIT Bangalore
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Ou, Qing Univ. of Canterbury
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Gutschmidt, Stefanie Univ. of Canterbury, Christchurch
Wood, Alan R Univ. of Canterbury
Leigh, Nigel Commtest Inst. Ltd
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Lennartson, Bengt Chalmers Univ. of Tech.
Miremadi, Sajed Chalmers Univ. of Tech.
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Mouri, Tetsuya Gifu Univ.
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Univ. Federal de Santa Catarina
Peccin, Vinicius
Federal Univ. of Santa Catarina
Camponogara, Eduardo
Federal Univ. of Santa Catarina
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Costantino, Nicola
Pol. di Bari
Dotoli, Mariagrazia
Pol. di Bari
Falagario, Marco
Pol. di Bari
Fanti, Maria Pia
Pol. di Bari
Mangini, Agostino Marcello
Pol. di Bari
Sciancalepore, Fabio
Pol. di Bari
Ukovich, Walter
Univ. of Trieste
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Co-Chair: Zhang, Liang
Univ. of Wisconsin-Milwaukee
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Barajas, Leandro
General Motors, R&D Center
Lee, Jun-Ho
KAIST (Korea Advanced Inst. of Science and Tech.)
Lee, Tae-Eog
KAIST
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Lin, Wen-Chiao
Idaho National Lab.
Yoo, Tae-Sic
Idaho National Lab.
Garcia, Humberto
Idaho National Lab.
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Univ. of Michigan
Tilbury, Dawn
Univ. of Michigan
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Lennartson, Bengt
Chalmers Univ. of Tech.
Sannehed, Fredrik
FlexLink AB
Abbestam, Goran
FlexLink AB
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Texas A&M Univ.
Banerjee, Amarnath
Texas A&M Univ.
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Georgia Inst. of Tech.
Co-Chair: Wu, Naiqi
Guangdong Univ. of Tech.
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Nazeem, Ahmed
Georgia Tech.
Reveliotis, Spiridon
Georgia Inst. of Tech.
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Zhou, MengChu
New Jersey Inst. of Tech.
Li, Zhiwu
Xidian Univ.
Wu, Naiqi
Guangdong Univ. of Tech.
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Iowa State Univ.
Malik, Robi
Univ. of Waikato
Akesson, Knut
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Garcia, Humberto
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Univ. of Cagliari
Gua, Alessandro
Univ. of Cagliari, Italy
Seatzu, Carla
Univ. of Cagliari
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Univ. of Patras
Co-Chair: Cnop, John
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Primodal Inc.
Bela, Evangelina
Primodal Inc.
Hübner, Christian
Inst. f. Automation und Kommunikation e.V. Magdeburg
Thron, Mario
Inst. f. Automation und Kommunikation e.V. Magdeburg
Rieger, Leiv
EnviroSim Associates Ltd.
Vanrolleghem, Peter A.
modelEAU - Univ. Laval
14:10-14:30
Xu, Yiliang Texas A&M Univ.
Song, Dezhen Texas A&M Univ.
Yi, Jingang Rutgers Univ.

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Han, Cut Wu North China Univ. of Tech.
Sun, Dehui North China Univ. of Tech.
Li, Zhijun North China Univ. of Tech.

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Fletcher, Jeffrey Un. of Michigan
Moyle, James Un. of Michigan
Li-Baboud, Ya-Shian National Inst. of Standards and Tech.

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Co-Chair: Popa, Dan
The Univ. of Texas at Arlington

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Khamesee, Mir Behrad Univ. of waterloo

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Das, Aditya The Univ. of Texas at Arlington

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Zhang, Yong Univ. of Toronto
Sun, Yu Univ. of Toronto
Zhong, Yu Un. of Western Ontario
Sun, Xueliang Un. of Western Ontario
Hoyle, David Hitachi-High Tech. Canada
Colton, Ian Hitachi-High Tech. Canada

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Yeow, John TW Un. of Waterloo

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Zhang, Wenlin Stevens Inst. of Techology
Wang, Zheng Stevens Inst. of Tech.

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Univ. of New South Wales
Univ. of Ottawa

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Yogeswaran, Arjun
Payeur, Pierre
Univ. of Ottawa
Univ. of Ottawa

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Schöffmann, Anton Vienna Univ. of Tech.
Vincze, Markus Vienna Univ. of Tech.

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Kwon, Hyuk-Joong Samsung Electronics Co.

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Ha, Q P Univ. of Tech. Sydney
Fang, Gu Univ. of Western Sydney
Rad, Ahmad Simon Fraser Univ.
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Obanina, Goro Nagoya Univ.

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Co-Chair: Feng, Hsi-Yung
The Univ. of British Columbia
Organizer: Wang, Liwu
Univ. of Skövde
Organizer: Feng, Hsi-Yung
The Univ. of British Columbia

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Univ. of Alberta

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Ryerson Univ.
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Ferreira, João Carlos
Univ. Federal de Santa Catarina
Espíndola
Botura, Paulo Eduardo
Univ. Federal de Santa Catarina
Albuquerque
Freitas, Leandro
Univ. Federal de Santa Catarina

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Univ. of Skövde
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The Univ. of Western Ontario
Feng, Hsi-Yung
The Univ. of British Columbia

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Wang, Junwen Univer. of Kentucky
Li, Jingshan Univer. of Kentucky
Arinez, Jorge General Motors Res. & Development Center
Biller, Stephan General Motors Corp.
Sindicic, Ivica Exor d.o.o.
Bogdan, Štefan Univ. of Zagreb
Petrovic, Tamara Univ. of Zagreb
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Chair: Wang, Wenhui Univer. of Canterbury
Co-Chair: Chaouki, Hicham Univ. du Québec / Trois-Rivières.
Dorrah, Hassen Taher Cairo Univ.
Gabr, Walaa Ibrahim SDA Engineering Consultants Inc.
Mahmoud
Chandrapal, Mervin Univer. of Canterbury
Chen, XiaoQi Univer. of Canterbury
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Ge, Shuzhi Sam National Univ. of Singapore
Fereidounian, Ali reza Univ. of Tehran and Power and Water Univ. of Tech.
Boroomand, Farzam Univ. of Tehran
Zamani, Mohammad Ali Univ. of Tehran
Jamalabadi, Hamidreza Univ. of Tehran
Lesani, Hamid Univ. of Tehran
Lucas, Caro Control and Intelligent Processing Center of Excellence,Univ.
Afkhami, Saman Ryerson Univ.
MoC3 Mobile Vehicles and Robots (Regular Session) Trinity V
Chair: Nejat, Goldie State Key Lab. of Robotics and System,RoboticsInstitute, Harbin Inst. of Tech.
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Knoll, Alois TU Munich
Macwan, Ashish Univer. of Toronto
Nejat, Goldie Univer. of Toronto
Benhabib, Beno Univ. of Toronto
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Roy, Debjit RPI
Malmborg, Charles Univ. of Wisconsin-Madison
Heragu, Sunderesh Univ. of Louisville
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Madani, Katayoun Faculty of Electrical andComputerEng.,Univ. of Tabriz, Tabriz
Badamchizadeh, Mohammad Ali Control Eng. Dept., Faculty of Electrical andComputerEng.,Univ.
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Gleizer, Gabriel Federal Univ. of Rio de Janeiro
Lizaralde, Fernando Federal Univ. of Rio de Janeiro
Hsu, Liu COPPE/UF RJ
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Chair: Chen, Liguo State Key Lab. of Robotics and System,RoboticsInstitute, Harbin Inst. of Tech.
Co-Chair: Beyeler, Felix ETH Zurich
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Chen, Liguo State Key Lab. of Robotics and System,RoboticsInstitute, Harbin Inst. of Tech.
MoC5
Active Thermal Management for Emerging Applications (Invited Session)

Chair: Zhang, TieJun
Co-Chair: Kiehne, Thomas
Organizer: Zhang, TieJun

16:00-16:20 MoC5.1

Cai, Chaohong
United Tech. Res. Center, East Hartford, CT

Mijanovic, Stevo
United Tech. Res. Center, East Hartford, CT

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Hewlett, Patrick
Energy and Res. Solutions, Boston, MA

Kiehne, Thomas
Univ. of Texas at Austin

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Holsonback, Christopher
General Electric
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Univ. of Texas at Austin

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Rensselaer Pol. Inst.

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Rensselaer Pol. Inst.

Peles, Yoav
Rensselaer Pol. Inst.

Tong, Tao
Cree Lighting

Chang, Je-Young
Intel Corp.

Prashker, Ravi
Intel Corp.

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Wang, Zhikui
HP Lab.

Bash, Cullen E.
HP Lab.

Hoover, Christopher
HP Lab.

McReynolds, Alan A
HP Lab.

Felix, Carlos J
HP Lab.

Shih, Rocky
Hewlett-Packard Company
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TuA3

TuA3.1
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Co-Chair: Li, Howard
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Saedi Gharehabolagh, Sajad
Li, Howard
Myers, Vincent
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Thorstensson, Carl
Lennartsson, Bengt
Akesson, Knut
Yuan, Chengyin
Miremadi, Sajed
Falkman, Petter
11:30-11:50
TuA3.4

An Iterative Auction Mechanism for Combinatorial Exchanges,
pp. 849-854.
Biswas, Shantanu
Yadati, Narahari
11:50-12:10
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Gesetti, Andrea
Scotti, Clovis
Di Bu, Gianluca
Angione, Giacomo
Lattanzi, Luca
Cristalli, Cristina
Longhi, Sauro
10:30-10:50
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TuA4

TuA4.2
Material Processing Automation (Regular Session)
Chair: Cheng, Fan-Tien
Co-Chair: Sun, Liangliang
10:30-10:50

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Aerospace Industries, pp. 861-866.
Angerer, Andreas
Ehinger, Claudia
Hoffmann, Alwin
Reif, Wolfgang
Reinhart, Gunther
Straßer, Gerhard

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Medical Automation (Regular Session)
Chair: Li, Jingshang
Co-Chair: Hui, Qing
13:30-13:50

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Sadki, Abdellah
Xie, Xiaolan
Chauvin, Franck
13:50-14:10

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Analytical Framework and Problem Formulation, pp. 897-902.
Li, Jingshang
Howard, Patricia
14:10-14:30

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Electrocardiogram (ECG) Signals, pp. 903-910.
Le, Trung
Bukkapatnam, Satish
Sa-ngasoongsong, Akkarapol
14:30-14:50

Optimal Control of Bio-Attack Induced Infectious Disease Dynamics:
The Case of Anthrax, pp. 911-916.
Wall, Patrick
Becker, James
Cortez, Michael
Jian-Huang, Zheng
Hui, Qing  
Texas Tech. Univ.  
14:50-15:10  
TuB1.5  
A Novel Drowsiness Detection Scheme Based on Speech Analysis with Validation Using Simultaneous EEG Recordings, pp. 917-921.

Dhupati, Swathi  
INDIAN Inst. OF Tech.  
KARAGPUR, INDIA  
14:50-15:10  
TuB1.5  
Virtual Production Control System, pp. 984-989.

Kar, Sibsambhu  
INDIAN Inst. OF Tech.  
KARAGPUR, INDIA  
14:50-15:10  
TuB1.5  
National Kaohsiung First Univ. of Sci. and Tech.

Rajaguru, Aparna  
INDIAN Inst. OF Tech.  
KARAGPUR, INDIA  
14:50-15:10  
TuB1.5  
Chinese Culture Univ.

Routray, Aurobinda  
INDIAN Inst. OF Tech.  
KARAGPUR, INDIA  
14:50-15:10  
TuB1.5  
National Cheng Kung Univ.

TuB2  
Autonomous Systems (Regular Session)  
Chair: Nejat, Goldie  
Univ. of Toronto  
Co-Chair: Li, Howard  
Univ. of New Brunswick  
13:30-13:50  
TuB2.1  

Mackay, Matthew  
Univ. of Toronto  
Fenton, Robert  
Univ. of Toronto  
Benhabib, Beno  
Univ. of Toronto  
13:50-14:10  
TuB2.2  
Geometric Integration of Impact During an Orbital Docking Procedure, pp. 928-932.

Gibson, Coniia  
Univ. of Colorado, Boulder  
Murphy, Todd  
Northwestern Univ.  
14:10-14:30  
TuB2.3  
On-Board AUV Autonomy through Adaptive Fins Control, pp. 933-939.

Seto, Mae  
Defence R&D Canada  
Li, Howard  
Univ. of New Brunswick  
14:30-14:50  
TuB2.4  
Collision Avoidance for Nonholonomic Mobile Robots among Unpredictable Dynamic Obstacles Including Humans, pp. 940-947.

Zeng, Lingqi  
McMaster Univ.  
Bone, Gary  
McMaster Univ.  
14:50-15:10  
TuB2.5  

Doroogdar, Barzin  
Univ. of Toronto  
Nejat, Goldie  
Univ. of Toronto  
15:10-15:30  
TuB2.6  
An Active Light Sensory System for 3D Mapping of Unknown Cluttered Environments, pp. 954-959.

Moeedi, Babak  
Univ. of Toronto  
Nejat, Goldie  
Univ. of Toronto  

TuB3  
Supply Chain Logistics (Regular Session)  
Chair: Braun, Martin  
Intel Corp.  
Co-Chair: Tao, Yi  
Sun Yat-sen Univ.  
13:30-13:50  
TuB3.1  
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Feng, Wei  
Tsinghua Univ.  
Zheng, Li  
Tsinghua Univ.  
Na, Li  
Shanghai Jiaotong Univ.  
13:50-14:10  
TuB3.2  
A Mixed Logical Dynamic Model Predictive Control Approach for Handling Industrially Relevant Transportation Constraints, pp. 966-971.

Braun, Martin  
Intel Corp.  
Shear, Joanna  
Intel Corp.  
14:10-14:30  
TuB3.3  
A New Packing Heuristic Based Approach for Vehicle Routing Problem with Three-Dimensional Loading Constraints, pp. 972-977.

Tao, Yi  
Sun Yat-sen Univ.  
14:30-14:50  
TuB3.4  

Kim, Baejin  
Univ. of Michigan  
Hamza, Karim  
Univ. of Michigan  
Saitou, Kauhiho  
Univ. of Michigan  
14:50-15:10  
TuB3.5  
Virtual Production Control System, pp. 984-989.

Yang, Hau-Ching  
National Kaohsiung First Univ. of Sci. and Tech.  
Hung, Min-Hsio  
National Cheng Kung Univ.  
Cheng, Fan-Tien  
National Cheng Kung Univ. the Inst. of Manufacturing E 
15:10-15:30  
TuB3.6  
An Active Light Sensory System for 3D Mapping of Unknown Cluttered Environments, pp. 954-959.

Mobedi, Babak  
Univ. of Toronto  
Nejat, Goldie  
Univ. of Toronto  

TuB4  
Modeling and Optimization (Regular Session)  
Chair: Julius, Agung  
Rensselaer Pol. Inst.  
Co-Chair: Heragu, Sunderesh  
Univ. of Louisville  
13:30-13:50  
TuB4.1  
Control of Continuous-Time Markov Chains with Safety Upper Bounds, pp. 990-993.

Hsu, Shun-Pin  
National Chung-Hsing Univ.  
13:50-14:10  
TuB4.2  
A Model-Based End-To-End Toolchain for the Probabilistic Analysis of Complex Systems, pp. 994-1000.

Pinto, Alessandro  
United Tech. Res. Center, Inc.  
Krishnamurthy, Sudha  
UTRC  
Kannan, Suresh  
Georgia Inst. of Tech.  
14:10-14:30  
TuB4.3  

Qi, Yiping  
Tsinghua Univ.  
Chen, Xi  
Tsinghua Univ.  
14:30-14:50  
TuB4.4  
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Julius, Agung  
Rensselaer Pol. Inst.  
14:50-15:10  
TuB4.5  

Liu, Ya  
Xi’an Jiaotong Univ.  
Chu, Chengbin  
Ec. Centrale Paris  
Wang, Kanliang  
Xi’an Jiaotong Univ.  
15:10-15:30  
TuB4.6  