

# **Proceedings of the 2010 International Conference on Modelling, Identification and Control**

**(ICMIC 2010)**

**Okayama City, Japan  
17 – 19 July 2010**



**IEEE Catalog Number: CFP1090K-PRT  
ISBN: 978-1-4244-8381-5**

**2010 International Conference on  
Modelling, Identification and Control**

July 17-19, 2010

Okayama University, Okayama, JAPAN



**CONTENTS**

**Novel and unconventional linear system modelling techniques (SatA01)**

<i>Streaming services in high speed downlink packet access</i>	Son Phong Le, Yuanhao Zhai, Sabir Ghauri, Quanmin Zhu	1
<i>A pervasive service discovery strategy based on peer to peer model</i>	Degan Zhang, Xuyan Chen, Chao Li, Linqing Li	7
<i>Control reconfiguration of new strap-on boosted launch vehicle [PRC] with deadlocked swing engines</i>	Lei Liu, Biao Yin, Yongji Wang, Zhixiang Deng	12
<i>The circular-scanning algorithm in laser marking based on mathematical morphology: Design and implementation</i>	Ling Liu, Huaiyu Wu, Lei Cheng, Yongji Wang, Quanmin Zhu	18
<i>Characterization of unconventional multi-dimension wing rock phenomenon</i>	Ya Li, Zhongke Shi	24

**Neural networks, fuzzy logic, and other heuristic techniques I (SatA02)**

<i>Application of GA optimization for automatic generation control in realistic interconnected power systems</i>	H. Golpira, H. Bevrani	30
<i>Identification of nonlinear systems using a trigonometric polynomial neural network</i>	Yoshihiro Yamamoto	35
<i>Modular reinforcement learning for the detection of second order correlation of multi-sensors</i>	Hayato Nakama, Satoshi Yamada	41
<i>On-line fuzzy identification of thermal systems based on an improved T-S model</i>	Shuangxin Wang, Xiuxia Zhang, Zhiqin Wang, Dan Lv	47
<i>Improved T-S fuzzy model identification approach and its application in power plants</i>	Guolian Hou, Fanchun Zeng, Jianhua Zhang	53

**Simulation, modelling and control on smart grids I (SatA03)**

<i>The impacts of distributed doubly-fed induction generators on smart distribution grid protection</i>	Aoyang Han, Zhe Zhang, Xianggen Yin	71
<i>A novel anti-theft and detection method of street lamp power cables</i>	Xiaoxi Hu, Xiangjun Zeng, Yao Xu, Guangming Jin	76

**Static and dynamic systems modelling I (SatA04)**

<i>Bond graph modeling of a baker's yeast bioprocess</i>	Monica Roman, Dan Selişteanu, Eugen Bobaşu, Dorin Şendrescu	82
<i>Structural properties and reduced order modeling of a class of bioprocesses</i>	Dan Selişteanu, Emil Petre, Monica Roman, Eugen Bobaşu	88

<i>Dynamics analysis of high speed railway vehicles excited by earthquake forces</i>	Yung-Chang Cheng, Che-Jung Yang, Cho-Pei Jiang	94
<i>Load reconstruction on a missile structure using the pseudo-inverse methods</i>	R. Vishwakarma, D. Turner, A. Lewis, Y. Chen, P. Houghton, Y. Xu	100
<i>Modeling and combined control of aerial vehicle based on aerodynamic force and lateral thrust</i>	Zhengjie Wang, Yangbo Long, Jing Lu, Wei Song	106

### **Control and optimization techniques I (SatA05)**

<i>Stabilizing parameters of PID controllers for second-order systems with time-delay</i>	Dejin Wang, Jianghui Zhang	112
<i>Discrete sliding-mode control of uncertain systems with time delays</i>	Huimin Xiao, Wenyi Chen, Cunchen Gao	882
<i>The existence of solutions and impulsive synchronization for coupled reaction-diffusion systems</i>	Wanli Yang, Suwen Zheng, Li Huang	118
<i>Sliding mode control for a class of parabolic type systems with continuous distributed delay</i>	Lin Zhao, Cunchen Gao	122

### **Intelligent computation and control system (SatM01)**

<i>Equivalent and sufficient stability conditions of linear discrete time-varying systems</i>	Dongyun Wang, Junming Xiao	128
<i>Rigorous stability analysis and error correction of existed results of linear discrete time delay system</i>	Wudai Liao, Junyan Wang, Jiangfeng Wang	132
<i>Stability criteria of stochastic neural network with general saturation output functions</i>	Junming Xiao, Wudai Liao, Wuyi Zhang	136
<i>An engineering design model of multi-cell series-parallel photovoltaic array and MPPT control</i>	Xiaolei Wang, Pan Yan, Liang Yang	140
<i>Stress predictive control and quality evaluation of fracture healing based on grey system theory</i>	Jianmin Zhu, Jingtao Lei	145
<i>Design and verification of aero-engine full envelope control system</i>	Haiquan Wang, Ling Ouyang, Dongyun Wang	149

### **Modelling and parameter estimation for complex systems (SatM02)**

<i>Experiment design, identification and control in large-scale chemical processes</i>	Siddhartha Kumar, Kaushik Narasimhan, Sachin C. Patwardhan, Vinay Prasad	155
<i>Selecting parameters to estimate to obtain the best model predictions</i>	Kim B. McAuley, Shaohua Wu, Thomas J. Harris	161
<i>Identifiability and global estimability tools for dynamical systems</i>	Amos Ben-Zvi, Kirstin Aschbacher	167
<i>Modeling profiles in chemical processes</i>	P. J. McLellan	876
<i>A genetic programming based methodology for variable interaction determination in multivariate dynamical systems</i>	Manoj Kandpal, Chakravarthy Mynampati Kalyan, S. Lakshminarayanan	173
<i>Characterization of frequently sampled intravenous glucose tolerance test using scaling and sensitivity analysis of MINMOD</i>	K. Lakshmi Kiran, Manoj Kandpal, S. Lakshminarayanan	179

### **Theory and applications of adaptive and learning control I (SatM03)**

<i>An adaptive controller for underwater vehicle-manipulator systems including thruster dynamics</i>		
--	--	--

	Yuichiro Taira, Masahiro Oya, Shinichi Sagara	185
<i>A method of simple adaptive control using neural networks with offset error reduction for an SISO magnetic levitation system</i>		
	Muhammad Yasser, Hiroki Tanaka, Ikuro Mizumoto	191
<i>Digital adaptive control of a winged rocket in wide range flight conditions</i>		
	Tomoaki Shimozawa, Shinichi Sagara	197
<i>One design of ideal vehicle models in adaptive steering driver-vehicle systems</i>		
	Qiang Wang, Masahiro Oya, Natsuki Takagi	203
<i>A data-driven modeling method using particle swarm optimization</i>		
	Makoto Tokuda, Toru Yamamoto	209
<i>Weigh feeder control using a performance-adaptive PI controller</i>		
	Shohei Kitano, Takao Sato, Nozomu Araki, Toru Yamamoto	215

### **New development in practical control systems design: Theory and application (SatM04)**

<i>Robust output-feedback control of a magnetic levitation system</i>	Zi-Jiang Yang	219
<i>A note on digital redesign with generalized bilinear transformation</i>	Guisheng Zhai, Takaaki Norisada, Joe Imae, Tomoaki Kobayashi	225
<i>Operator based robust control system design of MIMO aluminum plate thermal process</i>	Shuhui Bi, Mingcong Deng	231
<i>Optimal control of switched nonlinear systems based on interval analysis migrant PSO</i>	Fuqiang Xie, Yongji Wang, Zongzhun Zheng	237
<i>Development of vertical axial wind turbine driven by three hastate windmill and permanent magnet generator</i>	Lei Song, Zongxiao Yang, Shuqi Hou, Ruitao Deng, Shuling Ji	242

### **Application of advanced system (SatM05)**

<i>Stabilization controller for a cart-type inverted pendulum via a partial linearization method</i>	Tomohiro Henmi, Yu Park, Mingcong Deng, Akira Inoue	248
<i>Unknown parameter identification method using Unscented Kalman Filter for container crane System</i>	Nozomu Araki, Takao Sato, Yasuo Konishi, Hiroyuki Ishigaki	254
<i>A design method of strongly stable generalized minimum variance control by pole assignment</i>	Akira Yanou	259
<i>A design method for a multi-rate control system in state-space approach</i>	Yoshiki Hattori, Takao Sato, Nozomu Araki, Yasuo Konishi	264
<i>Grasp and transport control for a chopsticks-type robot using work done on an object</i>	Y. Yamasaki, T. Tsumugiwa, R. Yokogawa	269
<i>An exterior-point approach to the robust regional pole placement control problem with fixed-order output feedback</i>	Yasushi Kami, Eitaku Nobuyama	276

### **Power electronics and motion control systems (SatP01)**

<i>Design of fuzzy adaptive controller for small smart car system via CCD camera</i>	Shaocheng Qu, Lin Ai, Yao Tian, Haiyan Liu	282
<i>Design of 3D simulation platform for cargo airdrop system</i>	Shaocheng Qu, Qiao Zhao, Di Liu, Mo Xiao	286
<i>Field analysis of tubular permanent magnet linear synchronous motor</i>	Jinghong Zhao, Xiaofeng Zhang, Junhong Zhang, Wei Gao, Shaocheng Qu	290
<i>An optimization strategy for QoS provisioning in multimedia wireless networks</i>	Yutao Ling, Bensun Yi, Shaocheng Qu	294

## Intelligent computation in advanced measurement systems (SatP02)

<i>A novel approach to calibrate a structured light vision sensor in a robot based 3D measurement system</i>	Defeng Wu, Zi Ma, Aiguo Li, Wenbiao Wang, Xiang Wu	298
<i>Damaged region positioning for flexible remanufacturing using structured light</i>	Wenbiao Wang, Zi Ma, Xiang Wu, Defeng Wu	304
<i>Nonlinear control system design for unstable plants with input saturation using robust right coprime factorization</i>	Kazuki Umemoto, Mingcong Deng	310
<i>Intelligent control system for alienating process in p-nitro aniline production</i>	Wenbo Na	316

## Theory and applications of adaptive and learning control II (SatP03)

<i>Self-repairing control in the presence of sensor bias</i>	Masanori Takahashi	321
<i>A design of self-tuning PID controllers based on model performances</i>	Yoshihiro Ohnishi	326
<i>High gain adaptive control of uncertain nonholonomic dynamic systems</i>	Ryuji Michino, Ikuro Mizumoto	332
<i>Relaxation of restriction condition in adaptive control systems with input saturation</i>	Natsuki Takagi, Kazuya Sato, Masahiro Oya	338

## Control systems to improve quality of life (SatP04)

<i>Analysis of transformers for zero-current transition forward converters</i>	N. Kasa, M. Kobayashi	344
<i>Robust control of underactuated inverted pendulum system in presence of unknown disturbances</i>	Keishi Shibayama, Valeri Kroumov, Akira Inoue	349
<i>SVM-based moisture content modelling for Sugi drying process</i>	Mingcong Deng, Shengjun Wen, Akira Yanou, Masami Oka, Hiroaki Matsumoto, Akira Inoue	354
<i>Control of novel type diaphragm pump for medical instrumentation</i>	Yoshiro Kobayashi, Tomohiro Takeyari, Valeri Kroumov	359

## Identification and compensation for the hysteresis nonlinearities (SatP05)

<i>Compensation of a piezoceramic actuator hysteresis nonlinearities using the stop operator-based Prandtl-Ishlinskii model</i>	Omar Aljanaideh, Subhash Rakheja, Chun-Yi Su	364
<i>Identification of sandwich systems with hysteresis based on two-stage method</i>	Yangqiu Xie, Yonghong Tan, Ruili Dong	370
<i>High precision control of the piezo-actuated stage</i>	Toshikuni Ozaki, Xinkai Chen	376
<i>Design of model following anti-windup compensator that minimizes <math>L_2</math> gain</i>	Unggul Wasiwitono, Masami Saeki, Shunsuke Takamatsu	382

## Control and optimization techniques II (SunA01)

<i>Integration of uniform design and Kriging interpolation to the optimization of suspension parameters of a high speed railway vehicle</i>	Yung-Chang Cheng, Cheng-Kang Lee	388
<i>Control of throttle valve in idle speed condition</i>	A. R. Gharib, M. R. Gharib, S. A. S. Mousavi, M. Rezae Gorkani	394

<i>A composite QFT controller as a remedy for MIMO systems</i>	M. R. Gharib, Amir-A. Amiri-M, K. Kamali, S. A. S. Mousavi	400
<i>Optimization of scanning path for reducing fabrication time in a novel two-laser beam stereolithography system</i>	Cho-Pei Jiang, Chang-Cheng Chen, Yung-Chang Cheng	406
<i>Robust controller design with QFT and sliding mode for boiler pressure</i>	M. R. Gharib, I. Dabzadeh, S. A. S. Mousavi, S. Kamelian	412

### **Mechatronic systems MIC (SunA02)**

<i>Model predictive tracking control using a state-dependent gain-scheduled feedback</i>	Nobutaka Wada, Hiroyuki Tomosugi, Masami Saeki, Masaharu Nishimura	418
<i>Model predictive control with integral control and constraint handling for mechatronic systems</i>	Yen-Chung Liu, Chi-Ying Lin	424
<i>An ILMI approach to guaranteed cost controllers with a full order observer</i>	Erwin Susanto, Daisuke Matsunaga, Mitsuaki Ishitobi, Sadaaki Kunimatsu	430
<i>Adaptive estimation of velocity and acceleration with high gain input observer</i>	Yuta Kitsuka, Tatsuya Nomura, Haruo Suemitsu, Takami Matsuo	436
<i>Computer-aided diagnosis of gastrointestinal radiographs using adaptive differential filter and level set method</i>	Nobumichi Nagano, Takami Matsuo	442

### **Simulation, modelling and control on smart grids II (SunA03)**

<i>Improving voltage stability of power systems by appropriate applications of reactive current droop compensation and line drop compensation schemes</i>	Shuangping Zhang, Qing Tian, Xiangning Lin, Zhiqian Bo	448
<i>Classification of power quality disturbance based on atomic energy</i>	Ning Wang, Qingquan Jia, Chunxia Dou, Zhiqian Bo	454
<i>Fuzzy-observer-based robust tracking control for large interconnected power systems using WAMS</i>	Chunxia Dou, Zhiqian Bo, Xingpei Jia, Dongle Liu, Fang Zhao	460
<i>HHT energy spectrum based non-unit EHV line protection using traveling wave</i>	Xiaoan Qin, Xiangjun Zeng, Yao Xu, Hui Pan, Yang Wang	466

### **Mechatronic systems fault diagnosis and fault tolerance (SunA04)**

<i>Fault tolerant control for sequentially connected stochastic distribution continuous systems</i>	Yuwei Ren, Hong Wang	471
<i>Characterization of temporary short circuit in induction motor winding using wavelet analysis</i>	Dimas Anton A, Syafaruddin, Dicky N. Wardana, M. H. Purnomo, Takashi Hiyama	477
<i>Observer based fault detection for stator inter-turn short circuit in wind turbine DFIGs</i>	Qian Lu, Timofei Breikin	483
<i>Self-repairing control for UAVs via fuzzy feedforward and quantum control techniques</i>	Fuyang Chen, Bin Jiang, Chunlin Chen	489
<i>Modeling and control of inverse response process with time delay using relay feedback test</i>	T. Thyagarajan, C. Esakkiappan, V. Sujatha	494

### **Neural networks, fuzzy logic, and other heuristic techniques II (SunA05)**

<i>Generalized probabilistic decision-based neural networks for texture classification and retrieval</i>	Yeong-Yuh Xu, S. C. Chuang, C. L. Tseng, Hsin-Chia Fu	500
<i>Entry trajectory genetic algorithm optimization using Legendre pseudospectral method</i>	Zongzhun Zheng, Ye Yang, Yongji Wang, Fuqiang Xie	505
<i>RLS-ESN based PID control for rehabilitation robotic arms driven by PM-TS actuators</i>		

Jun Wu, Jian Huang, Yongji Wang, Kexin Xing 511  
*Application of SVM method to operation diagnosis of hot strip rolling*

Masami Konishi, Koichi Nakano 522

### **Artificial intelligence in mechatronic systems (SunM01)**

*An optimization algorithm for neural predictive control of air-fuel ratio in SI engines*  
Samir Saraswati, Satish Chand 527

*Fuzzy logic control of four-pole active magnetic bearing system*  
Praveen Kumar Agarwal, Satish Chand 533

*Neural network observer for twin rotor MIMO system: An LMI based approach*  
Bhanu Pratap, Shubhi Purwar 539

*An intelligent based power system load shedding design using voltage and frequency information*  
H. Bevrani, A. G. Tikdari, T. Hiyama 545

*RAGPC control of large delay and retarded systems with optimal model approximant approach*  
A. S. Osunleke, M. Deng, O. Taiwo 550

### **Swarm intelligence: Theory and application (SunM02)**

*A hybrid group search optimizer with metropolis rule*  
Juanyan Fang, Zhihua Cui, Xingjuan Cai, Jianchao Zeng 556

*The convergence analysis and parameter selection of artificial physics optimization algorithm*  
Liping Xie, Ying Tan, Jianchao Zeng 562

*Genetic algorithm with a robust solution searching scheme based controller parameters selection of a cart-type inverted pendulum*  
Shinji Nakayama, Mingcong Deng, Shuhui Bi, Akira Yanou 568

*A new method for image fusion based on fuzzy neural network*  
Degan Zhang, Yuanyuan Wang, Weiwei Liu, Xiaoli Zhang 574

### **Simulation, modelling and control on smart grids III (SunM03)**

*Fault analysis of a grounding transformer*  
Chenwang Hu, Xiangjun Zeng, Jin Tao, Yuanyuan Wang 579

*Modeling and simulation of SST/BES*  
Jie Zeng, Buhan Zhang, Chengxiong Mao, Yan Li, Jiming Lu, Shu Fan 585

*Tapped-resistance character analysis of distance relay for UHV lines*  
Shiming Liu 591

*An enhanced power swing simulation model applicable to protective relaying operation behavior analysis based on EMTP software*  
Xiangning Lin, Zhengtian Li, Hanli Weng 595

*Steady security risk assessment considering uncertainties of wind power and fault in smart grid*  
Junfang Li, Buhan Zhang, Jianghong Wang, Chengxiong Mao, Yifang Liu, Kai Wang, Yao Duan, Xu Zheng, Li Wan 600

### **Intelligent modelling for social and economic applications (SunM04)**

*Constraint bagging for stock price prediction using neural networks*  
Wei Xu, Meiyun Zuo, Mingtao Zhang, Rong He 606

*The impacts of distribution mechanisms and information disclosures on team dynamics*  
Caihong Sun, Xiaojun Shi, Jiagui Zhong 611

*Capacity expansion for an IT service firm under exponential demand growth with skilled workforce*  
Tian He, Hongxun Jiang, Lifeng Zhang 617

*A development of signal control system for congestion lengths along an arterial in Hiroshima city*

Haruko Fujii, Hikaru Shimizu 623  
*The implement of ROFD model: Logical modeling for financial risk data*

Baoming Wu, Songnian Yu 629

### **Networked control system I (SunM05)**

*Multi-value stochastic optimal control of networked control system with long time delay*  
Zhe Dong, Dehui Sun, Yuntao Shi, Daqian Liu 633

*Cohesiveness analysis of hybrid swarm systems based on artificial potential functions*  
Junjie Hu, Jing Yao, Lei Wang 639

*Zero signal and last available signal strategies comparison for  $H_\infty$  control over lossy links*  
Yafeng Guo, Weisheng Xu, Zhongjie Wang 645

*Output tracking controller design for networked control systems*  
Zhongjie Wang, Wenting Guo, Yafeng Guo, Jianwei Zhang 650

*Design of a networked predictive controller*  
Xueyan Wang, Zhongjie Wang 653

### **MIC of mechanical and electrical equipment and component (SunP01)**

*The hybrid predictive model of elevator system for energy consumption*  
Jian Liu, Feng Qiao, Ling Chang 658

*Gait authentication based on multi-criterion model of acceleration features*  
Xiaobo Wang, Yuexiang Li, Feng Qiao 664

*Effect of slot shape in rotor of electrical motor with high-speed spindle on slot ripples*  
Ke Zhang, Xuechen Jiang, Yuhou Wu, Lixiu Zhang, Xiaoping Wu 670

*Intelligent leveling system of suspended access platform*  
Yuhou Wu, Jia Sun, Ke Zhang, Feng Qiao, Hua Guo 676

*Modelling of MRD and its application for seismic reduction*  
Feng Qiao, Jian Liu, Jing Dai, Linlin Sun, Huijia Guo 682

### **Human adaptive mechatronics (SunP02)**

*A novel active training machine used for elderly people*  
Guoqing Hu, Liang Li, Hongbo Wang, Yun Xiang 688

*3D scene reconstruction and motion planning for an autonomous mobile robot in complex outdoor scenes*  
Yan Zhuang, Wei Wang, Hang Chen, Keqiang Zheng 692

*Fuzzy control of a pendulum-driven cart*  
Yang Liu, Hongnian Yu 698

*Hybrid path planning for nonholonomic mobile robot based on steering control and improved distance propagating*  
Yan Zhuang, Yisha Liu, Wei Wang, Zili Zhan 704

*Design and implementation of efficient intelligent robotic gripper*  
A. M. Zaki, A. M. Soliman, O. A. Mahgoub, A.M. El-Shafei 710

### **Simulation, modelling and control on smart grids IV (SunP03)**

*Study on the current differential protection of transformer based on the time difference method*  
E. S. Jin, G. W. Xia, Y. Wu, Z. Q. Bo, L. Hossenlopp 717

*The protection technology of high voltage variable frequency drive system*  
Qing Xiong, Zhe Zhang, Jian Liu, Xianggen Yin 722

*Wind speed prediction based on the Elman recursion neural networks*  
Junfang Li, Buhan Zhang, Chengxiong Mao, Guanglong Xie, Yan Li, Jiming Lu 728

*A feeder automation scheme based on wireless sensor network*



Shihong Miao, Yongqing Li, Yulin Fu, Pei Liu, Wenkui Zhang 733  
*Agent-based wide area protection with high fault tolerance*

Yangguang Wang, Xianggen Yin, Dahai You 739

#### **Discrete-time systems (SunP04)**

*Design of PD control based on GPC in a multirate system*

Takao Sato, Nozomu Araki, Yasuo Konishi, Hiroyuki Ishigaki 745

*A sampling zero of a sampled-data model for continuous-time systems with relative degree two*

Tomoki Koga, Mitsuaki Ishitobi, Masatoshi Nishi 751

*Indoor air quality control of HVAC system*

Jiaming Li, Josh Wall, Glenn Platt 756

*Model matching control for nonlinear discrete time systems*

Yoshihiro Yamamoto 762

*Swing-up controller design for inverted pendulum by using energy control method based on Lyapunov function*

Tomohide Maeba, Mingcong Deng, Akira Yanou, Tomohiro Henmi 768

#### **Networked control system II (SunP05)**

*Minimum entropy filtering for networked control systems via information theoretic learning approach*

Jianhua Zhang, Lei Cai, Hong Wang 774

*Multivariable model based control of quadruple tank process based on industry Ethernet network control system*

Yuntao Shi, Dehui Sun, Zhijun Li, Zhe Dong, Daqian Liu 779

*A comparative study of linear observers applied to a DC servo motor*

Ahmad Hussain Al-Bayati, Zakwan Skaf 785

*Fault tolerant control for two collaborative systems using output regulation scheme*

Ahmad Hussain Al-Bayati, Zakwan Skaf, Hong Wang 791

*Network-based reliable  $H_\infty$  filter designing for the systems with sensor failures*

Lilong Du, Zhou Gu, Jinliang Liu 797

#### **Nonlinear and linear system identification (MonA01)**

*Analysis of indeterminate force in multi-contact friction grasp based on potential energy minimization*

Miao Li, Wenyu Yang, Xiaoping Zhang 801

*Study of the static friction for feed drives of CNC machine tools*

Syh-Shiuh Yeh, Jin-Tsu Sun 807

*A model prediction for non-rational models via radial basis function network*

Gomez Salas Fernando, Yongji Wang 813

*Design of attitude decoupling control system for BTT missile using quantitative feedback theory*

Chuanfeng Li, Zhenxin Ye, Yongji Wang, Lei Liu 819

#### **Discrete event and hybrid systems (MonA02)**

*FAT-based adaptive sliding-mode control augmented with fuzzy compensation for a piezoelectric-actuated X-Y table system*

Jin-Wei Liang, Hung-Yi Chen, Yu-Ting Chu 825

*Robust reliable stabilization of uncertain stochastic switched nonlinear systems*

Zhengrong Xiang, Ronghao Wang 831

*A systematic generation technique of counter operation procedure in an abnormal situation of a plant*

Akio Gofuku, Daisuke Abe 837

### Robotics (MonA03)

<i>Activity clustering for online anomaly detection</i>	Xudong Zhu, Yong Yao, Zhijing Liu, Jing Xiong	842
<i>Plant-wide mass balance using extended support vector regression based data reconciliation and gross error detection</i>	Hongren Zhan, Yu Miao, Wei Wang	848
<i>Controller design of a modeled AdeptThree robot arm</i>	Adelhard Beni Rehiara, Wim Smit	854
<i>Acquisition of the body image in evolution -Role of actuators in realizing intelligent behavior-</i>	Tatsuya Koyasu, Kazuyuki Ito	859

### Static and dynamic systems modelling II (MonA04)

<i>Design and application of hydrodynamic efficiency control system for high-power bulldozer with hydro-mechanical transmission</i>	Wei Wei, Tao Yu, Qingdong Yan	865
<i>Eigenstructure assignment based multiobjective dynamic state feedback controller design for MIMO system using NSGA-II</i>	S. Sutha, T. Thyagarajan	870
<i>Book of Abstracts</i>		886

Cwj qt 'kf gz