2011 IEEE/ASME International Conference on Advanced Intelligent Mechatronics

(AIM 2011)

Budapest, Hungary
3 – 7 July 2011

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## Technical Program for Monday July 4, 2011

### MA1

**Intelligent Space and Sensor Network** (Regular Session)  
**Chair:** Mizoguchi, Hiroshi  
**Co-Chair:** Zoltai, Miklós  
**Room A**

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</table>
| 10:30-10:50 | MA1.1   | Calibration of Cameras Distributed in the Intelligent Space Based on Three Dimensional Structure Reconstruction of a Portable Stereo Camera | Kuroiwa, Shintaro  
Morioka, Kazuyuki  
(Meiji Univ.)   |
| 10:50-11:10 | MA1.2   | Identifying a Person with an Acceleration Sensor Using Tracking System in an Intelligent Space | Takigawa, Tomoyasu  
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| 11:10-11:30 | MA1.3   | Constant Execution Time Multiple Human Detector Regardless of Target Number Increase Based on HLAC | Kitano, Yusuke  
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(Tokyo Univ. of Science)   |
| 11:30-11:50 | MA1.4   | Doppler Positioning with a Movable Receiver Antenna and a Single Pseudolite for Indoor Localization | Sakamoto, Yoshihiro  
Arie, Hiroaki  
Ebinuma, Takuji  
Fuji, Kenjiro  
Sugano, Shigei  
(Waseda Univ.)   |
| 12:10-12:30 | MA1.5   | Basic Analysis of the Circuit Model Using Relay Antenna in Magnetic Resonance Coupling Position Sensing System | Koma, Ryo  
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Ajsaka, Shimon  
Hashimoto, Hideki  
(The Univ. of Tokyo)   |

### MA2

**Mobile Robots** (Regular Session)  
**Chair:** Sun, Dong  
**Co-Chair:** Lin, Pei-Chun  
**Room B**

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Ozaki, Masataka  
Yokoyama, Takumi  
(Doshisha Univ.  
Graduate school of Doshisha Univ.  
Graduate School of Doshisha Univ.)   |
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<td>10:50-11:10</td>
<td>MA2.2</td>
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<td>Liu, Shuang, Sun, Dong</td>
<td>Doshisha Univ.</td>
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<td>MA2.3</td>
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<td>Wen, Yung Jen, Tsai, Chia-Hung, Yu, Wei-Shun, Lin, Pei-Chun</td>
<td>Suzhou Res. Inst. of City Univ. of Hong Kong and the University of Hong Kong</td>
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<td>11:30-11:50</td>
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<td>State Parametrization in Optimal Control Problems and Low Level Controller Design for Multiple Autonomous Mobile Robot Systems</td>
<td>Ailon, Amit, Rezaee, Hamed, Abdollahi, Farzaneh</td>
<td>City Univ. of Hong Kong</td>
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<td>11:50-12:10</td>
<td>MA2.5</td>
<td>Mobile Robots Cooperative Control and Obstacle Avoidance Using Potential Field</td>
<td>Ailon, Amit, Rezaee, Hamed, Abdollahi, Farzaneh</td>
<td>Ben Gurion Univ. of the Negev</td>
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<td>Chair: Liao, Wei-Hsin, Co-Chair: Lanfer, Hermann</td>
<td>The Chinese Univ. of Hong Kong</td>
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<td></td>
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<td>Guo, Hongtao, Liao, Wei-Hsin</td>
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<td>Nanyang Tech. Univ.</td>
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<td></td>
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<td>Multi-Objective Optimization of Stewart-Gough Manipulator Using Global Indices</td>
<td>Lara Molina, Fabian Andres, Rosario, Joao Mauricio</td>
<td>State Univ. of Campinas</td>
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Cerrada, Pablo
Breñosa, Jose
Galiana, Ignacio
López, Javier
Ferre, Manuel
Gimenez, Antonio
Aracil, Rafael

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Chair: Tomizuka, Masayoshi
Co-Chair: Hirata, Yasuhisa

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Kong, Kyoungchul
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Hashimoto, Takuya
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Kato, Naoki
Kobayashi, Hiroshi
Nakane, Hideyuki
## MB1

**Networked Robotics (Regular Session)**

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<td>Shahbazi, Mahya, Talebi, Ali, Amirkabir Univ. of Tech., Amirkabir Univ. of Tech., Amirkabir Univ. of Tech., The Univ. of Western Ontario, Amirkabir Univ. of Tech.</td>
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## MB2

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<td>Godzdanker, Roy, Rutherford, Matthew, Univ. of Denver, Univ. of Denver</td>
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<td>Univ. of Kayseri, Univ. of Kayseri, Univ. of Debrecen</td>
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<td>Zhou, Hao, Alici, Gursel, Li, Weihua, Ghanbar, Shaya</td>
<td>Univ. of Wollongong, Univ. of Wollongong, Univ. of Wollongong</td>
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### MC1  Sensors and Sensor Network (Regular Session)  Room A

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<td>Hóz, Norbert, Veres, József, Cserey, György</td>
<td>Faculty of Information Tech. PPCU, Hungary, HAS - PPCU - SU Neurobionics Res. Group</td>
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Huang, YU-Chung
National Chiao Tung Univ.
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Takahashi, Kazuhiro
Doshisha Univ.
Iwamuro, Yusuke
Doshisha Univ.
Sugimoto, Iwao
Tokyo Univ. of Tech.
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Tar, Ákos
PPCU - Faculty of Information Tech.
Cserey, György
HAS - PPCU - SU Neurobions Res. Group
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Sasaki, Takeshi
Shibaura Inst. of Tech.
Huang, Xiangqi
The Univ. of Tokyo
Hashimoto, Hideki
Chuo Univ.
Inoue, Fumihiro
Obayashi Corp.
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Gasparovic, Bojan
Univ. of Novi Sad
Mezel, Ivan
Univ. of Novi Sad

MC2
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Chair: Kunii, Yasuharu Chuo Univ.
Co-Chair: Maas, Juergen Ostwestfalen-Lippe Univ. of Applied Sciences
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Bokor, Jozsef Hungarian Acad. of Sciences
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Ompusunggu, Agusmian Partogi K.U.Leuven
Janssens, Thierry K.U.Leuven
Al-Bender, Farid K.U.Leuven
Sas, Paul K.U.Leuven
Van Brussel, Hendrik K.U.Leuven
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John, Samuel The Pol. of Namibia
Pedro, Jimoh Univ. of the Witwatersrand, Johannesburg, South Africa
Pozna, Claudiu Szechenyi Istvan Univ. Gyor, Hungary
### MC2.6


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<tr>
<td>Cha, Young Chul</td>
<td>Graduate School of Mechanical Engineering, Pusan National University</td>
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<tr>
<td>Lee, Kil Soo</td>
<td>School of Mechanical Engineering, Pusan National University</td>
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<tr>
<td>Lee, Dong Seok</td>
<td>Graduate School of Mechanical Engineering, Pusan National University</td>
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<tr>
<td>Park, Hyung Gyu</td>
<td>Graduate School of Mechanical Engineering, Pusan National University</td>
</tr>
<tr>
<td>Zhang, Wei</td>
<td>Interdisciplinary Cooperative Course: Mechatronics, Pusan National University</td>
</tr>
<tr>
<td>Lee, Yun Ja</td>
<td>Department of Dance, Pusan National University</td>
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<td>Hong, Sin Pyo</td>
<td>Graduate School of Mechanical Engineering, Pusan National University</td>
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<tr>
<td>Lee, Man Hyung</td>
<td>Graduate School of Mechanical Engineering, Pusan National University</td>
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### MC3

**Applications of Mechatronic Systems (Regular Session)**

**Room C**

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*Developing a Real Time Controlled Adaptive MRE-Based Tunable Vibration Absorber System for a Linear Cryogenic Cooler*, pp. 287-290.

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<tr>
<td>Kim, Young-Keun</td>
<td>KAIST</td>
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<td>Koo, Jeong-Hoi</td>
<td>Miami Univ.</td>
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<td>Kim, Kyung-Soo</td>
<td>KAIST(Korea Advanced Inst. of Science and Tech.)</td>
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<tr>
<td>Kim, Soohyun</td>
<td>KAIST(Korea Advanced Inst. of Science and Tech.)</td>
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<td>Hirooka, Daisuke</td>
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<td>Suzumori, Koichi</td>
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<td>Kanda, Takefumi</td>
<td>Okayama Univ.</td>
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**MC3.3**  

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<td>Paniti, Imre</td>
<td>MTA SZTAKI, Computer and Automation Res. Inst. Hungary</td>
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<td>Paróczl, Annamária</td>
<td>Budapest Univ. of Tech. and Ec.</td>
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**MC3.4**  

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<tr>
<td>Wang, Jyun-Ji</td>
<td>National Chiao Tung Univ.</td>
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<tr>
<td>Hu, Jwu-Sheng</td>
<td>National Chiao Tung Univ.</td>
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**MC3.5**  

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<td>Franchet, Maud</td>
<td>CEA</td>
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<td>Ravot, Nicolas</td>
<td>CEA</td>
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<td>Picon, Odile</td>
<td>Univ. Marne-La-Vallée</td>
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**MC3.6**  
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<td>National Chung-Cheng Univ.</td>
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<td>Chou, Chang-Yan</td>
<td>National Chung-Cheng Univ.</td>
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### MC4

**Robotic Surgery (Regular Session)**

**Room D**

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**MC4.1**  

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<td>Florez, Juan Manuel</td>
<td>Inst. de Systèmes Intelligents et de Robotique - Univ. P</td>
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Bellot, Delphine, Delphine
Univ. Pierre et Marie Curie - Paris 6
Morel, Guillaume
Univ. Pierre et Marie Curie - Paris 6

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Design of Miniature Modular in Vivo Robots for Dedicated Tasks in Minimally Invasive Surgery, pp. 327-332.

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Scuola Superiore Sant'Anna
Dimitracopoulos, Andrea
Scuola Superiore Sant'Anna
Valdasti, Pietro
Scuola Superiore Sant'Anna
Menciassi, Arianna
Scuola Superiore Sant'Anna - SSSA
Dario, Paolo
Scuola Superiore Sant'Anna

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Tohoku Univ.
Konno, Atsushi
Tohoku Univ.
Jiang, Xin
Tohoku Univ.
Abiko, Satoko
Tohoku Univ.
Uchiyama, Masaru
Tohoku Univ.

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MC4.4


Kim, Chi Yen
Yeungnam Coll. of Science & Tech.
Lee, Min Cheol
Pusan National Univ.
Yoon, Sung Min
Pusan national Univ.
Kang, Byeong ho
Pusan national Univ.

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Fattahi, S.Javad
Sharif Univ. of Thechnology-International Campus
Zabihollah, Abolghassem
Sharif Univ. of Tech. International Campus, Kish Isla
Adidoost, Hamed
Sharif Univ. of Tech.
## TA1

### Machining (Regular Session)

**Chair:** Abele, Eberhard  
**Co-Chair:** Borchardt, Norman  
**Chair:** Tech. Univ. Darmstadt  
**Co-Chair:** Otto-von-Guericke Univ. Magdeburg, Germany

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Li, Yi-Tsung  
Jywe, Wen-Yuh  
Chen, Jr-An  
National Formosa Univ.  
National Formosa Univ.  
National Formosa Univ.  
National Formosa Univ. |
| 08:50-09:10   | TA1.2   | Formulating a Laplace Domain Approach for Tuning Motion Profiles     | Ha, Chang-Wan  
Rew, Keun-Ho  
Kim, Kyung-Soo  
Dept. of Mechanical Eng., KAIST, KOREA  
Dept. of Robotic Engineering, Hoseo Univ. KOREA  
KAIST(Korea Advanced Inst. of Science and Tech.) |
| 09:10-09:30   | TA1.3   | A New Experimental Method for Predicting Static Tool Displacements for Machining with Robot Manipulators | Cortsen, Jens  
Petersen, Henrik Gordon  
Univ. of Southern Denmark  
Univ. of Southern Denmark |
| 09:30-09:50   | TA1.4   | Model-Based Off-Line Compensation of Path Deviation for Industrial Robots in Milling Applications | Reinl, Christian  
Friedmann, Martin  
Bauer, Jörg  
Pischan, Matthias  
von Stryk, Oskar  
Abele, Eberhard  
Tech. Univ. Darmstadt  
Tech. Univ. Darmstadt  
Tech. Univ. Darmstadt  
Tech. Univ. Darmstadt  
Tech. Univ. Darmstadt  
Tech. Univ. Darmstadt |
| 09:50-10:10   | TA1.5   | A Numerical Algorithm to Identify Independent Grouped Parameters of Robot Manipulator for Control | Choi, Jin Seuk  
Yoon, Jong Hyun  
Park, Jong Hyeon  
Kim, Pil Jun  
Hanyang Univ.  
Hanyang Univ.  
Hanyang Univ.  
Hyundai Heavy Industries Co. |

## TA2

### Micro Applications (Regular Session)

**Chair:** Kaneko, Makoto  
**Co-Chair:** Wang, Zhidong  
**Chair:** Osaka Univ.  
**Co-Chair:** Chiba Inst. of Tech.

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Hirose, Yuki  
Fukui, Wataru  
Higashimori, Mitsuru  
Kawahara, Tomohiro  
Yamanishi, Yoko  
Arai, Fumihito  
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Osaka Univ.  
Osaka Univ.  
Nagoya Univ.  
Nagoya Univ.  
Nagoya Univ. |
| 08:50-09:10   | TA2.2   | Biomaterials As Bonding Wires for Integrated Circuit Nanopackaging  | Weigel-Jech, Michael  
Mikczinski, Manuel Rolf  
Carl von Ossietzky Univ. Oldenburg, Div.  
OFFIS Inst. for Information Tech. |
**Laser Source Independent Basic Parameters in Micro-Cutting**, pp. 391-396.

- Kagerer, Markus
- Irlinger, Franz
- Lueth, Tim C.


- Yen, Jia Yush
- Chen, Lien-Sheng
- Chiu, Pablo

**Microfabricated PMN-PT on Silicon Cantilevers with Improved Static and Dynamic Piezoelectric Actuation: Development, Characterization and Control**, pp. 403-408.

- Ivan, Ioan Alexandru
- Agnus, Joël
- Rakotondrabe, Micky
- Lutz, Philippe
- Chaillet, Nicolas

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**Cooperative and Industrial Robots** (Regular Session)

Chair: Jiang, Xin
Co-Chair: Verl, Alexander


- Kinugawa, Jun
- Tanaka, Yasufumi
- Kawaai, Yuta
- Sugahara, Yusuke
- Kosuge, Kazuhiro


- Lee, Song Gi
- Jiang, Xin
- Abe, Koyu
- Abiko, Satoko
- Konno, Atsushi
- Uchiyama, Masaru


- Koch, Heiko
- König, Alexander
- Kleinmann, Karl
- Weigl-Seiltz, Alexandra
- Suchý, Jozef

**Simulation of the Stopping Behavior of Industrial Robots Using a Complementarity-Based Approach**, pp. 428-433.

- Dietz, Thomas
- Verl, Alexander
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Efficient Solutions for Programming and Safe Monitoring of an Industrial Robot Via a Virtual Cell, pp. 434-439.

Abrate, Fabrizio
Indri, Marina
Lazzero, Ivan
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Co-Chair: Cserey, György

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Chair: Schramm, Dieter
Co-Chair: Koganezawa, Koichi

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Robert, Mathieu
Grossard, Mathieu

- Kunugi, Nozomi  
  Tokai Univ.  
- Koganezawa, Koichi  
  Tokai Univ.  
- Niikura, Ryo  
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- Rossini, Leopoldo  
  Swiss Center for Electronics and Microtechnology  
- Chételat, Olivier  
  Swiss Center for Electronics and Microtechnology  
- Onillon, Emmanuel  
  Swiss Center for Electronics and Microtechnology  
- Perriard, Yves  
  Ec. Pol. Fédérale de Lausanne

### MRF Based Clutch with Integrated Electrical Drive, pp. 493-498.

- Gueth, Dirk  
  Ostwestfalen-Lippe Univ. of Applied Sciences  
- Cording, Dennis  
  Ostwestfalen-Lippe Univ. of Applied Sciences  
- Maas, Juergen  
  Ostwestfalen-Lippe Univ. of Applied Sciences

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- Mercorelli, Paolo  
  Ostfalia Univ. of Applied Sciences  
- Werner, Nils  
  Ostfalia Univ. of Applied Sciences  
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  Ostfalia Univ. of Applied Sciences  
- Harndorf, Horst  
  Univ. of Rostock

### Micro/Nano Positioning (Regular Session)

**Chair:** Fuchiwaki, Ohmi  
**Co-Chair:** Chang, Ming-Han  
Yokohama National Univ. (YNU)  
National Taiwan Univ.

### MIMO Variable Structure Control of a Precision Stage Using PMLSM Drives, pp. 505-509.

- Yen, Jia Yush  
  National Taiwan Univ.  
- Kuo, Fu-Tsun  
  National Taiwan Univ.  
- Lee, Ming-Chan  
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- Chang, Ming-Han  
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### Experimental Comparison of Online Parameter Identification Schemes for a Nanopositioning Stage with Variable Mass, pp. 510-517.

- Eielsen, Arnfinn Aas  
  Norwegian Univ. of Science and Tech.  
- Polóni, Tomáš  
  Slovak Univ. of Tech.  
- Johansen, Tor Arne  
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- Gravdahl, Jan Tommy  
  Norwegian Univ. of Science and Tech.

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- McDaid, Andrew  
  The Univ. of Auckland  
- Aw, Kean C.  
  The Univ. of Auckland  
- Xie, Shane  
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- Haemmerle, Enrico  
  The Univ. of Auckland

### Study of Positioning Accuracy for Miniature 3-DOF Inchworm Mechanism for Accurate & Flexible Microscopic Processing, pp. 524-529.

- Fuchiwaki, Ohmi  
  Yokohama National Univ. (YNU)  
- Omura, Suguru  
  Yokohama National Univ.  
- Arafuka, Kazushi  
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- Yatsurugi, Manabu  
  Depart of mechanical Engineering, Yokohama National University
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Katholieke Univ. Leuven


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Caro, Stéphane
Pashkevich, Anatol

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Ec. des Mines de Nantes
CNRS
Ec. des Mines de Nantes

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Blazevic, Pierre

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Lab. d'Ingénierie des Systèmes de Versailles

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Konyo, Masashi
Tadokoro, Satoshi

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Tohoku Univ.
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Tohoku Univ.

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National Chiao Tung Univ.

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Fukuoka Industry, Science & Tech. Foundation
Univ. of Kitakyushu

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National Defense Acad. of Japan
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Saitama Univ.
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Ghodsi, Mojtaba
Dehdari, Saeid

Arak Univ.
Tarbiat Modares Univ.
TUGA

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Chair: Wang, Zhidong
Co-Chair: Yong, Yuen Kuan

Chiba Inst. of Tech.
The Univ. of Newcastle


Fairbairn, Matthew
Moheimani, Reza
Fleming, Andrew J.

The Univ. of Newcastle, Australia
Univ. of Newcastle
Univ. of Newcastle

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Villanova Univ.
Villanova Univ.

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Moheimani, Reza

The Univ. of Newcastle
Indian Inst. of Tech. Madras
Univ. of Newcastle


Liao, Hsien-Shun
Huang, Kuang-Yuh
Chang, Chia-Seng

National Taiwan Univ.
National Taiwan University
Inst. of Physics, Acad. Sinica, Nankang, Taipei, Taiwan

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Yong, Yuen Kuan
Moheimani, Reza
Petersen, Ian

The Univ. of Newcastle
Univ. of Newcastle
The Univ. of New South Wales at ADFA, Canberra, ACT 2600, A

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Chair: Chen, I-Ming
Co-Chair: Kato, Norihiko

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Mie Univ.

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Suzumori, Koichi

Univ. Teknologi Malaysia
Okayama Univ.


Heyer, Torsten

Univ. of Bremen, Inst. of Automation
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<td>Cho, Ki Dae, Agency for Defense Development</td>
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<td>Park, Chul Hyo, Doosan Corp.</td>
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Zarafshan, Payam
K. N. Toosi Univ. of Tech.

Moosavian, S. Ali A.
K. N. Toosi Univ. of Tech.

Sliding Mode Control of a Torpedo’s Shape Autonomous Underwater Vehicle (AUV) Considering Sensors and Actuators Time Delay, NIA

Ahmadi, Mohhamad Saleh
Isfahan Univ. of Tech.

Hajkarami, Hamid
Isfahan Univ. of Tech.
### Technical Program for Wednesday July 6, 2011

#### WA1

**Novel Actuators** (Regular Session)  
**Chair:** Fujisawa, Kazuya  
**Co-Chair:** Zeidis, Igor  
**Location:** Room A  
**Time:** 08:30-10:30

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**Chair:** Sugano, Shigeki  
**Co-Chair:** Lantos, Bela  
**Location:** Room B  
**Time:** 08:30-10:30

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<td>Haris, Saliehuddin Mohamed</td>
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<td>Zakaria, Muhammad Khalid</td>
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<td>Pu, Yi-Hao</td>
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Adachi, Kazunori
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Chair: Chugo, Daisuke
Co-Chair: Kuroda, Yoji

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Guo, Jiajie
Lee, Kok-Meng

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Brezak, Misel
Petrovic, Ivan
Univ. of Zagreb

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Chair: Yoshikawa, Tsuneo
Co-Chair: Liu, Guangjun

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Makarov, Maria
Grossard, Mathieu
Rodriguez-Ayerbe, Pedro
Dumur, Didier
CEA LIST - Interactive Robotics Lab. / SUPELEC Systems Sci
SUPELEC Systems Sciences (E3S)

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Zhang, Hongwei
Liu, Yugang
Liu, Guangjun
Ryerson Univ.

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Yoshikawa, Tsuneo
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Koeda, Masanao
Ritsumeikan Univ.
Ritsumeikan Univ.
Ritsumeikan Univ.
Osaka Electro-Communication Univ.

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Dehghani, Mohammad
Moosavian, S. Ali A.
K. N. Toosi University of Tech.

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Chair: Piros, Sandor
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Piros, Sandor
Korondi, Peter
Budapest Univ. of Tech. and Ec.
Budapest Univ. of Tech. and Ec.

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Suganuma, Naoki
Kubo, Takaaki
Kanazawa Univ.
Kanazawa Univ.

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Sato, Tomoya
Kunii, Yasuharu
Chuo Univ.
Chuo Univ.

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Major, Peter
Budapest Univ. of Tech. and Ec.

Hussain, Moazzam

Din, Ahmad

Violante, Massimo

Bona, Basilio

Pol. di Torino, Italy


Bolla, Kalman

Istenes, Zoltan

Kovacs, Tamas

Fazekas, Gabor

Kecskemet Coll., Eötvös Loránd Univ. Faculty of Informatics

**Neural and Fuzzy Control in Mechatronics (Regular Session)**

**WC1**

Room A

Chair: Park, Jong Hyeon

Co-Chair: Matusko, Jadranko

Hanyang Univ., Faculty of Electrical Engineering and Computing


Matusko, Jadranko

Lesic, Vinko

Kolonic, Fethah

Iles, Sandor

Faculty of Electrical Engineering and Computing, Faculty of electrical engineering and computing, Zagreb, Faculty of electrical engineering and computing, Zagreb

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Rigatos, Gerasimos

Industrial Systems Inst.

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Precup, Radu-Emil

Ianc, Paul Andrei

Petriu, Emil M.

Dragos, Claudia-Adina

Preitl, Stefan

Radac, Mircea-Bogdan

Pol. Univ. of Timisoara, Pol. Univ. of Timisoara, Romania, Univ. of Ottawa, Pol. Univ. of Timisoara, Pol. Univ. of Timisoara

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Amiri, Mohamad

Islamic Azad Univ. Abadan Branch, Abadan, Iran, Islamic Azad Univ. Abadan Branch, Abadan, Iran

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