Tuesday

July 5, 2005

Industry Day I

Program Brochure

Version 05-06-15

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International Program sub-Committees

1.1 Modelling, Identification & Signal Processing	T. McKelvey (SE)
1.2. Adaptive and Learning Systems	A. Sano (JP)
1.3. Discrete Event Dynamic Systems	C. Cassandras (US)
1.4. Stochastic Systems	M. Campi (IT)
2.1. Control Design	P. Colaneri (IT)
2.2. Linear Control Systems	C.E. de Souza (BR)
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2.4. Optimal Control	A. Kleimenov (RU)
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3.3. Computers and Telematics	H. Roth (DE)
4.1. Components and Instruments	S. Boverie (FR)
4.2. Mechatronic Systems	R. Goodall (UK)
4.3. Robotics	J. Sasiadek (CA)
4.4. Cost Oriented Automation	H. Erbe (DE)
4.5. Human Machine Systems	D. Zuehlke (DE)
5.1. Manufacturing Plant Control	G. Morel (FR)
5.2. Manufacturing Modelling for Management and Control	L. Monostori (HU)
5.3. Enterprise Integration and Networking	A. Molina (MX)
5.4. Large Scale Complex Systems	F.G. Filip (RO)
6.1. Chemical Process Control	W. Marquardt (DE)
6.2. Mining, Mineral & Metal Processing	S.C. Won (KR)
6.3. Power Plants and Power Systems	O.P. Malik (CA)
6.4. Safeprocess	M. Kinnaert (BE)
7.1. Automotive Control	L. Nielsen (SE)
7.2. Marine Systems	R. Sutton (UK)
7.3. Aerospace	K. Schilling (DE)
7.4. Transportation Systems	M. Papageorgiou (GR)
7.5. Intelligent Autonomous Vehicles	H. Asama (JP)
8.1. Control in Agriculture	G. van Straten (NL)
8.2. Modelling & Control of Biomedical Systems	D. Feng (AU)
8.3. Modelling & Control of Environmental Systems	R. Soncini-Sessa (IT)
8.4. Control of Biotechnological Processes	M. Pons (FR)
9.1. Economic & Business Systems	R. Neck (AT)
9.2. Social Impact of Automation	J. Stahre (SE)
9.3. Developing Countries	G. Dimirovski (MK)
9.4. Control Education	L. Vlacic (AU)
9.5. SWIIS	F. Kile (US)

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IFAC Congress Prizes

The following prizes will be awarded to the authors for Congress contributions at the Closing Ceremony.

- IFAC Congress Young Author Prize
- IFAC Congress Application Paper Prize
- IFAC Congress Poster Paper Prize

Selection committees nominated the following finalists:

Best Application Paper Finalists

Nonlinear Model Predictive Control of Batch Processes: An Industrial Case Study
Zoltan Nagy (University of Stuttgart)
Bernd Mahn (BASF Aktiengesellschaft, Ludwigshafen)
Rudiger Franke (ABB Corporate Research, Ladenburg)
Frank Allgöwer (University of Stuttgart)
Technical area: 6.1. Chemical Process Control
Session: Knowledge Driven Batch Processes (Mo-A06-TO)
Presentation 04-Jul-2005, 13:00-13:20, Small Theatre

Actual Engaged Gear Identification: A Hybrid Observer Approach
Balluchi Andrea (PARADES, Italy)
Luca Benvenuti (Universitŕ di Roma, Italy)
Claudio Lemma (PARADES, Italy)
Alberto Sangiovanni-Vincentelli (PARADES, Italy and University of California at Berkeley, USA)
Gabriele Serra (Magneti Marelli Powertrain, Italy)
Technical area: 7.1. Automotive Control
Session: Powertrain Control (Mo-E20-TO)
Presentation: 04-Jul-2005, 16:10-16:30, Meeting Room 2.1

Evaluation of Sliding Mode Observer for Vehicle Sideslip Angle
Joanny Stéphant (Laboratoire HEUDIASYC, UMR CNRS-UTC, Compiegne, France)
Ali Charara (Laboratoire HEUDIASYC, UMR CNRS-UTC, Compiegne, France)
Dominique Meizel (GERME, ENSIL, Limoges, France)
Technical area: 7.5. Intelligent Autonomous Vehicles
Session: Intelligent Autonomous Vehicles (We-E04-TP)
Presentation: 06-Jul-2005, 15:30-17:30, North Hall

Process Control of an Open Plate Reactor
Staffan Haugwitz (Lund Institute of Technology, Sweden)
Per Hagander (Lund Institute of Technology, Sweden)
Technical area: 6.1. Chemical Process Control
Session: Control of Complex Processes (Th-A06-TO)
Presentation: 07-Jul-2005, 13:20-13:40, Small Theatre

Best Young Author Paper Finalists

Robust Decentralized Pole Assignment
Alireza Esna Ashari (University of Tehran, Iran)
Batool Labibi (K. N. Toosi University of Technology, Iran)
Technical area: 5.4. Large Scale Complex Systems
Session: Large Scale Complex Systems I- Theory (Mo-M21-TO)
Presentation: 04-Jul-2005, 11:20-11:40, Meeting Room 3.4

On the Stability in Almost Periodic Discrete Systems
Oleksiy Ignatyev (Department of Mathematical Sciences, Kent State University, OH, USA)
Technical area: 2.3. Non-Linear Control Systems
Session: Nonlinear Stability II (Mo-A11-TO)
Presentation: 04-Jul-2005, 14:40-15:00, Meeting Room 2.2

Dynamic Output Feedback Stabilization of a Class of a Nonholonomic Hamiltonian Systems
Satoru Sakai (Kyoto University)
Kenji Fujimoto (Nagoya University)
Technical area: 2.3. Non-Linear Control Systems
Session: Nonlinear Control Systems I (Tu-M03-TO)
Presentation: 05-Jul-2005, 11:20-11:40, Terrace 2

Stabilization of Networked Control Systems: Designing Effective Communication Sequences
Lei Zhang (University of Maryland, USA)
Dimitrios Hristu-Varsakelis (University of Macedonia, Greece)
Technical area: 2.2. Linear Control Systems
Session: Analysis and Synthesis of Linear Control Systems I (Th-A02-TP)
Presentation: 07-Jul-2005, 13:00-15:00, North Hall

Awiator's Design of Multi-Objectives Control Laws
Matthieu Jeanneau (AIRBUS,Toulouse, France)
Jérôme Lamolie (AIRBUS & Ecole Centrale de Lille, France)
Guilhem Puyou (AIRBUS,Toulouse, France)
Nicky Aversa (AIRBUS,Toulouse, France)
Technical area: 7.3. Aerospace
Session: Aircraft Control Design (Th-E18-TO)
Presentation: 07-Jul-2005, 15:30-15:50, Meeting Room 3.3

LEGEND TO PROGRAM PAGES

Session (Page) Header

Session Code	Session Type	Technical Area

Session Code format: Day - Time slot & Room number – Session type

Day: Mo/Tu/We/Th/Fr
Monday/Tuesday/Wednesday/Thursday/Friday

Time slot:

M	Morning (10:00-12:00) except for Tuesday
A	Afternoon (13:00-15:00) except for Tuesday
E	Evening (15:30-17:30) except for Tuesday

Room number:

##	one of 22 rooms available for parallel sessions

Session type:

PL	Plenary
SP	Semi-Plenary
TO	Technical Oral (regular/invited)
TP	Technical Poster
PD	Panel Discussion
MS	Milestone Session

Example: Mo-A03-TP
Regular Poster Session, Monday afternoon

Paper Code format: Session Code / Paper Order in Session

Example: Mo-M03-TO/1
First presentation in the session {Mo-M03-TO}
Paper order in a poster session is insignificant

Regular, contributed sessions have been designed in IFAC Technical Committees linked to Technical Areas listed in the next page.

Session pages are organized according to the time schedule.

Technical Program pages were generated from the Congress database automatically by the conference software package developed by Certicon, a.s.

TECHNICAL PROGRAM AT A GLANCE

1. Systems and Signals
   - 1.1 Modelling, Identification and Signal Processing
   - 1.2 Adaptive and Learning Systems
   - 1.3 Discrete Event and Hybrid Systems
   - 1.4 Stochastic Systems

2. Design Methods
   - 2.1 Control Design
   - 2.2 Linear Control Systems
   - 2.3 Non-Linear Control Systems
   - 2.4 Optimal Control
   - 2.5 Robust Control

3. Computers, Cognition and Communication
   - 3.1 Computers for Control
   - 3.2 Cognition and Control
   - 3.3 Computers and Telematics

4. Mechatronics, Robotics and Components
   - 4.1 Components and Instruments
   - 4.2 Mechatronic Systems
   - 4.3 Robotics
   - 4.4 Cost Oriented Automation
   - 4.5 Human Machine Systems

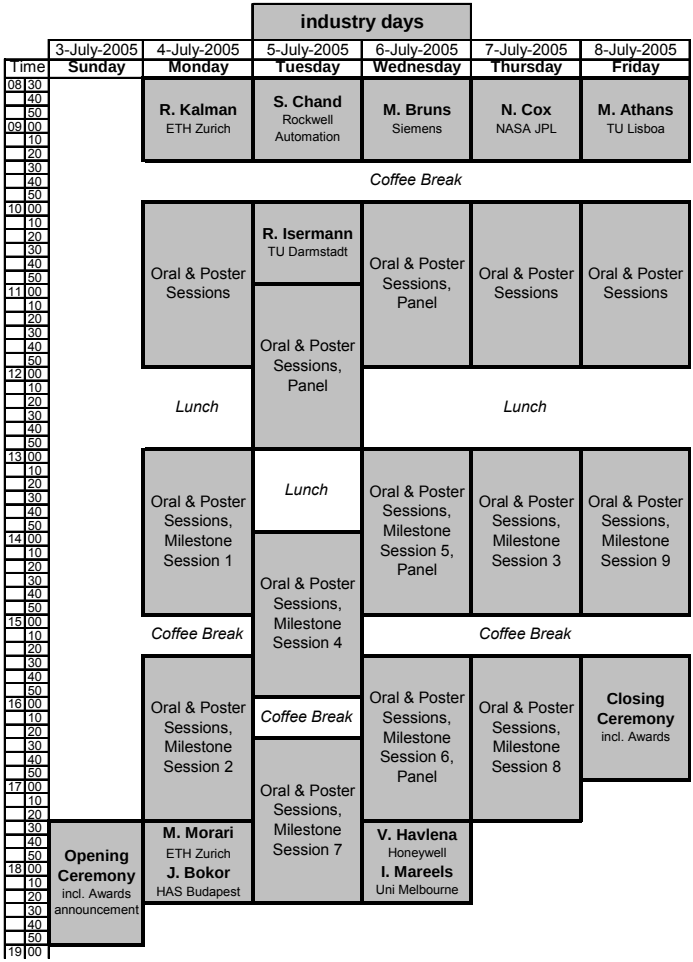
5. Manufacturing Systems
   - 5.1 Manufacturing Plant Control
   - 5.2 Manufacturing Modelling for Management & Control
   - 5.3 Enterprise Integration and Networking
   - 5.4 Large Scale Complex Systems

6. Industrial Systems
   - 6.1 Chemical Process Control
   - 6.2 Mining, Mineral and Metal Processing
   - 6.3 Power Plants and Power Systems
   - 6.4 Fault Detection, Supervision and Safety of Technical Processes

7. Transportation Systems and Vehicles
   - 7.1 Automotive Control
   - 7.2 Marine Systems
   - 7.3 Aerospace
   - 7.4 Transportation Systems
   - 7.5 Intelligent Autonomous Vehicles

8. Bio and Ecological Systems
   - 8.1 Control in Agriculture
   - 8.2 Modelling and Control of Biomedical Systems
   - 8.3 Modelling and Control of Environmental Systems
   - 8.4 Control of Biotechnological Systems

9. Social Systems
   - 9.1 Economic and Business Systems
   - 9.2 Social Impact of Automation
   - 9.3 Developing Countries
   - 9.4 Control Education


industry days
3-July-2005 Sunday
4-July-2005 Monday
5-July-2005 Tuesday
6-July-2005 Wednesday
7-July-2005 Thursday
8-July-2005 Friday
Time
R. Kalman ETH Zurich
S. Chand Rockwell Automation
M. Bruns Siemens
N. Cox NASA JPL
M. Athans TU Lisboa
Coffee Break
Oral & Poster Sessions
R. Isermann TU Darmstadt
Oral & Poster Sessions, Panel
Oral & Poster Sessions
Oral & Poster Sessions, Panel
Oral & Poster Sessions
Oral & Poster Sessions
Lunch
Lunch
Lunch
Oral & Poster Sessions, Milestone Session 1
Oral & Poster Sessions, Milestone Session 4
Oral & Poster Sessions, Milestone Session 5, Panel
Oral & Poster Sessions, Milestone Session 3
Oral & Poster Sessions, Milestone Session 9
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Oral & Poster Sessions, Milestone Session 2
Coffee Break
Oral & Poster Sessions, Milestone Session 6, Panel
Oral & Poster Sessions, Milestone Session 8
Closing Ceremony incl. Awards
Oral & Poster Sessions, Milestone Session 7
Opening Ceremony incl. Awards announcement
M. Morari ETH Zurich
J. Bokor HAS Budapest
V. Havlena Honeywell
I. Mareels Uni Melbourne

Tuesday July 5, 2005 Session	Area	Poster	Invited	08:30 - 09:30 10:00 - 11:00	11:00 - 13:00	14:00 - 16:00	16:30 - 18:30	Page
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Plenary – R. Isermann				♣				**2**
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Tuesday July 5, 2005 Session	Area	Poster	Invited	08:30 - 09:30 10:00 - 11:00	11:00 - 13:00	14:00 - 16:00	16:30 - 18:30	Page
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Congress Center Rooms

Room Name	Floor	Code	Used for
Congress Hall	1&2		Opening Ceremony
Forum Hall Foyer	2		Welcome Party
Conference Hall Foyer			Welcome Party
Forum Hall	2		Closing Ceremony
Conference Hall	4		IFAC General Assembly

Forum Hall	2	♣	**Plenaries**
Meeting Hall I	1	♦	**Semi-Plenaries**
Panorama Hall	1	♠	**Semi-Plenaries**
North Hall	2	●	Poster Sessions
Chamber Hall	3	1	**Milestones Panels**
Club H	1	2	**Panels** Regular Sessions
Terrace 2	2	3	Regular Sessions
Club A	1	4	Regular Sessions
Club E	1	5	Regular Sessions
Small Theatre	0	6	Regular Sessions
Terrace 1	2	7	Regular Sessions
Club B	1	8	Regular Sessions
Club D	1	9	Regular Sessions
Club C	1	10	Regular Sessions
Meeting Room 2.2	2	11	Regular Sessions
Meeting Room 4.1	4	12	Regular Sessions
Meeting Room 4.2	4	13	Regular Sessions
Meeting Room 1.1	1	14	Regular Sessions
Meeting Room 2.3	2	15	Regular Sessions
Meeting Room 3.1	3	16	Regular Sessions
Meeting Room 3.2	3	17	Regular Sessions
Meeting Room 3.3	3	18	Regular Sessions
Meeting Room 4.3	4	19	Regular Sessions
Meeting Room 2.1	2	20	Regular Sessions
Meeting Room 3.4	3	21	Regular Sessions
Meeting Room 3.5	3	22	Regular Sessions

INDUSTRY DAY PROGRAM AT A GLANCE – TUESDAY, JULY 5, 2005

The aim of Industry Days organized during the Congress is to increase IFAC visibility and establish closer link between IFAC and industry.

The core of the Industry Day program is built upon plenary sessions, semi-plenary sessions, panel discussions and invited technical sessions, organized by the IFAC Coordinating Committees on

- Mechatronics, robotics and components (CC4)
- Manufacturing systems (CC5)
- Industrial systems (CC6)
- Transportation systems (CC7)

The table below introduces sessions organized as part of Industry Days technical program.

Tuesday July 5, 2005 Industry Day Sessions	Area	Poster	Invited	08:30 - 09:30 10:00 - 11:00	11:00 - 13:00	14:00 - 16:00	16:30 - 18:30	Page
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Panel – Collaborating Robotic Systems	**4.3.**		X		**01**			**5**
Milestone – Mechatronics, robotics and components	**4.**					**01**		**3**
Milestone – Transportation systems	**7.**						**01**	**4**
Automotive Mechatronics	4.2.		X		**16**			43
Programmable Devices and Embedded Systems	4.1.		X			**15**		88
Mechatronic Control of Motors	4.2.						**16**	137
Telematics	3.3.		X				**15**	135
Real Time Optimization and Control of Process and Energy Systems	6.1.		X		**06**			28
Rolling Mills I	6.2.		X			**06**		76
Hot Rolling	6.2.		X				**18**	139
Technology in Mining and Metal Processing Industry	6.2.	**P**			●			13
Process Control Applications	6.1.	**P**				●		63
Learning and Adaptive Control of Mechanical Structures	1.2.		X				**20**	142

More industry related sessions are listed in the Industry Day brochure.

SUJEET CHAND

FROM ELECTRIC MOTORS TO FLEXIBLE MANUFACTURING: CONTROL TECHNOLOGY DRIVES INDUSTRIAL AUTOMATION

Tuesday 05-Jul-2005 08:30-09:30, Forum Hall

Chair: ***Petr Horáček, Czech Technical University in Prague, Czech Republic***

Abstract

Industrial Automation has evolved from stand-alone, hard-wired relay panels to a contemporary, networked system that supports flexible manufacturing and enterprise integration. From precision control of machines and robots on the factory floor to flexible coordination of multiple cells of automation, advancements in control technologies have driven the evolution of industrial automation. The confluence of five technologies, control, computing, communications, software, and materials, is shaping the future direction of industrial automation systems. This presentation summarizes the major technical trends, and highlights the continuing opportunities and challenges for the application of control technologies in industrial automation.

Dr. Sujeet Chand
Vice President and Chief Technical Officer
Rockwell Automation
Milwaukee, USA

ROLF ISERMANN

MECHATRONIC SYSTEMS: INNOVATIVE PRODUCTS WITH EMBEDDED CONTROL

Tuesday 05-Jul-2005 10:00-11:00, Forum Hall

Chair: ***Peter J. Fleming, University of Sheffield, United Kingdom***

Abstract

Many technical processes and products in the area of mechanical and electrical engineering are showing an increasing integration of mechanics with digital electronics and information processing. This integration is between the components (hardware) and the information-driven functions (software), resulting in integrated systems called mechatronic systems. Their development involves finding an optimal balance between the basic mechanical structure, sensor and actuator implementation, automatic information processing and overall control. Of major importance are the simultaneous design of mechanics and electronics, hardware and software and embedded control functions resulting in an integrated component or system. This technical progress has a very large influence on a multitude of products in the area of mechanical, electrical and electronic engineering and changes the design, for example, of conventional electromechanical components, machines, vehicles and precision mechanical devices with increasing intensity. This contribution summarizes ongoing developments for mechatronic systems, shows design approaches and examples of mechatronic products and considers various embedded control functions and system´s integrity. One field of ongoing developments, automotive mechatronics, is described in more detail by discussing mechatronic suspensions, mechatronic brakes, active steering and roll stabilization systems.

Prof. Rolf Isermann
Institute of Automatic Control
TU Darmstadt, DE

ANIBAL OLLERO, SERGE BOVERIE, ROGER GOODALL, JUREK SASIADEK, HEINZ ERBE, DETLEF ZUEHLKE

MECHATRONICS, ROBOTICS AND COMPONENTS FOR AUTOMATION AND CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Chamber Hall

Organizer: ***IFAC Coordinating Committee on Mechatronics, Robotics and Components***

Chair: ***Anibal Ollero, Universidad de Sevilla, Spain***

Abstract

This session is devoted to the analysis of a broad technological field of Mechatronics, Robotics and Components for automation and control systems. Several subfields are considered: i) Components and instruments, involving sensors, actuators, embedded systems and communications; ii) mechatronics concepts and technologies; iii) robotics; iv) human-machine systems, including technical issues and social implications; and v) cost-oriented automation which is a multidisciplinary field involving theory, technologies and application as well as economical and social issues. First current key problems in this field are considered then, the accomplishment and trends are analyzed. Finally, the forecast is presented.

Anibal Ollero, University of Sevilla, Spain

Serge Boverie, Siemens Automotive, France

Roger Goodall, University of Loughborough, UK

Jurek Sasiadek, Carleton University, Canada

Heinz Erbe, TU Berlin, Germany

Detlef Zuehlke, University of Kaiserslautern, Germany

UWE KIENCKE, LARS NIELSEN, ROBERT SUTTON, KLAUS SCHILLING, MARKOS PAPAGEORGIOU, HAJIME ASAMA

THE IMPACT OF AUTOMATIC CONTROL ON RECENT DEVELOPMENTS IN TRANSPORTATION AND VEHICLE SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, Chamber Hall

Organizer: ***IFAC Coordinating Committee on Transportation Systems***

Chair: ***Uwe Kiencke, University of Karlsruhe, Germany***

Abstract

Throughout the field of transportation and vehicle systems control is gaining importance. This report focuses on the current key problems engineers in this field are facing and highlights some major recent accomplishments. The driving forces behind the increasing use of control are the rising need for transportation services and the demand for a higher safety level. While each domain takes specific approach to deal with these demands, a general trend towards automatic co-pilots or even autopilots is visible. In the automotive domain, this is aided by the design of drive by wire systems. In other fields like marine or aerospace systems, the focus of research is on the swarming behavior of multiple vessels. New sensors and networking will also enable more efficient traffic flow control, which will allow for a better use of the resource network capacity. Another trend in the vehicle systems sector is the modeling of nonlinear system behavior, which is starting to replace look-up tables in real time systems. A forecast on future trends is given at the end of the report.

Uwe Kiencke, University of Karlsruhe, Germany

Lars Nielsen, Linkoping University, Sweden

Robert Sutton, University of Plymouth, United Kingdom

Klaus Schilling, Julius-Maximilians Universität Würzburg, Germany

Markos Papageorgiou, Technical University of Crete, Greece

Hajime Asama, University of Tokyo, Japan

Tu-M01-PD **Panel Discussion** **Area 4.3**

COLLABORATING ROBOTIC SYSTEMS (HUMAN – ROBOT, ROBOT - - ROBOT)

Tuesday 05-Jul-2005 11:00-13:00, Chamber Hall

Organizers: ***Heinz Erbe, Technische Universität Berlin, Germany***

Rolf Bernhardt, Fraunhofer Institute IPK, Berlin, Germany

Chair: ***Rolf Bernhardt, Fraunhofer Institute IPK, Berlin, Germany***

Abstract

Human –Robot: Collaboration of human operators and automation systems like robots can achieve more flexibility in production and can save cost by avoiding repeated reconfiguration of the systems. Collaborative Robots (COBOTS, or intelligent power assist devices (IPAD)) are meanwhile developed and tested to fulfill the requirements regarding the safety of the workforce.

Robot – Robot: Single Industry Robots are used in a structured environment for welding, painting, and handling. But these robots can also collaborate, for handling and processing together, thereby saving time and manufacturing cost. They can collaborate together and with manufacturing machines. The collaborating systems provide reliability and safety.

The collaboration of autonomous robots at the shop floor or outside in the field as an uncertain environment (Advanced Servicing Robot) can help to solve logistic problems, like storing parts in warehouses or to supply manufacturing systems with parts or raw material to be processed. Collaboration provides automatic problem solving and rearrangement.

The panel will discuss results of research and developments with respect to the requirements of industry regarding flexibility and cost savings.

TRANSPORTATION SYSTEMS II

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Markos Papageorgiou, Technical University of Crete, Greece***

Co-Chair: ***Said Mammar, Université d'Evry Val d'Essonne, France***

1. (11:00) A Design of the High Efficient Gantry Crane for Ultra Large Container Ship in an Automated Container Terminal

Young Jin Lee, Korea Aviation Polytechnic College, Korea

Jin-Ho Suh, Dong-A University, Korea

Jin-Woo Lee, Dong-A University, Korea

Suk Gyu Lee, Yeungnam University, Korea

Kwon-Soon Lee, Dong-A University, Korea

2. (11:00) A hybrid control scheme for freeway systems

Simona Sacone, University of Genova, Italy

Elisa Franco, University of Trieste, Italy

Thomas Parisini, University of Trieste, Italy

3. (11:00) A macroscopic traffic model for road networks with representation of the capacity drop phenomenon at the junctions

Bertrand Haut, UCL, Belgium

Georges Bastin, UCL, Belgium

Yacine Chitour, Paris XI, France

4. (11:00) A modified optimal velocity model for vehicle following

Salim Mammar, Phoenix ISI, France

Saïd Mammar, LSC-CNRS-FRE2494 University of Evry, France

Habib Haj-Salem, INRETS, France

5. (11:00) Adaptive Control of Chaos in a Congestion Control Model

Kai Jiang, Shanghai Jiao Tong University, China

Xiao Fan Wang, Shanghai Jiao Tong University, China

Yugeng Xi, Shanghai Jiao Tong University, China

Xiang Li, Shanghai Jiao Tong University, China

TRANSPORTATION SYSTEMS II

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Markos Papageorgiou, Technical University of Crete, Greece***

Co-Chair: ***Said Mammar, Université d'Evry Val d'Essonne, France***

6. (11:00) An Agent Based Approach to the Real Time Air Traffic Control

Ludovica Adacher, University of Roma 3, Italy

Carlo Meloni, University of Bari, Italy

7. (11:00) An Improvement of Transfer Performance in Paper Feeding Systems

Jae-Kwan Ryu, KyungHee university, Korea

Soon-Geul Lee, KyungHee university, Korea

Sung-Soo Rhim, KyungHee university, Korea

Si-Eun Kim, KyungHee university, Korea

Tae-Gyoon Lim, Research Institute of Industrial Science and Technology (RIST), Korea

8. (11:00) Boundary Control of Container Cranes as an Axially Moving String System

Hahn Park, Pusan National University, Korea

Keum-Shik Hong, Pusan National University, Korea

9. (11:00) Rapid Prototyping of Overhead Crane Dynamics

Janusz Szpytko, AGH University of Science and Technology, Poland

Jakub Schab, AGH University of Science and Technology, Poland

10. (11:00) Density and velocity estimation in traffic flow

Luis Alvarez-Icaza, Universidad Nacional Autónoma de México, Mexico

Oscar Rosas-Jaimes, Universidad Nacional Autónoma de México, Mexico

11. (11:00) Traffic model of a Microregion

Jitka Homolová, Institute of Information Theory and Automation, Czech Republic

Ivan Nagy, Institute of Information Theory and Automation, Czech Republic

TRANSPORTATION SYSTEMS II

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Markos Papageorgiou, Technical University of Crete, Greece***

Co-Chair: ***Said Mammar, Université d'Evry Val d'Essonne, France***

12. (11:00) Localized Switching Ramp-Metering Control with Queue Length Estimation and Regulation and Microscopic Simulation Results

Xiaotian Sun, University of California at Berkeley, United States

Roberto Horowitz, University of California at Berkeley, United States

13. (11:00) Optimal Cruise Control of Heavy-Haul train equipped with Electronic Controlled Pneumatic Brake Systems

Ming-Shan Chou, University of Pretoria, South Africa

Xiaohua Xia, University of Pretoria, South Africa

14. (11:00) Sequence based Hierarchical Conflict-free Routing Strategy of Bi-directional Automated Guided Vehicles

Samia Maza, University of Nantes/Institut de Recherche en Communications et Cybernétique de Nantes, France

Pierre Castagna, University of Nantes/Institut de Recherche en Communications et Cybernétique de Nantes, France

ADAPTIVE AND LEARNING APPROACHES TO CONTROLLER DESIGN

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Fernando Coito, Universidade Nova de Lisboa, Portugal***

Co-Chair: ***Edgar Sanchez, CINVESTAV, Unidad Guadalajara, Mexico***

1. (11:00) Adaptation and nonlinear parametrization: nonlinear dynamics prospective

Ivan Tyukin, RIKEN Brain Science Institute, Japan

Cees van Leeuwen, RIKEN Brain Science Institute, Japan

2. (11:00) Direct Robust Adaptive Nonlinear Control with Derivatives Estimation

Denis Efimov, IPME, Russian Federation

Ivan Yu. Tyukin, RIKEN, Japan

3. (11:00) One-Step Backstepping Design for Adaptive Output Feedback Control of Uncertain Nonlinear Systems

Ikuro Mizumoto, Kumamoto University, Japan

Ryuji Michino, Kumamoto University, Japan

Makoto Kumon, Kumamoto University, Japan

Zenta Iwai, Kumamoto University, Japan

4. (11:00) Simplified Adaptive Nonlinear Observer using B-Spline Based Approximators

Dane Baang, Seoul National University, Korea

Julian Stoev, Samsung Advanced Institute of Technology, Bulgaria

Jin Young Choi, Seoul National University, Korea

Jaehong Park, Seoul National University, Korea

5. (11:00) Model-following adaptive robust control for a class of uncertain systems with series nonlinearities

Liu Fenlin, Information Engineering, China

Luo Junyong, Information Engineering, China

Cai Yanrong, Information Engineering, China

ADAPTIVE AND LEARNING APPROACHES TO CONTROLLER DESIGN

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Fernando Coito, Universidade Nova de Lisboa, Portugal***

Co-Chair: ***Edgar Sanchez, CINVESTAV, Unidad Guadalajara, Mexico***

6. (11:00) Adaptive Backstepping Control of Systems with Uncertain Nonsmooth Actuator Nonlinearity

Jing Zhou, Nanyang technological university, Singapore

Changyun Wen, Nanyang technological university, Singapore

Meng Joo Er, Nanyang technological university, Singapore

7. (11:00) Output Tracking with Constrained Inputs via Adaptive Recurrent Neural Control

Edgar Sanchez, CINVESTAV, Unidad Guadalajara, Mexico

Luis J. Ricalde, CINVESTAV, Unidad Guadalajara, Mexico

8. (11:00) Adaptive Tracking Control via the Extremum-seeking Method

Hai Yu, The Ohio State Unviersity, United States

Umit Ozguner, The Ohio State Unviersity, United States

9. (11:00) Adaptive two degrees-of-freedom internal model control with reference input predictor for systems with unknown time delay

X. M. Ren, Beijing Institute of Technology, China

A. B. Rad, The Hong Kong Polytechnic University, Hong Kong

W. L. Lo, The Hong Kong Polytechnic University, Hong Kong

P. T. Chan, The Hong Kong Polytechnic University, Hong Kong

10. (11:00) Non-Fragile Adaptive Control of a Class of Time-Delay Systems

Abdulla Ismail, UAEU, United Arab Emirates

Magdi S. Mahmoud, CIC, Egypt

11. (11:00) Reducing the Effect of Unmodelled Dynamics by MRAC Control Law Modification

Eva Miklovicova, Slovak University of Technology, Slovakia

Ján Murgaš, Slovak University of Technology, Slovakia

Michal Gonos, Slovak University of Technology, Slovakia

ADAPTIVE AND LEARNING APPROACHES TO CONTROLLER DESIGN

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Fernando Coito, Universidade Nova de Lisboa, Portugal***

Co-Chair: ***Edgar Sanchez, CINVESTAV, Unidad Guadalajara, Mexico***

12. (11:00) Stochastic Extremum Seeking in the Presence of Constraints

Fernando Coito, Universidade Nova de Lisboa, Portugal

João Lemos, INESC ID-Lisboa, Portugal

Sebastião Alves, Instituto Superior Técnico -Universidade Técnica de Lisboa, Portugal

INTERPLAY BETWEEN IDENTIFICATION AND CONTROL

Tuesday 05-Jul-2005 11:00-13:00, Club H

Chair: ***Erik Weyer, The University of Melbourne, Australia***

Co-Chair: ***Bo Wahlberg, KTH, Sweden***

1. (11:00) A Fictitious Reference Iterative Tuning (FRIT) in the Two-Degree of Freedom Control Scheme and its Application to Closed Loop System Identification

Osamu Kaneko, Osaka University, Japan

Shotaro Soma, Osaka University, Japan

Takao Fujii, Osaka University, Japan

2. (11:20) On Iterative Feedback Tuning and Disturbance Rejection using Simple Noise Models

Bo Wahlberg, KTH, Sweden

3. (11:40) System identification of open water channels with undershot and overshot gates

Erik Weyer, Melbourne University, Australia

Karin Euren, University of Uppsala, Sweden

4. (12:00) A bayesian approach to closed-loop system identification

Stéphane Thil, Université Henri Poincaré, Nancy 1, France

Marion Gilson, Université Henri Poincaré, Nancy 1, France

5. (12:20) Exact Parameter Estimation using Relay Feedback Control

Ibrahim Kaya, Inonu University, Turkey

Derek P. Atherton, Univrsity of Sussex, United Kingdom

6. (12:40) Towards a Multivariable Auto-Tuner

Yucai Zhu, Eindhoven University of Technology, Netherlands

Esther T. Serrano, Eindhoven University of Technology, Netherlands

Siep Weiland, Eindhoven University of Technology, Netherlands

TECHNOLOGY IN MINING AND METAL PROCESSING INDUSTRY

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Lubomír Smutný, VSB - Technical University of Ostrava, Czech Republic***

Co-Chair: ***Daniel Sbarbaro, Universidad de Concepcion, Chile***

1. (11:00) Analysis of Two-layer Sintering Process for Different Bed Heights by Genetic Algorithm

Kishalay Mitra, Tata Consultancy Services, India

Niloy K. Nath, Tata Research Development & Design Centre, India

2. (11:00) Analysis of errors of coal quality monitors

Stanislaw Cierpisz, Silesian University of Technology, Poland

3. (11:00) Application of Grey Relation Analysis and RBF Network on Grinding-concentration's Soft Sensing

Yong Li, Dalian University of Technology, China

Cheng Shao, Dalian University of Technology, China

4. (11:00) Control of crushing circuits with variable speed drives

Daniel Sbarbaro, Universidad de Concepcion, Chile

5. (11:00) Detecting abnormal feed rate in aluminium electrolysis using extended Kalman filter

Kristin Hestetun, Norwegian University of Science and Technology, Norway

Morten Hovd, Norwegian University of Science and Technology, Norway

6. (11:00) Development Issues on the Life-cycle Management of Mineral Grinding Processes and Equipment

Antti Remes, Helsinki University of Technology, Finland

Ville Suontaka, Helsinki University of Technology, Finland

Kari Saloheimo, Outokumpu Technology, Finland

Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland

TECHNOLOGY IN MINING AND METAL PROCESSING INDUSTRY

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Lubomír Smutný, VSB - Technical University of Ostrava, Czech Republic***

Co-Chair: ***Daniel Sbarbaro, Universidad de Concepcion, Chile***

7. (11:00) Development of Visual Evaluation and Numerical Analysis System of Blast Furnace

Shinroku Matsuzaki, Nippon Steel Corp., Japan

Masahiro Ito, Nippon Steel Corp., Japan

Kazumoto Kakiuchi, Nippon Steel Corp., Japan

Makoto Iosbe, Nippon Steel Corp., Japan

8. (11:00) Development of middleware for software of UNIX based control system

Hwawon Hwang, POSCO, Korea

Yongsoo Kim, POSCO, Korea

9. (11:00) End-point Temperature Prediction based on RBF Neural Network

Changhui Deng, Key Laboratory of Process Industry Automation, Ministry of Education, Northeastern University, China

Shu Wang, Key Laboratory of Process Industry Automation, Ministry of Education, Northeastern University, China

Zhizhong Mao, Key Laboratory of Process Industry Automation, Ministry of Education, Northeastern University, China

Fuli Wang, Key Laboratory of Process Industry Automation, Ministry of Education, Northeastern University, China

10. (11:00) Fault Detection Based on Probabilistic Robustness Techniques for Belt Conveyor Systems

Mario Sader, Lausitz University of Applied Sciences, Germany

René Noack, Lausitz University of Applied Sciences, Germany

Ping Zhang, University of Duisburg - Essen, Germany

Steven X. Ding, University of Duisburg - Essen, Germany

Torsten Jeinsch, IAV GmbH, Germany

TECHNOLOGY IN MINING AND METAL PROCESSING INDUSTRY

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Lubomír Smutný, VSB - Technical University of Ostrava, Czech Republic***

Co-Chair: ***Daniel Sbarbaro, Universidad de Concepcion, Chile***

11. (11:00) Fault Diagnosis Expert System using Neural Networks for Roasting Process

Ai-jun Yan, Northeastern University, China

Feng-hua Wu, Northeastern University, China

Tian-you Chai, Northeastern University, China

12. (11:00) Fuzzy Neuron Hybrid Control for Continuous Steel Casting

Jili Tao, Zhejiang University, China

Ning Wang, Zhejiang University, China

13. (11:00) Fuzzy Predictive Control of a Column Flotation Process

Susana Vieira, Technical University of Lisbon, Instituto Superior Tecnico, Portugal

João Sousa, Technical University of Lisbon, Instituto Superior Tecnico, Portugal

Fernando Durão, Technical University of Lisbon, Instituto Superior Tecnico, Portugal

14. (11:00) Integrated Automation System of Minerals Processing and its Applications

Tianyou Chai, Northeastern University, China

Jinliang Ding, Northeastern University, China

Dayong Zhao, Northeastern University, China

Aijun Yan, Northeastern University, China

15. (11:00) Integrated Quality Control for Looper System by Adaptive Technique

Akira Kitamura, Tottori University, Japan

Hideki Asada, Kobe Steel, Ltd., Japan

Masami Konishi, Okayama University, Japan

TECHNOLOGY IN MINING AND METAL PROCESSING INDUSTRY

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Lubomír Smutný, VSB - Technical University of Ostrava, Czech Republic***

Co-Chair: ***Daniel Sbarbaro, Universidad de Concepcion, Chile***

16. (11:00) Java-based Integrating Simulator for Blast Furnace

Masanobu Koga, Kyushu Institute of Technology, Japan

Masatoshi Ogawa, Waseda University, Japan

Harutoshi Ogai, Waseda University, Japan

Masahiro Ito, NIPPON STEEL CORPORATION, Japan

Kenko Uchida, Waseda University, Japan

Shinroku Matsuzaki, NIPPON STEEL CORPORATION, Japan

17. (11:00) MPC control of the refining stage of an electric arc furnace

L.C. Coetzee, University of Pretoria, South Africa

I.K. Craig, University of Pretoria, South Africa

L.P. Rathaba, University of Pretoria, South Africa

18. (11:00) Minimum Number of Sampled Streams Ensuring Circuit Mass-Balance

Tsakalakis Konstantinos, National Technical University of Athens, Assoc. Prof., Greece

Kalaitzi Fani, Dr. Mining & Metallurgical Engineer, Greece

19. (11:00) Modeling of Wet Grinding Operation using Artificial Intelligence based Techniques

Kishalay Mitra, Tata Consultancy Services, India

Mahesh Ghivari, Tata Consultancy Services, India

20. (11:00) Mould Level Control for the Continuous Steel Casting

Lubomír Smutný, VŠB-Technical University of Ostrava, Czech Republic

Radim Farana, VŠB-Technical University of Ostrava, Czech Republic

Antonín Víteček, VŠB-Technical University of Ostrava, Czech Republic

Dalibor Kačmář, Microsoft s.r.o. Prague, Czech Republic, Czech Republic

TECHNOLOGY IN MINING AND METAL PROCESSING INDUSTRY

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Lubomír Smutný, VSB - Technical University of Ostrava, Czech Republic***

Co-Chair: ***Daniel Sbarbaro, Universidad de Concepcion, Chile***

21. (11:00) Nonlinear Modelling and Simulation of Industrial Wet Grinding Process

Jayesh Barve, Tata Consultancy Services, India

Kishalay Mitra, Tata Consultancy Services, India

V.S.S. Rameshkumar Junnuri, Tata Consultancy Services, India

22. (11:00) Product Quality Improvement Using Multivariate Data Analysis

Manabu Kano, Kyoto University, Japan

Koichi Fujiwara, Kyoto University, Japan

Shinji Hasebe, Kyoto University, Japan

Hiromu Ohno, Kobe University, Japan

23. (11:00) The Architecture of Manufacturing Execution System in Iron & Steel Enterprise

Huiying Li, Reseach Center of Automation, Northeastern University, China

Xinfu Pang, Reseach Center of Automation, Northeastern University, China

Binglin Zheng, Reseach Center of Automation, Northeastern University, China

Tianyou Chai, Reseach Center of Automation, Northeastern University, China

NONLINEAR CONTROL SYSTEMS I

Tuesday 05-Jul-2005 11:00-13:00, Terrace 2

Chair: ***Mark Spong, University of Illinois, United States***

Co-Chair: ***Bernhard Maschke, Université Lyon, France***

1. (11:00) On control by interconnection of port Hamiltonian systems

Eloisa Garcia-Canseco, LSS-SUPELEC, France, Metropolitan

Ramkrishna Pasumarthy, University of Twente, Netherlands

Ajan van der Schaft, University of Twente, Netherlands

Romeo Ortega, LSS-SUPELEC, France, Metropolitan

2. (11:20) Dynamic output feedback stabilization of a class of a nonholonomic Hamiltonian systems

Satoru Sakai, Kyoto University, Japan

Kenji Fujimoto, Nagoya University, Japan

3. (11:40) Conservative systems with ports on contact manifolds

Damien Eberard, LAGEP, UCB lyon1, CPE, Bat308G, France

Bernhard Maschke, University of Lyon, France

Arjan van der Schaft, University of Twente, Netherlands

4. (12:00) Implicit Controller for Classes of Nonlinear Systems

Shuzhi Sam Ge, National University of Singapore, Singapore

Mark W. Spong, University of Illinois at Urbana-Champaign, United States

5. (12:20) Rejection of Unknown Sinusoidal Disturbances in Non-minimum-Phase Nonlinear Systems

Zhengtao Ding, University of Manchester, United Kingdom

Barry Lennox, University of Manchester, United Kingdom

6. (12:40) Limit Cycles in Feedback Control Systems with Hysteresis

Ciro Natale, Seconda Università degli Studi di Napoli, Italy

Alberto Cavallo, Seconda Università degli Studi di Napoli, Italy

Giuseppe De Maria, Seconda Università degli Studi di Napoli, Italy

ROBOT CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Mikuláš Huba, Slovak University of Technology, Slovakia***

1. (11:00) **A New Approach for Minimum Time Motion Planning Problem of Wheeled Mobile Robots**

Moussa Haddad, EMP, Algeria

Chettibi T., EMP, Algeria

Lehtihet H.E, EMP, Algeria

Hanchi S., EMP, Algeria

2. (11:00) **A New Approach for Optimal Control of Multiple-Arm Robotic Systems**

Nasser Sadati, Sharif University of Technology, Iran

Amir Babazadeh, sharif university of Technology, Iran

3. (11:00) **A Novel Multi-robot Coordination Method Using Capability Category**

Liu Lin, National University of Defense Technology, China

Zheng Zhiqiang, National University of Defense Technology, China

4. (11:00) **A gain scheduling approach for hybrid force/velocity controlled robot contour tracking**

Antonio Visioli, University of Brescia, Italy

Giacomo Ziliani, University of Brescia, Italy

Francesco Jatta, CNR, Italy

Giovanni Legnani, University of Brescia, Italy

5. (11:00) **A reactive obstacle avoidance system for an Autonomous Underwater Vehicle**

Mike Eichhorn, TU Ilmenau, Germany

6. (11:00) **An Analysis of ZMP Control Problem of Humanoid Robot with Compliances in Sole of the Foot**

Napoleon Nazir, Tokyo Institute of Technology, Japan

Hiroki Izu, Toyota Motor Corporation, Japan

Shigeki Nakaura, Tokyo Institute of Technology, Japan

Mitsuji Sampei, Tokyo Institute of Technology, Japan

ROBOT CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Mikuláš Huba, Slovak University of Technology, Slovakia***

7. (11:00) An Embedded Genetic Fuzzy Motion Controller for a Mobile Robot

Simon X. Yang, Chongqing Univ. of Posts and Telecommunications, China

Xiaochuan Wang, University of Guelph, Canada

Guoyin Wang, Chongqing Univ. of Posts and Telecommunications, China

Max Q.-H. Meng, Chinese University of Hong Kong, Hong Kong

8. (11:00) An Implementation of a Teleoperated Robot Control Architecture on a PLC and Field-bus based Platform

Francisco J. Ortiz, Universidad Politecnica de Cartagena, Spain

Bárbara Álvarez, Universidad Politecnica de Cartagena, Spain

Fernando Losilla, Universidad Politecnica de Cartagena, Spain

David Rodríguez, IZAR Carenas, Spain

Noelia Ortega, IZAR Carenas, Spain

9. (11:00) Cellular Automata Based Path-Planning Algorithm for Autonomous Mobile Robots

Tauseef Gulrez, University of Tech. Sydney, Australia

Rami Al-Hmouz, University of Tech. Sydney, Australia

Adel Al-Jumaily, University of Tech. Sydney, Australia

10. (11:00) Collision and Turnover Avoidance of Mobile Robots with Force Reflection

Jae Byung Park, Seoul National University, Korea

Jeong Hee Lee, Seoul National University, Korea

Gon Woo Kim, Seoul National University, Korea

Beom Hee Lee, Seoul National University, Korea

ROBOT CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Mikuláš Huba, Slovak University of Technology, Slovakia***

11. (11:00) Evolution of Parameters of Nonlinear Position Control for Dynamic Model of Mobile Robot with Friction

Bakir Lacevic, Faculty of Electrical Engineering, Bosnia and Herzegowina

Jasmin Velagic, Faculty of Electrical Engineering, Bosnia and Herzegowina

Mujo Hebibovic, Faculty of Electrical Engineering, Bosnia and Herzegowina

12. (11:00) Master-slave synchronization of robot manipulators: experimental results

Anne Karin Bondhus, Norwegian University of Science and Technology, Norway

Kristin Y. Pettersen, Norwegian University of Science and Technology, Norway

Henk Nijmeijer, Eindhoven University of Technology, Netherlands

13. (11:00) Matlab Design Environment for Robotic Manipulators

Robert Babuska, Delft University of Technology, Netherlands

Alexander Breijs, Delft University of Technology, Netherlands

Ben Klaassens, Delft University of Technology, Netherlands

14. (11:00) Navigation with Comfort of Omni-directional Wheelchair Driven by Joystick

Juan Urbano, Toyohashi University of Technology, Japan

YanYan Yang, Toyohashi University of Technology, Japan

Kazuhiko Terashima, Toyohashi University of Technology, Japan

Takanori Miyoshi, Toyohashi University of Technology, Japan

Hideo Kitagawa, Gifu National College of Technology, Japan

15. (11:00) Neural Network Predictive Trajectory Tracking of an Autonomous Two-Wheeled Mobile Robot

Martin Seyr, TU Vienna, Austria

ROBOT CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Mikuláš Huba, Slovak University of Technology, Slovakia***

16. (11:00) Nonlinear H-infinity measurement feedback control of Euler-Lagrange systems

C. Vivas Venegas, Universidad de Sevilla, Spain

F.R. Rubio, Universidad de Sevilla, Spain

17. (11:00) Nonlinear Model Predictive Control of Robots, Cranes and Vehicles

Béla Lantos, Budapest University of Technology and Economics, Hungary

Bálint Kiss, Budapest University of Technology and Economics, Hungary

18. (11:00) On-Line Identification of a Robot Manipulator Using Neural Network with an Adaptive Learning Rate

Jasmin Velagic, Faculty of Electrical Engineering, Bosnia and Herzegowina

Mujo Hebibovic, Faculty of Electrical Engineering, Bosnia and Herzegowina

Bakir Lacevic, Faculty of Electrical Engineering, Bosnia and Herzegowina

19. (11:00) Resource Scheduling Strategies for a Network-based Autonomous Mobile Robot

Hongryeol Kim, Myongji University, Korea

Joomin Kim, Myongji University, Korea

Daewon Kim, Myongji University, Korea

20. (11:00) Robot Path Planning in Unstructured Environments Using a Knowledge-based Genetic Algorithm

Simon X. Yang, Chongqing Univ. of Posts and Communications, China

Yanrong Hu, University of Guelph, Canada

21. (11:00) Simultaneous Control of Grasp/Manipulation and Contact Points with Rolling Contact

Akira Nakashima, Nagoya University, Japan

Kenji Nagase, Nagoya University, Japan

Yoshikazu Hayakawa, Nagoya University, Japan

ROBOT CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, North Hall

Chair: ***Mikuláš Huba, Slovak University of Technology, Slovakia***

22. (11:00) Stepping Over Excess of Obstacle for Biped Robot Based on Hybrid Control

Daisuke Kushida, Tottori University, Japan

Fumiaki Takemori, Tottori University, Japan

Akira Kitamura, Tottori University, Japan

23. (11:00) Study of two Swarm Intelligence Techniques for Path Planning of Mobile Robots

Leandro dos Santos Coelho, Pontifical Catholic University of Parana, Brazil

Cezar A. Sierakowski, Pontifical Catholic University of Parana, Brazil

AUTONOMOUS ROBOTS AND SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Club A

Chair: ***Karel Jezernik, University of Maribor, Slovenia***

Co-Chair: ***Fernando Nicolo, University of Roma TRE, Spain***

1. (11:00) Stability Analysis of a Vision-based Control Design for an Autonomous Mobile Robot

Jean-Baptiste Coulaud, UCL : Catholic University of Louvain, Belgium

Michel De Wan, UCL : Catholic University of Louvain, Belgium

Georges Bastin, UCL : Catholic University of Louvain, Belgium

Guy Campion, UCL : Catholic University of Louvain, Belgium

2. (11:20) Visual Motion Tracking with Full Adaptive Extended Kalman Filter: An Experimental Study

Vincenzo Lippiello, Università degli Studi di Napoli FEDERICO II, Italy

Luigi Villani, Università degli Studi di Napoli FEDERICO II, Italy

Bruno Siciliano, Università degli Studi di Napoli FEDERICO II, Italy

3. (11:40) Immune Navigation Control for Stigmergy based Foraging Behaviour of Autonomous Mobile Robots

Diana Tsankova, Technical University Sofia - branch Plovdiv, Bulgaria

Velichka Georgieva, Technical University Sofia - branch Plovdiv, Bulgaria

Frantisek Zezulka, Brno University of Technology, Czech Republic

Zdenek Bradac, Brno University of Technology, Czech Republic

4. (12:00) Experimental Kinematic Comparison of Behavioral Approaches for Mobile Robots

Gianluca Antonelli, Universita' degli Studi di Cassino, Italy

Filippo Arrichiello, Universita' degli Studi di Cassino, Italy

Stefano Chiaverini, Universita' degli Studi di Cassino, Italy

AUTONOMOUS ROBOTS AND SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Club A

Chair: ***Karel Jezernik, University of Maribor, Slovenia***

Co-Chair: ***Fernando Nicolo, University of Roma TRE, Spain***

5. (12:20) Automated 3D reconstruction system for autonomous mobile manipulator and vehicle-borne

David Puig, European Commission, Joint Research Centre, Italy

Vitor Sequeira, European Commission, Joint Research Centre, Italy

Emilio Ruiz, European Commission, Joint Research Centre, Italy

Joao G. M. Goncalves, European Commission, Joint Research Centre, Italy

Martin Mellado, Universidad Politécnica de Valencia (UPV), Spain

6. (12:40) Autonomous Tractor-trailer Back-up Manoeuvering based on Changing Trailer Orientation

Fernando Gómez-Bravo, University of Huelva, Spain

Federico Cuesta, University of Seville, Spain

Anibal Ollero, University of Seville, Spain

ROBUST FAULT DETECTION AND ISOLATION

Tuesday 05-Jul-2005 11:00-13:00, Club E

Chair: ***Thomas Parisini, University of Trieste, Italy***

Co-Chair: ***Erik Frisk, Linköping University, Sweden***

1. (11:00) Combining interval and qualitative reasoning for fault diagnosis

Gabriela Calderón-Espinoza, Universitat de Girona, Spain

Joaquim Armengol, Universitat de Girona, Spain

Miguel Á. Sainz, Universitat de Girona, Spain

Pau Herrero, Universitat de Girona, Spain

2. (11:20) Influence of network delays in residual computation

David Llanos, University of Girona, Spain

Joan Colomer, University of Girona, Spain

Joaquim Melendez, University of Girona, Spain

Marcel Staroswiecki, Ecole Polytechnique Universitaire de Lille, France

3. (11:40) Fault Detection Filter for Uncertain Fuzzy Systems: An LMI Approach

Sing Kiong Nguang, The University of Auckland, New Zealand

Peng Shi, University of Glamorgan, United Kingdom

Steven Ding, University of Duisburg-Essen, Germany

4. (12:00) Robust FDF for Linear Uncertain Systems of the Polytopic Type

Maiying Zhong, Shandong University, Control Sciences and Engineering School, China

Hao Ye, Department of Automation, Tsinghua University, China

Chuanfeng Ma, Shandong University, Control Sciences and Engineering School, China

Guizeng Wang, Department of Automation, Tsinghua University, China

ROBUST FAULT DETECTION AND ISOLATION

Tuesday 05-Jul-2005 11:00-13:00, Club E

Chair: ***Thomas Parisini, University of Trieste, Italy***

Co-Chair: ***Erik Frisk, Linköping University, Sweden***

5. (12:20) Robust FDI with Mixed H2/Hinfinity Criteria for Discrete-Time Linear Systems

Addison Rios-Bolivar, Universidad de Los Andes, Venezuela

Francklin Rivas-Echeverria, Universidad de Los Andes, Venezuela

Germain Garcia, LAAS-CNRS, France

6. (12:40) A Risk Adjusted Approach to Robust Simultaneous Fault Detection and Isolation

Mario Sznaier, Pennsylvania State University, United States

Wenjing Ma, Pennsylvania State University, United States

Constantino Lagoa, Pennsylvania State University, United States

REAL TIME OPTIMIZATION AND CONTROL OF PROCESS AND ENERGY SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Small Theatre

Organizer: ***B. Erik Ydstie, Carnegie Mellon, United States***

Co-Organizer ***Kwang Y. Lee, Pennsylvania State University, United States***

Chair: ***B. Erik Ydstie, Carnegie Mellon University, United States***

Co-Chair: ***Kwang Y. Lee, Pennsylvania State University, United States***

1. (11:00) Passivity Based Control and Optimization of a Silicon Process

Martin Ruszkowski, Carnegie Mellon University, United States

Mark Read, Carnegie Mellon University, United States

Robert Kaiser, Carnegie Mellon University, United States

Philip Richardson, Carnegie Mellon University, United States

Tom Kern, Carnegie Mellon University, United States

B. Erik Ydstie, Carnegie Mellon University, United States

2. (11:20) Adaptive Output feedback Extremum Seeking Control of Linear Systems

Martin Guay, Queen's University, Canada

Veronica Adetola, Queen's University, Canada

3. (11:40) Fuel Efficient Model Predictive Control of PEM Fuel Cells

Joshua Golbert, Technion, Israel

Daniel Lewin, Technion, Israel

4. (12:00) Multiobjective Optimal Power Plant Operation using Particle Swarm Optimization Technique

Kwang Y Lee, The Pennsylvania State University, United States

Jin S. Heo, The Pennsylvania State University, United States

Raul Garduno-Ramirez, Electric Research Institute, Mexico

REAL TIME OPTIMIZATION AND CONTROL OF PROCESS AND ENERGY SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Small Theatre

Organizer: ***B. Erik Ydstie, Carnegie Mellon, United States***

Co-Organizer ***Kwang Y. Lee, Pennsylvania State University, United States***

Chair: ***B. Erik Ydstie, Carnegie Mellon University, United States***

Co-Chair: ***Kwang Y. Lee, Pennsylvania State University, United States***

5. (12:20) Data mining techniques applied to power plant performance monitoring

Damian Flynn, The Queen's University of Belfast, United Kingdom

Julia Ritchie, The Queen's University of Belfast, United Kingdom

Michael Cregan, The Queen's University of Belfast, United Kingdom

6. (12:40) Online Optimal Operation Planning and Control of Cogeneration Systems

Yoshikazu Fukuyama, Fuji Electric Advanced Technology Ltd., Co., Japan

Shinji Kitagawa, Fuji Electric Advanced Technology Ltd., Co., Japan

Naoki Hayashi, Fuji Electric Advanced Technology Ltd., Co., Japan

Chikashi Nakazawa, Fuji Electric Advanced Technology Ltd., Co., Japan

VEHICLE DYNAMICS CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, Terrace 1

Chair: ***Uwe Kiencke, Universität Karlsruhe, Germany***

Co-Chair: ***Jörg Barrho, Universität Karlsruhe, Germany***

1. (11:00) Estimation of Elevation Difference Based on Vehicle's Inertial Sensors

Joerg Barrho, Universität Karlsruhe (TH), Germany

Marus Hiemer, Universität Karlsruhe (TH), Germany

Uwe Kiencke, Universität Karlsruhe (TH), Germany

Takanori Matsunaga, Mitsubishi Electric Corporation, Japan

2. (11:20) Estimation of Vehicle Roll Angle

Eve Ding, FH Gelsenkirchen, Germany

Thomas Massel, FH Gelsenkirchen, Germany

3. (11:40) Heavy-Duty Vehicle Rollover Detection and Active Roll Control

Hai Yu, the Ohio State University, United States

Levent Guvenc, Istanbul Technical University, Turkey

Umit Ozguner, The Ohio State University, United States

4. (12:00) Application of Combined Steering and Individual Wheel Braking Actuated Yaw Stability Control to a Realistic Vehicle Model

Eyup Serdar Ozturk, Istanbul Technical University, Turkey

Levent Guvenc, Istanbul Technical University, Turkey

Tevfik Yigit, Istanbul Technical University, Turkey

Bilin Aksun Guvenc, Istanbul Technical University, Turkey

5. (12:20) A New Control Strategy for a Semi-Active Differential (Part I)

Federico Cheli, Politecnico di Milano, Italy

Michele Giaramita, Ferrari Spa, Italy

Marco Pedrinelli, Politecnico di Milano, Italy

Germano Sandoni, MAGNA STEYR, Austria

Gian Claudio Travaglio, Consultant of Ferrari, Italy

VEHICLE DYNAMICS CONTROL I

Tuesday 05-Jul-2005 11:00-13:00, Terrace 1

Chair: ***Uwe Kiencke, Universität Karlsruhe, Germany***

Co-Chair: ***Jörg Barrho, Universität Karlsruhe, Germany***

6. (12:40) A New Control Strategy for a Semi-Active Differential (part II)

Ferruccio Resta, Politecnico di Milano, Italy

Gerald Teuschl, MAGNA STEYR, Austria

Mauro Zanchetta, Ferrari Spa, Italy

Andrea Zorzutti, Politecnico di Milano, Italy

ELECTRIC DISTRIBUTION SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Club B

Chair: ***Petr Neuman, NEUREG Association, Czech Republic***

Co-Chair: ***Paulo Franca, State University of Campinas, Brazil***

1. (11:00) Multiobjective Heuristic Search for Service Restoration in Electric Distribution Networks

Paulo Franca, State University of Campinas, Brazil

Vinicius Jacques Garcia, State University of Campinas, Brazil

2. (11:20) Service Restoration in Distribution Automation System Using Parallel Hybrid Genetic Algorithm-Tabu Search

Kyeong-Jun Mun, Pusan National University, Korea

Hwa-Seok Lee, Koje College, Korea

Hyung-Su Kim, Illinois Institute of Technology, United States

June Ho Park, Pusan National University, Korea

Ho Young Kim, Korea Electrotechnology Research Institute, Korea

Heon Oh Choi, Korea Institute of Machinery and Material, Korea

3. (11:40) Service Restoration for Multi-Outage Areas

Yong-Woo Jin, Myong-ji University, Korea

Xia Yang, Myong-ji University, Korea

Seong-Il Lim, Myong-ji University, Korea

Myeon-Song Choi, Myong-ji University, Korea

Seung-Jae Lee, Myong-ji University, Korea

4. (12:00) A Method to Determine the Relative Location of Voltage Sag Source for Power Quality Diagnosis

Seon-ju Ahn, Seoul National University, Korea

Dong-Jun Won, Seoul National University, Korea

Il-Yop Chung, Seoul National University, Korea

Seung-Il Moon, Seoul National University, Korea

ELECTRIC DISTRIBUTION SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Club B

Chair: ***Petr Neuman, NEUREG Association, Czech Republic***

Co-Chair: ***Paulo Franca, State University of Campinas, Brazil***

5. (12:20) Control Methods and Active Filter Topologies Applied for Flicker Mitigation

Jaroslav Doležal, Czech Technical University, Czech Republic

Josef Tlustý, Czech Technical University, Czech Republic

Viktor Valouch, Czech Academy of Science, Czech Republic

6. (12:40) Closed form estimation of boundary values in electrical distribution

Pavel Prautsch, University of West Bohemia in Pilsen, Czech Republic

Eduard Janeček, University of West Bohemia in Pilsen, Czech Republic

SOFT SENSORS AND PREDICTIVE CONTROL

Tuesday 05-Jul-2005 11:00-13:00, Club D

Chair: ***Sigeru Omatu, Osaka Prefecture University, Japan***

Co-Chair: ***Alex Alexandridis, National Technical University of Athens, Greece***

1. (11:00) Soft Sensor based on Fuzzy Model Identification

Elaine Y. Nagai, Federal Center of Technological Education of Parana / CEFET-PR, Brazil

Lucia Valeria Ramos de Arruda, Federal Center of Technological Education of Parana / CEFET-PR, Brazil

2. (11:20) On-Line Soft Sensor for Polyethylene Process with Multiple Production Grades

Jialin Liu, Fortune Institute of Technology, Taiwan

3. (11:40) Electronic Nose Systems for Fire Alarm Systems

Sigeru Omatu, Osaka Prefecture University, Japan

Bancha Charumporn, Osaka Prefecture University, Japan

Michifumi Yoshioka, Osaka Prefecture University, Japan

Toru Fujinaka, Osaka Prefecture University, Japan

Toshihisa Kosaka, Osaka Prefecture University, Japan

4. (12:00) Kinematic Prediction for Intercept Using a Neural Kalman Filter

Kathleen Kramer, University of San Diego, United States

Stephen Stubberud, The Boeing Company, United States

5. (12:20) A Prioritized Multiobjective MPC Configuration using Adaptive RBF Networks and Evolutionary Computation

Haralambos Sarimveis, National Technical University of Athens, Greece

Eleni Aggelogiannaki, National Technical University of Athens, Greece

Alex Alexandridis, National Technical University of Athens, Greece

6. (12:40) Genetic algorithm based on receding horizon control for real-time implementations in dynamic environments

XiaoBing Hu, Loughborough University, United Kingdom

Wen-Hua Chen, Loughborough University, United Kingdom

FUNDAMENTALS OF ROBUST CONTROL

Tuesday 05-Jul-2005 11:00-13:00, Club C

Chair: ***Mauricio de Oliveira, University of California San Diego, United States***

Co-Chair: ***Carsten W. Scherer, Delft University of Technology, Netherlands***

1. (11:00) A robust version of the elimination lemma

Mauricio de Oliveira, University of California San Diego, United States

2. (11:20) Quadratic performance analysis for finite-horizon systems

Hisaya Fujioka, Kyoto University, Japan

3. (11:40) On Numerically Verifiable Exactness of Multiplier Relaxations

Carsten W. Scherer, Delft University of Technology, Netherlands

4. (12:00) A Multivariate Polynomial Matrix Order-Reduction Algorithm for Linear Fractional Transformation Modelling

Andres Marcos, University of Leicester, United Kingdom

Declan G. Bates, University of Leicester, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

5. (12:20) Control-oriented properties preservation in linear systems when applying PR0 substitutions

Juan Carlos Martinez-Garcia, CINVESTAV-IPN, Mexico

Guillermo Fernandez-Anaya, Universidad Iberoamericana, Mexico

Vladimir Kucera, Czech Technical University, Czech Republic

Jose Job Flores-Godoy, Universidad Iberoamericana, Mexico

6. (12:40) J-Spectral Factorization via Similarity Transformations

Qing-Chang Zhong, University of Glamorgan, United Kingdom

LINEAR SYSTEMS I

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 2.2

Chair: ***Elena Zattoni, University of Bologna, Italy***

Co-Chair: ***Anna Soffía Hauksdóttir, University of Iceland, Iceland***

1. (11:00) **Robust Eigenstructure Assignment: New Approach**

Alireza Esna Ashari, University of Tehran, Iran

2. (11:20) **Using Post-Eigenstructure Assignment Design Freedom for the Imposition of Controller Structure**

Tim Clarke, University of York, United Kingdom

Andrew Pomfret, University of York, United Kingdom

3. (11:40) **Necessary and Sufficient Conditions for Parameter Insensitive Disturbance-Rejection Problems with Static Feedback**

Naohisa Otsuka, Tokyo Denki University, Japan

4. (12:00) **Zero Optimizing Continuous-Time Tracking and Disturbance Rejecting Controllers**

Anna Soffia Hauksdottir, University of Iceland, Iceland

Gisli Herjolfsson, University of Iceland, Iceland

Bergthor Aevarsson, University of Iceland, Iceland

Sven Th. Sigurdsson, University of Iceland, Iceland

5. (12:20) **Output feedback model matching through self-bounded controlled invariant subspaces**

Elena Zattoni, University of Bologna, Italy

Giovanni Marro, University of Bologna, Italy

6. (12:40) **Signal decoupling with preview: perfect solution for nonminimum-phase system in the geometric approach context**

Elena Zattoni, University of Bologna, Italy

Marro Giovanni, University of Bologna, Italy

SUPERVISORY CONTROL OF DISCRETE EVENT SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 4.1

Chair: ***Shigemasa Takai, Kyoto Institute of Technology, Japan***

Co-Chair: ***Hervé Marchand, IRISA/INRIA Rennes, France***

1. (11:00) Computation of closed, controllable, and weakly observable sublanguages for timed discrete event systems

Shigemasa Takai, Kyoto Institute of Technology, Japan

Toshimitsu Ushio, Osaka University, Japan

2. (11:20) Efficient Computation of supervisors for loosely synchronous Discrete Event Systems: A State-Based Approach

Benoit Gaudin, Vertecs Team, IRISA, France

Herve Marchand, Vertecs Team, IRISA, France

3. (11:40) Approximating Minimal Communicated Event Sets for Decentralized Supervisory Control

Kurt Rohloff, University of Illinois, United States

Jan H. van Schuppen, CWI, Netherlands

4. (12:00) On the supervisory control for state trajectory specifications in time-varying discrete-event systems

Martin Guay, Queen's University, Canada

I. Romanovski, Queen's University, Canada

K. Rudie, Queen's University, Canada

5. (12:20) Nonblocking Hierarchical Control of Decentralized DES

Klaus Schmidt, University of Erlangen-Nuremberg, Germany

Sebastian Perk, University of Erlangen-Nuremberg, Germany

Thomas Moor, University of Erlangen-Nuremberg, Germany

6. (12:40) Improving the behaviour of supervisor under blocking

Ozgur Turay Kaymakci, Istanbul Technical University, Turkey

Leyla Gören, Istanbul Technical University, Turkey

Salman Kurtulan, Istanbul Technical University, Turkey

EXPERIMENT DESIGN

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 4.2

Chair: ***Anthony Barker, University of Wales Swansea, United Kingdom***

Co-Chair: ***Michel Gevers, Université catholique de Louvain, Belgium***

1. (11:00) Application of Genetic Algorithms in Optimal Excitation and Controller Design

Marco Schoen, Idaho State University, United States

Feng Lin, Indiana Institute of Technology, United States

Sinchai Chinvorarat, King Mungkut's Institute of Technology, Thailand

2. (11:20) Identification of Quantum Systems: Maximum Likelihood and Optimal Experiment Design for State Tomography

Robert Kosut, SC Solutions, United States

Ian A. Walmsley, Oxford University, United Kingdom

Herschel Rabitz, Princeton University, United States

3. (11:40) Identification of a two-input system: variance analysis

Michel Gevers, Université catholique de Louvain, Belgium

Ljubisa Miskovic, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Dominique Bonvin, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Alireza Karimi, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

4. (12:00) Informative Experiment Design and Non-Parametric Identification of 6-DOF Motion Platform

Maria Isabel Parra Calvache, Delft University of Technology, Netherlands

Okko Bosgra, Delft University of Technology, Netherlands

Peter Valk, Delft University of Technology, Netherlands

5. (12:20) Optimal Sensor Locations for Nonparametric Identification of Viscoelastic Materials

Agnes Runqvist, Uppsala University, Sweden

Magnus Mossberg, Karlstad University, Sweden

Torsten Söderström, Uppsala University, Sweden

EXPERIMENT DESIGN

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 4.2

Chair: ***Anthony Barker, University of Wales Swansea, United Kingdom***

Co-Chair: ***Michel Gevers, Université catholique de Louvain, Belgium***

6. (12:40) The design of ternary perturbation signals for linear system identification

Tony Barker, University of Wales Swansea, United Kingdom

Ai Hui Tan, Multimedia University, Malaysia

Keith Godfrey, University of Warwick, United Kingdom

DYNAMIC GAMES: THEORY AND NUMERICAL METHODS

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 1.1

Organizer: ***Anatoli F. Kleimenov, Inst. Math.& Mech.UrBO RAN, Russian Federation***

Chair: ***Anatolii Kleimenov, Inst. Math.& Mech.UrBO RAN, Russian Federation***

Co-Chair: ***Hisham Abou-Kandil, SATIE (UMR 8029) ENS CACHAN, France***

1. (11:00) Multi-Equilibrium Solutions in Game-Control Problems of Timing

Alexander Tarasyev, Institute of Mathematics and Mechanics of the Ural Branch of the Russian Academy of Sciences, Russian Federation

Ger Klaassen, International Institute for Applied Systems Analysis, Austria

Arkadii Kryazhimskii, Steklov Mathematical Institute of the Russian Academy of Sciences, Russian Federation

2. (11:20) Group Differential Games for Multiparameter Singularly Perturbed Systems

Hiroaki Mukaidani, Hiroshima University, Japan

Hua Xu, The University of Tsukuba, Japan

Koich Mizukami, Hiroshima Kokusai Gakuin University, Japan

3. (11:40) Nash Strategy Applied to Active Magnetic Bearing Control

Marc Jungers, SATIE (UMR 8029) ENS CACHAN, France, Metropolitan

Ana Lucia Driemeyer Franco, DAS/CTC Federal University of Santa Catarina, Brazil

Edson De Pieri, DAS/CTC Federal University of Santa Catarina, Brazil

Hisham Abou-Kandil, SATIE (UMR 8029) ENS CACHAN, France, Metropolitan

4. (12:00) Cooperative Dynamics in a Repeated Three-person Game with Finite Number of Strategies

Anatoli F. Kleimenov, Inst. Math.& Mech.UrBO RAN, Russian Federation

Maxim A. Schneider, Ural State Economic University, Russian Federation

DYNAMIC GAMES: THEORY AND NUMERICAL METHODS

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 1.1

Organizer: ***Anatoli F. Kleimenov, Inst. Math.& Mech.UrBO RAN, Russian Federation***

Chair: ***Anatolii Kleimenov, Inst. Math.& Mech.UrBO RAN, Russian Federation***

Co-Chair: ***Hisham Abou-Kandil, SATIE (UMR 8029) ENS CACHAN, France***

5. (12:20) A Method to Solve Missile-Aircraft Pursuit-Evasion Differential Games

Fumiaki Imado, Shinshu University, Japan

Takeshi Kuroda, Mitsubishi Electric Corporation, Japan

6. (12:40) Differential Games with Uncertain Terminal Time

Ilan Rusnak, RAFAEL, Israel

Gyorgy Hexner, RAFAEL, Israel

Haim Weiss, RAFAEL, Israel

REAL-TIME EMBEDDED SYSTEMS

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 2.3

Chair: ***Martin Skambraks, FernUniversitaet in Hagen, Germany***

Co-Chair: ***G. Rez a Latif-Shabgahi, United Kingdom, Spain***

1. (11:00) Concepts for Real-Time Execution in Safety-Critical Applications

Martin Skambraks, FernUniversitaet in Hagen, Germany

2. (11:40) A Periodic Scheme for Pipelining Unstable Digital Controllers

Ran Yang, The University of Melbourne, Australia

Cishen Zhang, Nanyang Technological University, Singapore

Lihua Xie, Nanyang Technological University, Singapore

3. (12:00) A probabilistic approach to the stability analysis of real-time control systems

Manel Velasco, Technical University of Catalonia, Spain

Pau Martí, Technical University of Catalonia, Spain

Ricard Villà, Technical University of Catalonia, Spain

Josep M. Fuertes, Technical University of Catalonia, Spain

Jordi Ayza, Technical University of Catalonia, Spain

Miquel Monroig, Technical University of Catalonia, Spain

4. (12:20) An Optimal Extrapolator for Reducing Phase Delay of Sample Data-hold

Reza Shahnazi, Ferdowsi University of Mashhad, Mashhad, Iran, Iran

Hamid Khaloozadeh, K.N.Toosi University of Technology, Tehran, Iran, Iran

5. (12:40) Voting with Dynamic Threshacold Values for Real-time Fault Tolerant Control Systems

G. Reza Latif-Shabgahi, The Open University, United Kingdom

M. Osman Tokhi, The University of Sheffield, United Kingdom

M. Taghvaei, The Open University, United Kingdom

AUTOMOTIVE MECHATRONICS

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.1

Organizer: ***Rolf Isermann, University of Technology Darmstadt, Germany***

Chair: ***Rolf Isermann, TU Darmstadt, Germany***

Co-Chair: ***Katerina Hyniova, Czech Technical University, Czech Republic***

1. (11:00) **Accurate Modelling and Identification of Vehicle's Nonlinear Lateral Dynamics**

Houssem Abdellatif, Hannover Center of Mechatronics, University of Hannover, Germany

Bodo Heimann, Hannover Center of Mechatronics, University of Hannover, Germany

2. (11:20) **Switched H-infinity control strategy of automotive active suspensions**

Alessandro Zin, LAG-ENSIEG-BP 46, France, Metropolitan

Olivier Sename, LAG-ENSIEG-BP 46, France, Metropolitan

Luc Dugard, LAG-ENSIEG-BP 46, France, Metropolitan

3. (11:40) **Steer-by-wire Suspension and Steering Design for Controllability and Observability**

Shad Laws, Stanford University, United States

Christopher Gadda, Stanford University, United States

Scott Kohn, Stanford University, United States

Paul Yih, Stanford University, United States

J. Christian Gerdes, Stanford University, United States

J. Craig Milroy, Stanford University, United States

4. (12:00) **Path Planning for Automotive Collision Avoidance based on Elastic Bands**

Thorsten Brandt, University of Paderborn, Germany

Thomas Sattel, University of Paderborn, Germany

5. (12:20) **Model Based Braking Control with Support by Active Steering**

Matthias Schorn, TU Darmstadt, Germany

Jürgen Schmitt, TU Darmstadt, Germany

Ulrich Stählin, TU Darmstadt, Germany

Rolf Isermann, TU Darmstadt, Germany

AUTOMOTIVE MECHATRONICS

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.1

Organizer: ***Rolf Isermann, University of Technology Darmstadt, Germany***

Chair: ***Rolf Isermann, TU Darmstadt, Germany***

Co-Chair: ***Katerina Hyniova, Czech Technical University, Czech Republic***

6. (12:40) Observer based sensor monitoring in an active front steering system using explicit sensor failure modelling

Wolfgang Reinelt, ZF Lenksysteme, Germany

Christian Lundquist, ZF Lenksysteme, Germany

INTEROPERABILITY RESEARCH FOR NETWORKED ENTERPRISES APPLICATIONS AND SOFTWARE

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.2

Organizer: ***Hervé Panetto, University Henri Poincaré Nancy I, France***

Chair: ***Hervé Panetto, University Henri Poincaré Nancy I/CRAN, France***

Co-Chair: ***B. Valespir, University of Bordeaux 1/LAPS, France***

1. (11:00) Enterprise Modelling for Interoperability

Bruno Vallespir, University Bordeaux 1, France, Metropolitan

David Chen, University Bordeaux 1, France, Metropolitan

Yves Ducq, University Bordeaux 1, France, Metropolitan

2. (11:20) Common Enterprise Modelling Framework for Distributed Organisations

Frank-Walter Jaekel, Fraunhofer IPK-Berlin, Germany

Giuseppe Berio, Università di Torino, Italy

Kai Mertins, Fraunhofer IPK-Berlin, Germany

3. (11:40) Enterprise Modelling for Networked Enterprise: Interaction Aspects for a Training Organization

Francesca Scorziello, Politecnico di Bari, Italy

Michele Dassisti, Politecnico di Bari, Italy

Giuseppe Berio, Università degli Studi di Torino, Italy

4. (12:00) Interoperable Transactions for E-Business

Hans Weigand, Tilburg University, Netherlands

Sergei Artishchev, Tilburg University, Netherlands

5. (12:20) Applying the Unified Process to Large-Scale Ontology Building

Roberto Navigli, Università di Roma, Italy

Michele Missikoff, IASI-CNR, Italy

6. (12:40) Automatic Acquisition of a Thesaurus of Interoperability Terms

Paola Velardi, University of Roma, Italy

Roberto Navigli, University of Roma, Italy

INTELLIGENT VEHICLE CONTROL

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.3

Chair: ***Carlos Silvestre, Instituto Superior Tecnico, Portugal***

Co-Chair: ***Roy Smith, University of California, Santa Barbara, United States***

1. (11:00) A 3D Path-Following Velocity-Tracking Controller for Autonomous Vehicles

Rita Cunha, Instituto Superior Tecnico, Institute for Systems and Robotics, Portugal

Carlos Silvestre, Instituto Superior Tecnico, Institute for Systems and Robotics, Portugal

2. (11:20) Formation stabilization of nonlinear vehicles based on dynamic inversion and passivity

Tamas Peni, Computer and Automation Research Inst., HAS, Hungary

Jozsef Bokor, Computer and Automation Research Inst., HAS, Hungary

3. (11:40) Fusion of Hard and Soft Control for Uninhabited Aerial Vehicles

Randy C. Hoover, Idaho State University, United States

Marco P. Schoen, Idaho State University, United States

D. Subbaram Naidu, Idaho State University, United States

4. (12:00) Parallel Estimators and Communication in Spacecraft Formations

Roy Smith, University of California, United States

Fred Y. Hadaegh, Jet Propulsion Laboratory, United States

5. (12:20) Probabilistic Validation of Advanced Driver Assistance Systems

Olaf Gietelink, TNO Automotive, Netherlands

Bart De Schutter, Delft University of Technology, Netherlands

Michel Verhaegen, Delft University of Technology, Netherlands

INTELLIGENT VEHICLE CONTROL

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.3

Chair: ***Carlos Silvestre, Instituto Superior Tecnico, Portugal***

Co-Chair: ***Roy Smith, University of California, Santa Barbara, United States***

6. (12:40) Reconnaissance and Surveillance in Urban Terrain with Unmanned Aerial Vehicles

Tamir Hegazy, Georgia Institute of Technology, United States

Ben Ludington, Georgia Institute of Technology, United States

George Vachtsevanos, Georgia Institute of Technology, United States

CONTROL OF BIOTECHNOLOGICAL PROCESSES

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 4.3

Chair: ***Michel Perrier, Polytechnique de Montréal, Canada***

Co-Chair: ***Jaime Moreno, UNAM, Mexico***

1. (11:00) Hybrid Neural Network Models of Bioprocesses: A Comparative Study

Aline Grosfils, Université Libre de Bruxelles, Belgium

Alain Vande Wouwer, Faculté Polytechnique de Mons, Belgium

Philippe Bogaerts, Université Libre de Bruxelles, Belgium

2. (11:20) Applications of Coupling Analysis on Bioreactor Models

Björn Halvarsson, Uppsala University, Sweden

Pär Samuelsson, Uppsala University, Sweden

Bengt Carlsson, Uppsala University, Sweden

3. (11:40) Consistency Techniques for Simulation of Wastewater Treatment Processes with Uncertainties

Marco Kletting, University of Ulm, Germany

Andreas Rauh, University of Ulm, Germany

Harald Aschemann, University of Ulm, Germany

Eberhard P. Hofer, University of Ulm, Germany

4. (12:00) Control Strategies for Treating Toxic Wastewater using Bioreactors

Manuel J. Betancur, National University of Mexico, Mexico

Jaime A. Moreno, National University of Mexico, Mexico

Iván Moreno-Andrade, National University of Mexico, Mexico

Germán Buitron, National University of Mexico, Mexico

5. (12:20) State Estimation in Chromatographic SMB Processes with Linear Adsorption Isotherms

Achim Küpper, University Dortmund, Germany

Sebastian Engell, University Dortmund, Germany

CONTROL OF BIOTECHNOLOGICAL PROCESSES

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 4.3

Chair: ***Michel Perrier, Polytechnique de Montréal, Canada***

Co-Chair: ***Jaime Moreno, UNAM, Mexico***

6. (12:40) A systematic approach to SMB process model identification from SMB process data

Valerie Grofils, Université Libre de Bruxelles, Belgium

Caroline Levrie, Faculté Polytechnique de Mons, Belgium

Michel Kinnaert, Université Libre de Bruxelles, Belgium

Alain Vande Wouwer, Faculté Polytechnique de Mons, Belgium

AUTOMOTIVE DIAGNOSIS AND WARNING

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 2.1

Chair: ***Philipp Nenninger, Universität Karlsruhe, Germany***

Co-Chair: ***Erik Frisk, Linköping University, Sweden***

1. (11:00) Diagnosis and on-line parametric estimation of automotive electronic throttle control systems

Bilal Youssef, Lag-INPG, France

Mazen Alamir, Lag-INPG, France

2. (11:20) Detecting Knock in Spark Ignited Engines

Ylva Nilsson, Linköping University, Sweden

Erik Frisk, Linköping University, Sweden

3. (11:40) Driver Assistant for Warning of High Velocity (Field Operation Test)

Oleg Bauer, University of Siegen, Germany

Robert Mayr, University of Siegen, Germany

4. (12:00) Development of obstacle avoidance system using co-operative control

Yukihiro Fujiwara, Honda R&D, Japan

Yasushi Shoda, Honda R&D, Japan

Shuici Adachi, Utsunomiya University, Japan

5. (12:20) Improved System Architecture for Safety-Relevant Systems using Dynamic Distribution and State Buffering

Philipp Nenninger, University of Karlsruhe (TH), Germany

Oliver Rooks, University of Karlsruhe (TH), Germany

Uwe Kiencke, University of Karlsruhe (TH), Germany

6. (12:40) A New Concept for Yaw Rate Sensor Monitoring

Eve Ding, FH Gelsenkirchen, Germany

Thomas Massel, FH Gelsenkirchen, Gibraltar

PID STABILIZATION AND CONTROL

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.4

Chair: ***Alberto Leva, Politecnico di Milano, Italy***

Co-Chair: ***Petr Klan, Czech Academy of Sciences, Czech Republic***

1. (11:00) A Graphical Method for Computation of All stabilizing PI Controllers

Nusret Tan, Inonu University, Turkey

Ibrahim Kaya, Inonu University, Turkey

Derek P. Atherton, Sussex University, United Kingdom

2. (11:20) On aggressiveness of PI control

Petr Klan, Institute of Computer Science Prague, Czech Republic

Raymond Gorez, Centre for Systems Engineering and Applied Mechanics - Univ. Louvain, Belgium

3. (11:40) On the role of the process model in model-based autotuning

Alberto Leva, Politecnico di Milano, Italy

Francesco Schiavo, Politecnico di Milano, Italy

4. (12:00) PID Controller Synthesis Free of Analytical Models

L.H. Keel, Tennessee State University, United States

S.P. Bhattacharyya, Texas A&M University, United States

5. (12:20) Simple model-based PID autotuners with rapid relay identification

Alberto Leva, Politecnico di Milano, Italy

6. (12:40) Synthesis of Stabilizing PID Controllers for Biomechanical Models

Anindo Roy, University of Arkansas at Little Rock, United States

Kamran Iqbal, University of Arkansas at Little Rock, United States

NONLINEAR STABILIZATION I

Tuesday 05-Jul-2005 11:00-13:00, Meeting Room 3.5

Chair: ***Dragan Nesic, The University of Melbourne, Australia***

Co-Chair: ***Wei Lin, Case Western Reserve University, United States***

1. (11:00) Parametrization of supply rates for establishing ISS and prescribed dissipative properties of nonlinear interconnected systems

Hiroshi Ito, Kyushu Institute of Technology, Japan

2. (11:20) Non autonomous affine systems: Control Lyapunov Function and

Emmanuel Moulay, Ecole Centrale de Lille, France, Metropolitan

Wilfrid Perruquetti, Ecole Centrale de Lille, France, Metropolitan

3. (11:40) Stabilization of nonaffine nonlinear systems using time-scale separation

Amol Sasane, London School of Economics, United Kingdom

Naira Hovakimyan, Virginia Tech., United States

Eugene Lavretsky, The Boeing Company, United States

4. (12:00) Finite-Time Stabilization of Nonsmoothly Stabilizable Systems

Bo Yang, Case Western Reserve University, United States

Wei Lin, Case Western Reserve University, United States

5. (12:20) Discontinuous exponential stabilization of dynamic chained form systems

Nicolas Marchand, CNRS, France

6. (12:40) State Feedback Stabilization of a Class of Nonlinear Discrete-Time Delay Systems

Kheir Eddine Bouazza, UHP Nancy I, CRAN- CNRS UMR 7039, France

Mohamed Boutayeb, LSIIT, Université Louis Pasteur, Strasbourg, France

Mohamed Darouach, UHP Nancy, CRAN- CNRS UMR 7039, France

MODELING OF PHYSICAL SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Boris Rohal-Ilkiv, Slovak University of Technology, Slovakia***

1. (14:00) 3D identification of buildings seismically excited

Luis Alvarez-Icaza, Universidad Nacional Autónoma de México, Mexico

Juan Mauricio Angeles, Universidad Nacional Autónoma de México, Mexico

2. (14:00) Model of the cantilever used as a weak force sensor in Atomic Force Microscopy

Michal Hrouzek, UJF Grenoble, LAG - ENSIEG, France

Alina Voda, UJF Grenoble, LAG - ENSIEG, France

Martin Stark, UJF Grenoble, SPECTRO, France

Joel Chevrier, UJF Grenoble, LEPES - C.N.R.S., France

3. (14:00) Rigorous Modeling of a High Pressure Ethylene-Vinyl Acetate (EVA) Copolymerization Autoclave Reactor

I-Lung Chien, National Taiwan University of Science and Technology, Taiwan

Tze Wei Kan, National Taiwan University of Science and Technology, Taiwan

Bo-Shuo Chen, National Taiwan University of Science and Technology, Taiwan

4. (14:00) On-Line Identification of Hydrodynamics in Underwater Vehicles

Mario A. Jordan, Universidad Nacional del Sur, Argentina

Jorge L. Bustamante, Universidad Nacional del Sur, Argentina

Edwin Kreuzer, Technical University Harburg-Harburg, Germany

Volker Schlegel, Technical University Harburg-Harburg, Germany

MODELING OF PHYSICAL SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Boris Rohal-Ilkiv, Slovak University of Technology, Slovakia***

5. (14:00) Modelling of cement grinding circuits for predictive control

Jakob Kjøbsted Huusom, Technical University of Denmark, Denmark

Anker Degn Jensen, Technical University of Denmark, Denmark

Sten Bay Jørgensen, Technical University of Denmark, Denmark

Michael Michelsen, Technical University of Denmark, Denmark

Jørgen Knudsen, FLS-Automation A/S, Denmark

Bodil Recke, FLS-Automation A/S, Denmark

John Bagterp Jørgensen, 2-control Aps, Denmark

6. (14:00) Nonlinear Grey-Box Identification of Industrial Robots Containing Flexibilities

Erik Wernholt, Linkoping University, Sweden

Svante Gunnarsson, Linkoping University, Sweden

7. (14:00) Identification of physical parameters of a pneumatic servosystem

Minh Tu Pham, INSA de LYON, France

Mohamed Smaoui, INSA de LYON, France

Xavier Brun, INSA de LYON, France

Sylvie Sesmat, INSA de LYON, France

8. (14:00) Extended Moving Boundary Models for Two-Phase Flows

Luis Jose Yebra, C.I.E.M.A.T., Spain

Manuel Berenguel, U.A.L., Spain

Sebastian Dormido, U.N.E.D., Spain

9. (14:00) A methodology for identification of Narmax models applied to Diesel engines

Gianluca Zito, LAG, France

Ioan D. Landau, LAG, France

MODELING OF PHYSICAL SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Boris Rohal-Ilkiv, Slovak University of Technology, Slovakia***

10. (14:00) Identification of an LPV vehicle model based on experimental data

Gábor Rödönyi, Computer and Automation Research Institute, Hungary

József Bokor, Computer and Automation Research Institute, Hungary

11. (14:00) Microscale Thermal Characterization by Inverse Method in the Frequency Domain

Laurent Autrique, DGA, France

Jean Jacques Serra, DGA, France

12. (14:00) Hirarchical models of nonstationary flow in complex gas transmission networks

Akhmetzyanov Atlas, Institut of control Sciences, Russian Federation

13. (14:00) Dynamic observer model based on modular plant flowsheet

Michael Mulholland, UKZN, South Africa

John-Roy Vosloo, UKZN, South Africa

Brian Loveday, UKZN, South Africa

David Hulbert, MINTEK, South Africa

14. (14:00) An approach to model complex interdependent Infrastructures

Stefano Panzieri, Università degli Studi, Italy

Roberto Setola, Università Campus Biomedico, Roma, Italy, Italy

Giovanni Ulivi, Università degli Studi, Italy

15. (14:00) Approximate Realization of Valve Dynamics with Time Delay

Jan van Helvoirt, Technische Universiteit Eindhoven, Netherlands

Okko Bosgra, Technische Universiteit Eindhoven, Netherlands

Bram de Jager, Technische Universiteit Eindhoven, Netherlands

Maarten Steinbuch, Technische Universiteit Eindhoven, Netherlands

MODELING OF PHYSICAL SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Boris Rohal-Ilkiv, Slovak University of Technology, Slovakia***

16. (14:00) Mechanistic Modelling of Aggregation Phenomena in Population Balances of Granulation

Charles Immanuel, Imperial College London, United Kingdom

Francis Doyle, University of California at Santa Barbara, United States

IDENTIFICATION FOR CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Club H

Chair: ***Stephen Duncan, Oxford University, United Kingdom***

Co-Chair: ***Wouter Aangenent, Technische Universiteit Eindhoven, Netherlands***

1. (14:00) Mechatronics, Robotics and Components for Automation and Control

Anibal Ollero, University of Sevilla, Spain

Serge Boverie, Siemens Automotive, France

Roger Goodall, University of Loughborough, United Kingdom

Jurek Sasiadek, Carleton University, Canada

Heinz Erbe, TU Berlin, Germany

Detlef Zuehlke, University of Kaiserslautern, Germany1. (14:00) Active Noise Control in a Cavity using Interpolated models

Suwit Pulthasthan, University of New South Wales, Australia

Hemanshu R. Pota, University of New South Wales, Australia

2. (14:20) Model-Based Active Noise Control: A Case Study for a High-speed CD-ROM System

Zhenyu Yang, Aalborg University Esbjerg, Denmark

Youmin Zhang, Aalborg University Esbjerg, Denmark

D. M. Akbar Hussain, Aalborg University Esbjerg, Denmark

3. (14:40) Bayesian vector autoregression methods for multivariable control loop performance assessment in cross-directional control

Stephen Duncan, University of Oxford, United Kingdom

Andrew Taylor, University of Oxford, United Kingdom

4. (15:00) Data-based closed-loop system simulation

Faming Li, Univ. of California, San Diego, United States

Robert E. Skelton, Univ. of California, San Diego, United States

IDENTIFICATION FOR CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Club H

Chair: ***Stephen Duncan, Oxford University, United Kingdom***

Co-Chair: ***Wouter Aangenent, Technische Universiteit Eindhoven, Netherlands***

5. (15:20) Nonlinear Control of a Linear Motion System

Wouter Aangenent, Technische Universiteit Eindhoven, Netherlands

Rene van de Molengraft, Technische Universiteit Eindhoven, Netherlands

Maarten Steinbuch, Technische Universiteit Eindhoven, Netherlands

6. (15:40) Optimal Control for Active Identification of Unknown Systems

Marco Baglietto, University of Genoa, Italy

Giorgio Cannata, University of Genoa, Italy

Luca Scardovi, University of Genoa, Italy

Riccardo Zoppoli, University of Genoa, Italy

APPLICATIONS OF ADAPTIVE AND LEARNING CONTROL

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Jose Cesareo Raimundez Alvarez, Universidade de Vigo, Spain***

Co-Chair: ***Divas Karimanzira, TU-Ilmenau, Germany***

1. (14:00) The Modular Intelligent Being: review and a proposal

Sandor M Veres, University of Southampton, United Kingdom

2. (14:00) On the selection of appropriate control system design methodologies

Gerard Van Willigenburg, Wageningen University, Netherlands

W.L. De Koning, Delft University of Technology, Netherlands

Z.S. Chalabi, London School of Hygiene and Tropical Medicine, United Kingdom

M. Tchamitchian, INRA Bioclimatologie, France

G. Van Straten, Wageningen University, Netherlands

3. (14:00) A Novel PID-like Neural Network Controller

Shuang Cong, University of Science and Technology of China, China

Guodong Li, University of Science and Technology of China, China

Beichen Ji, University of Science and Technology of China, China

4. (14:00) Model-free Intelligent Control using Reinforcement Learning and Temporal Abstraction-applied to pH Control

Syafiie Syam, University of Valladolid, Spain

Fernando Tadeo, University of Valladolid, Spain

Ernesto Martinez, Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina

5. (14:00) Reinforcement Learning Control for Ship Steering using Recursive Least-Squares Algorithm

Zhipeng Shen, Dalian Maritime University,China, China

Chen guo, Dalian Maritime University,China, China

Shichun Yuan, Dalian Maritime University,China, China

APPLICATIONS OF ADAPTIVE AND LEARNING CONTROL

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Jose Cesareo Raimundez Alvarez, Universidade de Vigo, Spain***

Co-Chair: ***Divas Karimanzira, TU-Ilmenau, Germany***

6. (14:00) Predictive Adaptive feedforward control of a time scaled solar plant

Rui Neves-Silva, Univ Nova Lisbon, Portugal

Joao Lemos, INESC-ID/IST, Portugal

7. (14:00) Hierarchical Multiple Models Adaptive Decoupling Controller Applied to the Wind Tunnel System

Xin Wang, Shanghai Jiao Tong University, China

Shao-Yuan Li, Shanghai Jiao Tong University, China

Zhong-Jie Wang, Tongji University, China

8. (14:00) Using repetitive control to eliminate periodic disturbances in damper test rigs

Andrew Plummer, Instron Ltd, United Kingdom

Jari Hatonen, ACSE/The University of Sheffield, United Kingdom

David H. Owens, ACSE/The University of Sheffield, United Kingdom

9. (14:00) Unfalsified Control using an Ellipsoidal Unfalsified Region applied to a Motion System

Jeroen Helvoort, van, Technische Universiteit Eindhoven, Netherlands

Bram de Jager, Technische Universiteit Eindhoven, Netherlands

Maarten Steinbuch, Technische Universiteit Eindhoven, Netherlands

10. (14:00) Adaptive Control of a Shunt DC Motor with Persistent Excitation

Jeng Tze Huang, Vanung University of Technology, Taiwan

Yen Huei Chou, Vanung University of Technology, Taiwan

APPLICATIONS OF ADAPTIVE AND LEARNING CONTROL

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Jose Cesareo Raimundez Alvarez, Universidade de Vigo, Spain***

Co-Chair: ***Divas Karimanzira, TU-Ilmenau, Germany***

11. (14:00) Adaptive Output Feedback Control of a Scale Helicopter Restricted to a 2DoF Platform

José Cesáreo Raimúndez Álvarez, Universidad de Vigo, Spain

José Luis Camaño Portela, Universidad de Vigo, Spain

Manuel Béjar, Universidad de Sevilla, Spain

José Antonio García Baltar, Universidad de Vigo, Spain

12. (14:00) A Fuzzy-based Manoeuvre Management System For An Autonomous Underwater Vehicle

Divas Karimanzira, TU-Ilmenau, Germany

Peter Otto, TU-Ilemanu, Germany

Juergen Wernstedt, TU-Ilmenau, Germany

13. (14:00) Data Mining for Digital Mobile Telecommunication Network's Quality of Service Performance Measurements

Pekko Vehviläinen, Tampere University of Technology, Finland

NONLINEAR CONTROL SYSTEMS II

Tuesday 05-Jul-2005 14:00-16:00, Terrace 2

Chair: ***Chih-Jer Lin, Da-Yeh University, Taiwan***

Co-Chair: ***Seung-Hi Lee, Samsung Adv. Inst. of Tech., Korea***

1. (14:00) A novel control structure for dynamic inversion and tracking

Naim Bajcinca, DLR, Germany

Tilman Bünte, DLR, Germany

2. (14:20) Backstepping Control of a Class of Nonlinear Systems Preceded by Hysteresis with Prandtl-Ishlinskii Presentations

Chun-Yi Su, Concordia University, Canada

Qingqing Wang, Concordia University, Canada

Xinkai Chen, Shibaura Institute of Technology, Japan

Subhash Rakheja, Concordia University, Canada

3. (14:40) Longitudinal Control for a Laboratory Helicopter via Constructive Approximate Backstepping

Manuel Lopez-Martinez, University of Seville, Spain

F.R. Rubio, University of Seville, Spain

4. (15:00) LMI-based Synthesis of Anti-windup Filters with Pole Constraints

Chun-Chih Wang, University of California at Berkeley, United States

Masayoshi Tomizuka, University of California at Berkeley, United States

5. (15:20) Sliding Mode Proximate Time-Optimal Servomechanism

Seung-Hi Lee, Samsung Adv. Inst. of Tech., Korea

6. (15:40) Precise Positioning of Piezo-Actuated Stages Using Hysteresis-Observer Based Control

Chih-Jer Lin, Da-Yeh University, Taiwan

Sheng-Ren Yang, Da-Yeh University, Taiwan

PROCESS CONTROL APPLICATIONS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Francis Doyle, UCSB, United States***

Co-Chair: ***Jose Romagnoli, University of Sydney, Australia***

1. (14:00) A Novel Approach of Thermal Process Control for Uniform Temperature

Nobutomo Matsunaga, KUMAMOTO University, Japan

Shigeyasu Kawaji, KUMAMOTO University, Japan

Masahito Tanaka, OMRON corporation, Japan

Ikuo Nanno, OMRON corporation, Japan

2. (14:00) An Adaptive GMC Algorithm in Application to pH Process

Krzysztof Stebel, Silesian University of Technology, Poland

3. (14:00) Band Control: Concepts and Application in Dampening Oscillations of Feed of Petroleum Production Units

Giovani Cavalcanti Nunes, Petrobras, Brazil

Antonio Augusto Rodrigues Coelho, Federal University of Santa Catarina, Brazil

Rodrigo Rodrigues Sumar, Federal University of Santa Catarina, Brazil

Rodrigo Iván Goytia Mejia, Federal University of Santa Catarina, Brazil

4. (14:00) Cascade control experiments of riser slug flow using topside measurements

Heidi Sivertsen, NTNU, Norway

Sigurd Skogestad, NTNU, Norway

5. (14:00) Control of pH in a Laboratory Fermenter Using Neuro-Fuzzy Technique

Ľubomir Šperka, Slovak University of Technology, Slovakia

Alois Mészáros, Slovak University of Technology, Slovakia

Peter Mizsey, Budapest University of Technology and Economics, Hungary

6. (14:00) Design and Control of Butyl Acrylate Reactive Distillation Column System

I-Lung Chien, National Taiwan University of Science and Technology, Taiwan

Kai-Luen Zeng, National Taiwan University of Science and Technology, Taiwan

PROCESS CONTROL APPLICATIONS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Francis Doyle, UCSB, United States***

Co-Chair: ***Jose Romagnoli, University of Sydney, Australia***

7. (14:00) Distributed Continuous Process Simulation: An Industrial Case Study

Raul Alves Santos, Federal University of Santa Catarina, Brazil

Julio E. Normey-Rico, Federal University of Santa Catarina, Brazil

Alejandro Merino Gómez, Center of Sugar Technology, Spain

Cesar de Prada Moraga, University of Valladolid, Spain

8. (14:00) Experimental evaluation of a Plug&Control strategy for level control

Antonio Visioli, University of Brescia, Italy

9. (14:00) Fuzzy Activated Neural Models for Product Quality Monitoring in Refineries

Maria Gabriella Xibilia, Università di Messina, Italy

Luigi Fortuna, Università di Catania, Italy

Salvatore Graziani, Università di Catania, Italy

Nicola Barbalace, Università di Messina, Italy

10. (14:00) Fuzzy robust tracking of a bioreactor

Juan Paulo Garcia Sandoval, Cinvestav, Mexico

Castillo-Toledo Bernardino, Cinvestav, Mexico

Gonzalez-Alvarez Victor, Universidad de Guadalajara, Mexico

11. (14:00) Hybrid Model of a Gasification Plant

Silvia Maria Zanoli, Univ Politecnica delle Marche, Italy

Tommaso Leo, Univ Politecnica delle Marche, Italy

Luca Barboni, A.P.I. Refinery Falconara, Italy

12. (14:00) Iterative Nonlinear Model Predictive Control of a pH Reactor. A Comparative Analysis

Carlos Bordons, University of Seville, Spain

Jose R. Cueli, University of Seville, Spain

PROCESS CONTROL APPLICATIONS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Francis Doyle, UCSB, United States***

Co-Chair: ***Jose Romagnoli, University of Sydney, Australia***

13. (14:00) Metastable Limit Dynamics and Optimal Cooling Curve of Batch Seeded Crystallization

Kwang Soon Lee, Sogang University, Korea

Seunghee Won, Sogang University, Korea

Chung S. Choi, Sogang University, Korea

Ju-Seok Lee, Korea University, Korea

Daeryook Yang, Korea University, Korea

14. (14:00) Modelling for thermal control of vacuum plasma spraying

Ewan Davis, University of Oxford, United Kingdom

Stephen Duncan, University of Oxford, United Kingdom

Patrick Grant, University of Oxford, United Kingdom

15. (14:00) Neuro-fuzzy control of a pH Plant

M.J. Fuente, Dpto. Systems Engineering and Automatic Control. Science Faculty. Univeristy of Valladolid, Spain

G.I. Sainz, Dpto. Systems Engineering and Automatic Control. ETSII. University of Valladolid, Spain

M. Alonso, Dpto. Systems Engineering and Automatic Control. Science Faculty. Univeristy of Valladolid, Spain

A. Aguado, Dpto. Automatic Control. ICIMAF, Cuba

16. (14:00) Real Time Optimizing Control of a Class of Crude Oil Blending Operations

America Morales-Diaz, Instituto Mexicano del Petroleo, Mexico

Alejandro Rodriguez-Angeles, Instituto Mexicano del Petroleo, Mexico

Anibal Blanco, Instituto Mexicano del Petroleo, Mexico

Arturo Snachez, CINVESTAV, Mexico

PROCESS CONTROL APPLICATIONS

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Francis Doyle, UCSB, United States***

Co-Chair: ***Jose Romagnoli, University of Sydney, Australia***

17. (14:00) Robust Decentralized Control of Reactive Distillation Process in Dimethylacetamide Production

Andrei Torgashov, Institute of Automation and Control Processes FEB RAS, Russian Federation

Kyung Chul Park, Samsung Fine Chemicals Co. Ltd., Korea

Nam Sig Kang, Samsung Fine Chemicals Co. Ltd., Korea

18. (14:00) The Advanced Process Control System for an Industrial Distillation Column

Shi Zhang, Nanjing University of Technology, China

Cuimei Bo, Nanjing University of Technology, China

Bin Li, Nanjing University of Technology, China

Yonghua Wang, Nanjing University of Technology, China

19. (14:00) Visualizing yield profiles in continuous cooking processes

Timo Ahvenlampi, University of Oulu, Finland

Rami Rantanen, University of Oulu, Finland

Urpo Kortela, University of Oulu, Finland

ADVANCES IN PROCESS CONTROL

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Thomas McAvoy, University of Maryland, United States***

Co-Chair: ***Antonios Armaou, Pennsylvania State University, United States***

1. (14:00) A Two-Stage Algorithm for Combined Iterative Learning Control with Real-Time Feedback; A State Space Formulation

Kwang Soon Lee, Sogang University, Korea

Insik Chin, Samsung Co., Korea

Moonki Cho, Conwell Ltd. Co., Korea

S. Joe Qin, University of Texas at Austin, United States

2. (14:00) Actuator and Component Fault Isolation in a Fluid Catalytic Cracking Unit

Efrain Alcorta-Garcia, Universidad Autonoma de Nuevo Leon, Mexico

Plinio de Leon-Canton, Universidad Autonoma de Nuevo Leon, Mexico

Oscar A. Z. Sotomayor, University of Sao Paulo, Brazil

Darci Odloak, University of Sao Paulo, Brazil

3. (14:00) An Application of the Virtual Reference Feedback Tuning Method to a Multivariable Process Control

Masashi Nakamoto, Toshiba Corporation, Japan

4. (14:00) Assessment of tuning of PI controllers for self-regulating processes

Antonio Visioli, University of Brescia, Italy

5. (14:00) Control for recycle systems based on a discrete time model approximation

Basilio del-Muro-Cuellar, PIMAyC, Mexico

Martin Velasco-Villa, CINVESTAV-IPN, Mexico

Hector Puebla, PIMAyC, Mexico

Jose Alvarez-Ramirez, PIMAyC, Mexico

6. (14:00) Control of a heat exchanger using an iterative design

Julio-Ariel Romero, University Jaume I, Spain

Antonio Campo, The University of Vermont, United States

Pedro Albertos, Polytechnic University of Valencia, Spain

ADVANCES IN PROCESS CONTROL

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Thomas McAvoy, University of Maryland, United States***

Co-Chair: ***Antonios Armaou, Pennsylvania State University, United States***

7. (14:00) Design and Experimental Evaluation of a Data-Based Self-Tuning PID Controller

Kenji Takao, Hiroshima Univ., Japan

Toru Yamamoto, Hiroshima Univ., Japan

Takao Hinamoto, Hiroshima Univ., Japan

8. (14:00) Improved state estimation in an MPC algorithm based on fuzzy decision

Nima Daneshpour, Iran university of science and technology, Iran

Mohammad Reza Jahed Motlagh, Iran university of science and technology, Iran

9. (14:00) Integrated Batch-to-Batch Iterative Learning Control and within Batch Control of Product Quality for Batch Processes

Zhihua Xiong, Tsinghua University, China, China

Jie Zhang, University of Newcastle, Newcastle upon Tyne, UK, United Kingdom

Xiong Wang, Tsinghua University, China, China

Yongmao Xu, Tsinghua University, China, China

10. (14:00) Investigation of Dynamic Multivariate Processes Monitoring

Lei Xie, National Key Laboratory of Industrial Control Technology, Zhejiang University, China

Shu-qing wang, National Key Laboratory of Industrial Control Technology, Zhejiang University, China

Jian-ming Zhang, National Key Laboratory of Industrial Control Technology,Zhejiang University, China

ADVANCES IN PROCESS CONTROL

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Thomas McAvoy, University of Maryland, United States***

Co-Chair: ***Antonios Armaou, Pennsylvania State University, United States***

11. (14:00) MODELCAT - A Model Catalogue based Approach to Process Modelling

Markus Hoyer, University of Applied Sciences and Arts Hannover, Germany

Reimar Schumann, University of Applied Sciences and Arts Hannover, Germany

Guiliano C. Premier, University of Glamorgan, United Kingdom

12. (14:00) Nonlinear model predictive control with moving-horizon state and disturbance estimation - with application to MSW combustion

Martijn Leskens, TNO Science and Industry, Netherlands

L.B.M. van Kessel, TNO Science and Industry, Netherlands

P.M.J. Van den Hof, Delft University of Technology, Netherlands

O.H. Bosgra, Delft University of Technology, Netherlands

13. (14:00) Optimal control of dispersive tubular chemical reactors: Part II.

Filip Logist, Katholieke Universiteit Leuven, Belgium

Ilse Smets, Katholieke Universiteit Leuven, Belgium

Alain Vande Wouwer, Faculté Polytechnique de Mons, Belgium

Jan F.M. Van Impe, Katholieke Universiteit Leuven, Belgium

14. (14:00) PID Controller Approximating GMVC with Pole-Placement Using Steady-State Predictive Output

Takao Sato, University of Hyogo, Japan

Akira Inoue, Okayama University, Japan

15. (14:00) Predictive Control of a Process with Variable Dead-time

Cesar de Prada, University of Valladolid, Spain

Smaranda Cristea, University of Valladolid, Spain

Robin de Keyser, University of Ghent, Belgium

NEW TOPICS IN AUTOMOTIVE CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Club A

Chair: ***Gerard Gissinger, University Haute-Alsace, France***

Co-Chair: ***Riccardo Scattolini, Politecnica Milano, Italy***

1. (14:00) Design of a Coupled Longitudinal-lateral Trajectographic Driver Model

Jean-Philippe Lauffenburger, UHA-MIPS, France

Michel Basset, UHA-MIPS, France

Gérard-Léon Gissinger, UHA-MIPS, France

2. (14:20) Experimental Robustness of FxLMS and Disturbance-Observer Algorithms for Active Vibration Control in Automotive Applications

Konrad Kowalczyk, University of the German Armed Forces, Munich, Germany

Ferdinand Svaricek, University of the German Armed Forces, Munich, Germany

3. (14:40) A Multivariable Adaptive Control Strategy to Regulate the Separated Flow Behind a Backward-Facing Step

Maiko Garwon, berlin university of technology, Germany

Rudibert King, berlin university of technology, Germany

4. (15:00) Modelling and control of an onboard fuel processor for indirect methanol fuel cell vehicles

Alessandro Miotti, Politecnico di Milano, Italy

Riccardo Scattolini, Politecnico di Milano, Italy

5. (15:20) Engine sound comfortability: relevant sound quality parameters and classification

Tom Coen, Katholieke Universiteit Leuven, Belgium

Noël Jans, Katholieke Universiteit Leuven, Belgium

Patrick Van de Ponseele, LMS International, Belgium

Ivan Goethals, Katholieke Universiteit Leuven, Belgium

Josse De Baerdemaeker, Katholieke Universiteit Leuven, Belgium

Bart De Moor, Katholieke Universiteit Leuven, Belgium

NEW TOPICS IN AUTOMOTIVE CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Club A

Chair: ***Gerard Gissinger, University Haute-Alsace, France***

Co-Chair: ***Riccardo Scattolini, Politecnica Milano, Italy***

6. (15:40) A Magneto-Elastic Sensor for Measuring Pressure Oscillations in Common Rail Systems

Julian Baumann, University of Karlsruhe, Germany

Dirk Goeger, University of Karlsruhe, Germany

Uwe Kiencke, University of Karlsruhe, Germany

TELEMATICS APPLICATIONS AND NETWORKING

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Hubert Roth, Universitaet Siegen, Germany***

Co-Chair: ***Aarne Halme, Helsinki University of Technology, Finland***

1. (14:00) A New Active Queue Management Algorithm based on Neural Networks PI

Mojtaba Yaghoubi Waskasi, University of Tehran, Iran

Mohammad Javad Yazdanpanah, University of Tehran, Iran

Nasser Yazdani, University of Tehran, Iran

2. (14:00) A Space-Division Wireless Communication System for Ad hoc Networking and Cooperative Localization of Multiple Mobile Robots

Gen'ichi Yasuda, Nagasaki Institute of Applied Science, Japan

Hiroyuki Takai, Hiroshima City University, Japan

Keihachiro Tachibana, Hiroshima City University, Japan

3. (14:00) Automation and Telematics for Assisting People Living at Home

Panu Harmo, Helsinki University of Technology, Finland

Jere Knuuttila, Helsinki University of Technology, Finland

Tapio Taipalus, Helsinki University of Technology, Finland

José Vallet, Helsinki University of Technology, Finland

Aarne Halme, Helsinki University of Technology, Finland

4. (14:00) Communication-Induced Disturbances in Haptic Telepresence Systems

Sandra Hirche, Technische Universität München, Germany

Martin Kuschel, Technische Universität München, Germany

Martin Buss, Technische Universität München, Germany

5. (14:00) Fieldbus Integration to the Realtime Ethernet Standard PROFINET

Juergen Jasperneite, Phoenix Contact, Germany

6. (14:00) H-infinity-based Flow Control for ATM Networks with Multiple Bottlenecks

Inci Munyas-Elmas, Anadolu University, Turkey

Altug Iftar, Anadolu University, Turkey

TELEMATICS APPLICATIONS AND NETWORKING

Tuesday 05-Jul-2005 14:00-16:00, North Hall

Chair: ***Hubert Roth, Universitaet Siegen, Germany***

Co-Chair: ***Aarne Halme, Helsinki University of Technology, Finland***

7. (14:00) Message delay in distributed control systems through Ethernet

Antoni Grau, Technical Univ. of Catalonia, Spain

Juan Gamiz-Caro, Technical Univ. of Catalonia, Spain

8. (14:00) New Congestion Control Schemes over Wireless Networks: Delay Sensitivity Analysis and Simulations

Alessandro Abate, University of California, at Berkeley, United States

Minghua Chen, University of California, at Berkeley, United States

Shankar Sastry, University of California, at Berkeley, United States

9. (14:00) Quality of Service in Network-based Automation

Tom Artell, Tampere University of Technology, Finland

Hannu Koivisto, Tampere University of Technology, Finland

Jari Seppala, Tampere University of Technology, Finland

Timo Ruohonen, Tampere University of Technology, Finland

SIGNAL BASED FAULT DETECTION AND ISOLATION

Tuesday 05-Jul-2005 14:00-16:00, Club E

Chair: ***Sylviane Gentil, INPG, France***

Co-Chair: ***Ali Cinar, Illinois Institute of Technology, United States***

1. (14:00) Dempster-shafer Theory based Multi-class Support Vector Machines and their Applications

Hu Zhonghui, Shanghai Jiaotong University, China

Yin Rupo, Shanghai Jiaotong University, China

Li Yuangui, Shanghai Jiaotong University, China

Xu Xiaoming, Shanghai Jiaotong University, China

2. (14:20) Sensor Fault Detection and Isolation of an Air Quality Monitoring Network Using Nonlinear Principal component Analysis

Mohamed-Faouzi Harkat, Université de ANNABA, Algeria

José Ragot, CRAN - INPL, France

Gilles Mourot, CRAN-INPL, France

3. (14:40) Fault Detection and Isolation using Correspondence Analysis

Ravindra Gudi, IIT Bombay, India

Ketan Detroja, IIT Bombay, India

Sachin Patwardhan, IIT Bombay, India

4. (15:00) Industrial Supervision System based on Visual Data Mining and Motion Trajectory Analysis

Juan José Fuertes Martínez, Universidad de León, Spain

Perfecto Reguera Acevedo, Universidad de León, Spain

Manuel Dominguez González, Universidad de León, Spain

Ignacio Díaz Blanco, Universidad de Oviedo, Spain

Abel Alberto Cuadrado Vega, Universidad de Oviedo, Spain

5. (15:20) Subspace method aided data-driven design of observer based fault detection systems

Steven Ding, University of Duisburg-Essen, Germany

Ping Zhang, University of Duisburg-Essen, Germany

Biao Huang, University of Alberta, Canada

Eve Ding, University of Applied Science Gelsenkirchen, Germany

SIGNAL BASED FAULT DETECTION AND ISOLATION

Tuesday 05-Jul-2005 14:00-16:00, Club E

Chair: ***Sylviane Gentil, INPG, France***

Co-Chair: ***Ali Cinar, Illinois Institute of Technology, United States***

6. (15:40) Performance Analysis for Directional Residual Based Fault Isolation

Yongtong Hu, George Mason University, United States

Janos Gertler, George Mason University, United States

ROLLING MILLS I

Tuesday 05-Jul-2005 14:00-16:00, Small Theatre

Organizer: ***Sangchul Won, Pohang University of Science and Technology, Korea***

Co-Organizer ***Kazuya Asano, JFE R&D Corporation, Japan***

Chair: ***Schlacher Kurt, University of Linz, Austria***

Co-Chair: ***Mahfouf Mahdi, The University of Sheffield, United Kingdom***

1. (14:00) Active Vibration Rejection in Steel Rolling Mills

Kurt Schlacher, University of Linz, Austria

Stefan Fuchshumer, University of Linz, Austria

Gernot Grabmair, University of Linz, Austria

Johann Holl, University of Linz, Austria

Georg Keintzel, VOEST ALPINE Industrieanlagenbau Linz, Austria

2. (14:20) Advanced Tension Control Based on State Feedback For Reversing Mills

Kazuya Asano, JFE R&D Corporation, Japan

Hiroyuki Takahashi, JFE Advantech Co., Ltd., Japan

Takeshi Miyata, JFE Steel Corporation, Japan

Yoshitake Kohiro, JFE Steel Corporation, Japan

3. (14:40) Modeling and Control of Plate Thickness in Hot Rolling Mills

Andreas Kugi, Saarland University, Germany

Roland Heeg, Saarland University, Germany

Olivier Fichet, AG der Dillinger Hüttenwerke, Germany

Laurent Irastorza, GTS Industries Group Dillinger Hütte, France

Christophe Pelletier, AG der Dillinger Hüttenwerke, Germany

4. (15:00) VSS Control of Strip Steering for Hot Rolling Mills

Masayasu Okada, JFE Steel Corporation, Japan

Kaoru Murayama, JFE Steel Corporation, Japan

Yoshinori Anabuki, JFE Steel Corporation, Japan

Yoshitaka Hayashi, JFE Steel Corporation, Japan

ROLLING MILLS I

Tuesday 05-Jul-2005 14:00-16:00, Small Theatre

Organizer: ***Sangchul Won, Pohang University of Science and Technology, Korea***

Co-Organizer ***Kazuya Asano, JFE R&D Corporation, Japan***

Chair: ***Schlacher Kurt, University of Linz, Austria***

Co-Chair: ***Mahfouf Mahdi, The University of Sheffield, United Kingdom***

5. (15:20) Bayes for Rolling Mills: From Parameter Estimation to Decision Support

Pavel Ettler, COMPUREG Plzen, s.r.o., Czech Republic

Miroslav Karny, UTIA, Czech Academy of Sciences, Czech Republic

Tatiana Valentine Guy, UTIA, Czech Academy of Sciences, Czech Republic

VEHICLE DYNAMICS CONTROL II

Tuesday 05-Jul-2005 14:00-16:00, Terrace 1

Chair: ***Sergio Savaresi, Politecnico Milano, Italy***

Co-Chair: ***Dirk Abel, Aachen University, Germany***

1. (14:00) Robust Yaw Control Design with Active Differential and Active Roll Control Systems

Johannes Gerhard, RWTH Aachen University, Germany

Maria-Christina Laiou, RWTH Aachen University, Germany

Martin Mönnigmann, RWTH Aachen University, Germany

Wolfgang Marquardt, RWTH Aachen University, Germany

Mohsen Lakehal-Ayat, Ford Motor Company, Germany

Edo Aneke, Ford Motor Company, Germany

Rainer Busch, Ford Motor Company, Germany

2. (14:20) Modelling and Control of a Vehicle with Single-wheel Chassis Actuators

Ralf Orend, Universität Erlangen-Nürnberg, Germany

3. (14:40) Application of Model-Based Predictive and Robust Loop Shaping Control to Automatic Car Steering

Zambou Nathan, RWTH Aachen University, Germany

Alexander Bollig, RWTH Aachen University, Germany

Dirk Abel, RWTH Aachen University, Germany

Karl Heinz Siedersberger, Audi AG I/EF-56, Germany

Karin Müller, Audi AG I/EF-56, Germany

4. (15:00) Vehicle Steering Control Based on Estimation of Equivalent Input Disturbance

Jin-Hua She, Tokyo University of Technology, Japan

Xin Xin, Okayama Prefectural University, Japan

Yasuhiro Ohyama, Tokyo University of Technology, Japan

Min Wu, Central South University, China

Hiroyuki Kobayashi, Tokyo University of Technology, Japan

5. (15:20) Nonlinear Backstepping Design of Anti-lock Braking Systems with Assistance of Active Suspensions

Jung-Shan Lin, National Chi Nan University, Taiwan

Wei-En Ting, National Chi Nan University, Taiwan

VEHICLE DYNAMICS CONTROL II

Tuesday 05-Jul-2005 14:00-16:00, Terrace 1

Chair: ***Sergio Savaresi, Politecnico Milano, Italy***

Co-Chair: ***Dirk Abel, Aachen University, Germany***

6. (15:40) Slip-Deceleration Control in Anti-Lock Braking Systems

Sergio M. Savaresi, Politecnico di Milano, Italy
Mara Tanelli, Politecnico di Milano, Italy
Carlo Cantoni, Brembo, Italy
Demos Charalambakis, Brembo, Italy
Fabio Previdi, University of Bergamo, Italy
Sergio Bittanti, Politecnico di Milano, Italy

POWER SYSTEM STABILITY

Tuesday 05-Jul-2005 14:00-16:00, Club B

Chair: ***David Hill, City University of Hong Kong, Hong Kong***

Co-Chair: ***Istvan Erlich, University of Duisburg-Essen, Germany***

1. (14:00) Global Stability Control of Power Systems

Joseph S. K. Leung, City University of Hong Kong, Hong Kong

David J. Hill, City University of Hong Kong, Hong Kong

2. (14:20) Signal-Based Instability Monitoring of Electric Power Systems

Munther A. Hassouneh, University of Maryland, United States

Mohamed S. Saad, University of Maryland, United States

Eyad H. Abed, University of Maryland, United States

3. (14:40) Implicit Quadratic Integral Method for Transient Stability in Power Systems

JOng-Gi Lee, Yonsei University, Korea

Yong-Jun Kwon, Yonsei University, Korea

Young-Hyun Moon, Yonsei University, Korea

RimTaig Lee, Northeast Asian Energy Forum, Korea

4. (15:00) Robust Decentralized Controller Design for Power Systems using Convex Optimization involving LMIs

Istvan Erlich, University of Duisburg-Essen, Germany

Getachew K. Befekadu, University of Duisburg-Essen, Germany

5. (15:20) Ant Colony Optimization For Active/Reactive Operational Planning

Kwang Y. Lee, The Pennsylvania State University, United States

John G. Vlachogiannis, Industrial & Energy Informatics Laboratory, Greece

6. (15:40) Nodal voltage control in power systems based on the model-reference adaptive approach

Giuseppe Fusco, University of Cassino, Italy

Mario Russo, University of Cassino, Italy

NEURAL CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Club D

Chair: ***Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic***

Co-Chair: ***Tianyou Chai, Northeastern University, China***

1. (14:00) An RBF based Neuro-dynamic Approach for the Control of Stochastic Dynamic Systems

Haralambos Sarimveis, National Technical University of Athens, Greece

Panagiotis K. Patrinos, National Technical University of Athens, Greece

2. (14:20) Neural network based bicriterial dual control of nonlinear systems

Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic

Ladislav Kral, University of West Bohemia in Pilsen, Czech Republic

Pavel Hering, University of West Bohemia in Pilsen, Czech Republic

3. (14:40) Design of a Neural Network Based SVC Controller

Hong Wang, University of Calgary, Canada

O.P. Malik, University of Calgary, Canada

4. (15:00) Intelligent Decoupling Control System of Complex Industrial Process and Application

Tianyou Chai, Northeastern University, China

Heng Yue, Northeastern University, China

Lianfei Zhai, Northeastern University, China

5. (15:20) Real-TimeTracking Control Embedded with Biological Neurons for a Class of Mobile Robots

Shirong Liu, Ningbo University, China

Simon X. Yang, University of Guelph, Canada

Huidi Zhang, Ningbo University, China

6. (15:40) Uncertainty in Control Problems: A Survey

Randa Herzallah, Al-Balqa' Applied University, Jordan

ROBUST MODEL PREDICTIVE CONTROL

Tuesday 05-Jul-2005 14:00-16:00, Club C

Chair: ***Roberto Tempo, CNR - IEIIT, Italy***

Co-Chair: ***John Anthony Rossiter, University of Sheffield, United Kingdom***

1. (14:00) Optimizing prediction dynamics for robust MPC

Mark Cannon, University of Oxford, United Kingdom

Basil Kouvaritakis, University of Oxford, United Kingdom

2. (14:20) Constrained Robust Model Predictive Control based on Periodic Invariance

Young Il Lee, Seoul National University of Technology, Korea

Basil Kouvaritakis, Oxford University, United Kingdom

3. (14:40) An Efficient Decomposition-Based Formulation for Robust Control with Constraints

Paul Goulart, University of Cambridge, United Kingdom

Eric Kerrigan, University of Cambridge, United Kingdom

4. (15:00) A simple algorithm for robust MPC

John Rossiter, University of Sheffield, United Kingdom

B Pluymers, Katholieke Universiteit Leuven, Belgium

J.A.K. Suykens, Katholieke Universiteit Leuven, Belgium

B. De Moor, Katholieke Universiteit Leuven, Belgium

5. (15:20) Min-Max Model Predictive Control as a Quadratic Program

David Muñoz de la Peña, Universidad de Sevilla, Spain

Teodoro Alamo, Universidad de Sevilla, Spain

Daniel Rodriguez Ramirez, Universidad de Sevilla, Spain

Eduardo Fernandez Camacho, Universidad de Sevilla, Spain

6. (15:40) Output Feedback Model Predictive Control of Uncertain Norm-Bounded Linear Systems

Giuseppe Franzè, Università della Calabria, Italy

Alessandro Casavola, Università della Calabria, Italy

Domenico Famularo, Università degli studi di Reggio Calabria, Italy

LINEAR SYSTEMS II

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 2.2

Chair: ***Michel Malabre, Inst. de Recherche en Communications et Cybernetique de Nantes, France***

Co-Chair: ***Boris T. Polyak, Institute for Control Science, France***

1. (14:00) Controllability of Processes with Large Gains

Antonio Araujo, Norwegian University of Science and Technology - NTNU, Norway

Sigurd Skogestad, Norwegian University of Science and Technology - NTNU, Norway

2. (14:20) On Controllability of Linear Systems with Positive Control

Martin E. Frias, University of Sonora, Mexico

Fernando Verduzco, University of Sonora, Mexico

Horacio Leyva, University of Sonora, Mexico

F. Armando Carrillo, University of Sonora, Mexico

3. (14:40) Input and State functional observability for descriptor systems

Taha Boukhobza, Université Henri Poincaré, Nancy 1, France

Frédéric Hamelin, Université Henri Poincaré, Nancy 1, France

Cédric Join, Université Henri Poincaré, Nancy 1, France

Dominique Sauter, Université Henri Poincaré, Nancy 1, France

4. (15:00) Observability of Row--Finite Countable Systems

Zbigniew Bartosiewicz, Bialystok Technical University, Poland

Dorota Mozyrska, Bialystok Technical University, Poland

5. (15:20) On the root invariant regions structure for linear systems

Boris Polyak, Institute for Control Science, Russian Federation

Elena Gryazina, Institute for Control Science, Russian Federation

6. (15:40) Fixed Poles for Non Minimal Systems: a Geometric Approach

Michel Malabre, CNRS, UMR 6597, France

SUPERVISORY CONTROL OF MODULAR AND DECENTRALIZED DISCRETE EVENT SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 4.1

Organizer: ***Jan H. van Schuppen, CWI, Netherlands***

Co-Organizer ***Jan Komenda, Academy of Sciences, Czech Republic***

Chair: ***Jan H. van Schuppen, CWI, Netherlands***

Co-Chair: ***Jan Komenda, Academy of Sciences, Czech Republic***

1. (14:00) Supervisory Control Problems for Nondeterministic Discrete-Event Systems: A Logical Approach

Sophie Pinchinat, Campus de Beaulieu, France

Jean-Baptiste Raclet, Campus de Beaulieu, France

2. (14:20) Nonblocking control of Petri nets using unfolding

Alessandro Giua, University of Cagliari, Italy

Xiaolan Xie, University of Metz, France

3. (14:40) A Discrete-Event Systems Model For Congestion Control

Kurt Rohloff, University of Illinois, United States

Tansu Alpcan, University of Illinois, United States

Tamer Basar, University of Illinois, United States

4. (15:00) Fault diagnosis for distributed asynchronous dynamically reconfigured discrete event systems

Stefan Haar, INRIA, France, Metropolitan

Albert Benveniste, INRIA, France, Metropolitan

Eric Fabre, INRIA, France, Metropolitan

Claude Jard, CNRS, France, Metropolitan

5. (15:20) Modular Multitasking Supervisory Control of Composite Discrete-Event Systems

Max de Queiroz, GEMM - CEFET/SC, Brazil

José Cury, DAS - UFSC, Brazil

6. (15:40) Modular Antipermissive Control of Discrete-Event Systems

Jan Komenda, Institute of Mathematics, Czech Academy of Sciences, Brno branch, Czech Republic

Jan H. van Schuppen, CWI, Amsterdam, Netherlands

INPUT DESIGN

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 4.2

Chair: ***Hjalmarsson Håkan, KTH, Sweden***

Co-Chair: ***Robert Parker, University of Pittsburgh, United States***

1. (14:00) Applications of mixed H2 and H-infinity input design in identification

Märta Barenthin, KTH, Sweden

Henrik Jansson, KTH, Sweden

Håkan Hjalmarsson, KTH, Sweden

2. (14:20) Efficient Input Signal Design for Third-Order Volterra Model Identification

Robert Parker, University of Pittsburgh, United States

Abhishek Soni, University of Pittsburgh, United States

3. (14:40) Input design for identification of zeros

Jonas Mårtensson, KTH - Department of Signals, Sensors and Systems, Sweden

Henrik Jansson, KTH - Department of Signals, Sensors and Systems, Sweden

Håkan Hjalmarsson, KTH - Department of Signals, Sensors and Systems, Sweden

4. (15:00) Multi-objective Optimization Approach to Optimal Input Design for Autoregressive Model Identification

Katsuji Uosaki, Osaka University, Japan

Toshiharu Hatanaka, Osaka University, Japan

5. (15:20) Optimal Input Design for Identification of Continuous-time Systems

Masami Iwase, Tokyo Denki University, Japan

Makoto Shigi, Tokyo Denki University, Japan

Shoshiro Hatakeyama, Tokyo Denki Univeristy, Japan

6. (15:40) Optimal experiment design in closed loop

Henrik Jansson, KTH, Sweden

Håkan Hjalmarsson, KTH, Sweden

EVOLUTIONARY COMPUTATION IN CONTROL SYSTEMS ENGINEERING

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 1.1

Organizer: ***Daniel Lewin, Technion, Israel***

Chair: ***Daniel Lewin, Technion, Israel***

Co-Chair: ***Carlos Fonseca, Universidade do Algarve, Portugal***

1. (14:00) Evolutionary Algorithms in Control System Engineering

Daniel Lewin, Technion, Israel

2. (14:20) Multiobjective Controller Design: Optimising Controller Structure With Genetic Algorithms

Arturo Molina-Cristobal, The University of Sheffield, United Kingdom

Ian A Griffin, The University of Sheffield, United Kingdom

Peter J Fleming, The University of Sheffield, United Kingdom

David H Owens, The University of Sheffield, United Kingdom

3. (14:40) Improved MOGA-tuning and visualization for a hybrid control system

Andrew Chipperfield, The University of Southampton, United Kingdom

Rodney Stirrup, The University of Southampton, United Kingdom

4. (15:00) Evolutionary Multiobjective Design of Radial Basis Function Networks for Greenhouse Environmental Control

Pedro M. Ferreira, University of Algarve, Centre for Intelligent Systems, Portugal

António E. Ruano, University of Algarve, Centre for Intelligent Systems, Portugal

Carlos M. Fonseca, University of Algarve, Centre for Intelligent Systems, Portugal

5. (15:20) Evolutionary Algorithms For Optimal Control of PPT Polymerization Reactor

Kishalay Mitra, Tata Consultancy Services, India

Saptarshi Majumdar, Tata Research Development & Design Centre, India

Ravi Gopinath, Tata Consultancy Services, India

EVOLUTIONARY COMPUTATION IN CONTROL SYSTEMS ENGINEERING

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 1.1

Organizer: ***Daniel Lewin, Technion, Israel***

Chair: ***Daniel Lewin, Technion, Israel***

Co-Chair: ***Carlos Fonseca, Universidade do Algarve, Portugal***

6. (15:40) Automatic Generation of Lyapunov Functions using Genetic Programming

Benyamin Grosman, Technion, Israel

Daniel R. Lewin, Technion, Israel

PROGRAMMABLE DEVICES AND EMBEDDED SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 2.3

Organizer: ***Vilem Srovnal, VSB-Technical University of Ostrava, Czech Republic***

Co-Organizer ***Edward Hrynkiewicz, Silesiean University of Technology, Gliwice, Poland***

Chair: ***Vilem Srovnal, VSB Technical University of Ostrava, Czech Republic***

Co-Chair: ***Edward Hrynkiewicz, Silesiean University of Technology, Gliwice, Poland***

1. (14:00) Online Testing Embedded Systems: Adapting Automatic Control Techniques to Microelectronic Testing

Emmanuel Simeu, TIMA Laboratory, France

Libor Rufer, TIMA Laboratory, France

Salvador Mir, TIMA Laboratory, France

2. (14:20) An Approach to the Design of Networked Embedded Systems

Miroslav Švéda, Brno University of Technology, Czech Republic

Radimír Vrba, Brno University of Technology, Czech Republic

3. (14:40) Safety Issues in Avionics and Automotive Databuses

Janusz Zalewski, Florida Gulf Coast University, United States

Dawid Trawczynski, Warsaw University of Technology, Poland

Janusz Sosnowski, Warsaw University of Technology, Poland

Andrew Kornecki, Embry-Riddle Aeronautical University, United States

Marek Sniezek, Rzeszow University of Technology, Poland

4. (15:00) Embedded System for Automation Visual Testing of Electronic Modules

Bohumil Horak, VSB-TU Ostrava, Czech Republic

Vilem Srovnal, VSB-TU Ostrava, Czech Republic

Radim Ermis, SIEMENS Automobilové systémy s.r.o., Czech Republic

PROGRAMMABLE DEVICES AND EMBEDDED SYSTEMS

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 2.3

Organizer: ***Vilem Srovnal, VSB-Technical University of Ostrava, Czech Republic***

Co-Organizer ***Edward Hrynkiewicz, Silesiean University of Technology, Gliwice, Poland***

Chair: ***Vilem Srovnal, VSB Technical University of Ostrava, Czech Republic***

Co-Chair: ***Edward Hrynkiewicz, Silesiean University of Technology, Gliwice, Poland***

5. (15:20) Tools and Technologies for Designing Control Systems using Programmable Logic Devices

Adam Milik, Silesian University of Technology of Gliwice, Poland

Mariusz Dykierek, Aldec-ADT, Poland

6. (15:40) Remarks on Improving of Operation Speed of The PLCs

Adam Milik, Silesian University of Technology of Gliwice, Poland

Edward Hrynkiewicz, Silesian University of Technology of Gliwice, Poland

Miroslaw Chmiel, Silesian University of Technology of Gliwice, Poland

ADVANCED MANUFACTURING AUTOMATION

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.1

Chair: ***Peter Kopacek, Vienna University of Technology, Austria***

Co-Chair: ***Robert Brennan, University of Calgary, Canada***

1. (14:00) Semiautomatized Disassembly - Some Examples

Peter Kopacek, Vienna University of Technology, Austria

2. (14:20) Applying Equal Piles Approach to Disassembly Line Balancing Problem

Luminita Duta, Valahia State University, Romania

F. Gh. Filip, Research Institute for Informatics, Romania

J.M. Henrioud, Institute of Production Engineering, France

3. (14:40) Two-level Predictive based Axis Control for Virtual Machine Tool

Mara Susanu, Supelec, France

Didier Dumur, Supelec, France

4. (15:00) An Event-triggered Communication Protocol for Intelligent Real-time Control

Jason J. Scarlett, University of Calgary, Canada

Robert Brennan, University of Calgary, Canada

5. (15:20) Neuro-Fuzzy Modelling and Control of Robot Manipulators for Trajectory Tracking

D. T. Pham, Cardiff University, United Kingdom

Ashraf Fahmy, Cardiff University, United Kingdom

6. (15:40) A Fuzzy Robot Controller for the Placement of Fabrics on a Work Table

George Zoumponos, University of Patras, Greece

Nikolaos A. Aspragathos, University of Patras, Greece

ENTERPRISE NETWORKING TOWARDS THE REALIZATION OF COLLABORATIVE NETWORKED ORGANIZATIONS

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.2

Organizer: ***Arturo Molina, ITESM, Mexico***

Chair: ***A. Molina, Tecnologico de Monterrey, Mexico***

Co-Chair: ***I. Mezgar, SZTAKI, Hungary***

1. (14:00) Key-Problem Based Information System Design and Integrated Enterprise Modelling

Virginie Goepp, INSA de Strasbourg - LICIA, France

François Kiefer, INSA de Strasbourg - LICIA, France

2. (14:20) Intelligent Visualisation of Process State using Service Oriented Architecture

Jari Seppälä, Tampere University of Technology, Finland

Mikko Salmenperä, Tampere University of Technology, Finland

3. (14:40) Enterprise Model Repository

Lawrence Whitman, Wichita State University, United States

Danny Santanu, Wichita State University, United States

4. (15:00) Organisational Network Models and the Implications for Decision Support Systems

Georg Weichhart, Profactor Research, Austria

Kurt Fessl, Profactor Research, Austria

5. (15:20) An Implementation of a Framework for Cooperative Engineering

Gil Gonçalves, Faculdade de Engenharia da Universidade do Porto, Portugal

Paulo Dias, Faculdade de Engenharia da Universidade do Porto, Portugal

António Santos, Faculdade de Engenharia da Universidade do Porto, Portugal

Joao Sousa, Faculdade de Engenharia da Universidade do Porto, Portugal

Fernando Pereira, Faculdade de Engenharia da Universidade do Porto, Portugal

ENTERPRISE NETWORKING TOWARDS THE REALIZATION OF COLLABORATIVE NETWORKED ORGANIZATIONS

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.2

Organizer: ***Arturo Molina, ITESM, Mexico***

Chair: ***A. Molina, Tecnologico de Monterrey, Mexico***

Co-Chair: ***I. Mezgar, SZTAKI, Hungary***

6. (15:40) Core Competence Mangament in Virtual Industry Cluster

Nathalie Galeano, ITESM University, Mexico

Arturo Molina, ITESM University, Mexico

VEHICLE MOTION PLANNING

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.3

Chair: ***Alessandro Casavola, University of Calabria, Italy***

Co-Chair: ***Dawei Gu, University of Leicester, United Kingdom***

1. (14:00) A decentralized probabilistic framework for the path planning of autonomous vehicles

Da-Wei Gu, University of Leicester, United Kingdom

Waseem Kamal, University of Leicester, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

2. (14:20) A New Evaluation Platform for Navigation Systems

Thomas Hanefeld Sejerøe, Techn. Univ. of Denmark, Denmark

Niels Kjølstad Poulsen, Techn. Univ. of Denmark, Denmark

Ole Ravn, Techn. Univ. of Denmark, Denmark

3. (14:40) Gibbs Sampler-Based Path Planning for Autonomous Vehicles: Convergence Analysis

Xiaobo Tan, Michigan State University, United States

Wei Xi, University of Maryland, United States

John S. Baras, University of Maryland, United States

4. (15:00) MILP and Its Application in Flight Path Planning

Waseem Kamal, University of Leicester, United Kingdom

Da-Wei Gu, University of Leicester, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

5. (15:20) Planning Algorithms for Autonomous Aerial Vehicle

Elodie Chanthery, ONERA, France, Metropolitan

Magali Barbier, ONERA, France, Metropolitan

Jean-Loup Farges, ONERA, France, Metropolitan

6. (15:40) Position Calibration of a Mobile Robot Based on 3D Vision

Niramon Ruangpayoongsak, University of Siegen, Germany

Hubert Roth, University of Siegen, Germany

Rudolf Schwarte, University of Siegen, Germany

FROM DRUG DESIGN TO PRODUCTION: CONTROL ISSUES

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 4.3

Organizer: ***Marie-Noelle Pons, CNRS-ENSIC-INPL, France***

Co-Organizer ***Wolfgang Marquardt, RWTH Aachen, Germany***

Chair: ***Marie-Noëlle Pons, LSGC-CNRS, Nancy, France***

Co-Chair: ***Suteaki Shioya, Osaka University, Japan***

1. (14:00) Identifying new drug targets to combat pathogenic infections: an interdisciplinary approach

Ilse Smets, Katholieke Universiteit Leuven, Belgium

Astrid Cappuyns, Katholieke Universiteit Leuven, Belgium

Kristel Bernaerts, Katholieke Universiteit Leuven, Belgium

Sigrid De Keersmaecker, Katholieke Universiteit Leuven, Belgium

Bart De Moor, Katholieke Universiteit Leuven, Belgium

Jos Vanderleyden, Katholieke Universiteit Leuven, Belgium

Jan F.M. Van Impe, Katholieke Universiteit Leuven, Belgium

2. (14:20) Experimental comparision of model predictive control strategies for the production of antibiotics in fed-batch fermentations

Thomas Heine, TU Berlin, Germany

Michael Kawohl, TU Berlin, Germany

Rudibert King, TU Berlin, Germany

3. (14:40) Monitoring and Control of Recombinant Protein Production - from Up-stream to Integrated Down-stream Processes

Reiner Luttmann, Hamburg University of Applied Sciences, Germany

4. (15:00) Modelling Solvent-Mediated Polymorphic Transitions during Cooling Solution Crystallization

Gilles Fevotte, Universite Lyon-1, France

Nida Sheibat-Othman, Universite Lyon-1, France

5. (15:20) Use of PAT for Active Pharmaceutical Ingredient Crystallization Process Control

Huiquan Wu, FDA/CDER, United States

Ajaz S. Hussain, FDA/CDER, United States

FROM DRUG DESIGN TO PRODUCTION: CONTROL ISSUES

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 4.3

Organizer: ***Marie-Noelle Pons, CNRS-ENSIC-INPL, France***

Co-Organizer ***Wolfgang Marquardt, RWTH Aachen, Germany***

Chair: ***Marie-Noëlle Pons, LSGC-CNRS, Nancy, France***

Co-Chair: ***Suteaki Shioya, Osaka University, Japan***

6. (15:40) Process Analytical Technology (PAT) Applications in Bioprocess Engineering

João A. Lopes, Technical University of Lisbon, Portugal

Teresa P. Alves, CIPAN, S.A., Portugal

Jose C. Menezes, Technical University of Lisbon, Portugal

ANTI-WINDUP

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 2.1

Organizer: ***Matthew Turner, University of Leicester, United Kingdom***

Co-Organizer ***Adolf Glattfelder, ETH Zurich, Switzerland***

Chair: ***Matthew Turner, University of Leicester, United Kingdom***

Co-Chair: ***Adolf Glattfelder, ETH Zurich, Switzerland***

1. (14:00) **Antiwindup and Override Control for Exponentially Unstable Systems with Actuator Constraints**

Adolf Hermann Glattfelder, ETH Zurich, Switzerland

Walter Schaufelberger, ETH Zurich, Switzerland

2. (14:20) **Output Feedback Compensators for Weakened Anti-windup of Additively Perturbed Systems**

Sergio Galeani, Universita' di Roma, Italy

Andrew R. Teel, University of California at Santa Barbara, United States

Luca Zaccarian, Universita' di Roma, Italy

3. (14:40) **Windup prevention when using Davison's approach to disturbance rejection**

Peter Hippe, Universität Erlangen-Nürnberg, Germany

4. (15:00) **Improving local anti-windup performance: preliminary results on a two-stage approach**

Matthew Turner, University of Leicester, United Kingdom

Guido Herrmann, University of Leiceseter, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

5. (15:20) **Preliminary results about anti-windup strategy for systems subject to actuator and sensor saturations**

Sophie Tarbouriech, LAAS-CNRS, France

Germain Garcia, LAAS-CNRS, France

6. (15:40) **Tracking with Bounded Actuators: Scheduled controllers**

Faryar Jabbari, UCI, United States

Jin-Hoon Kim, Chungbuk National University, Korea

FREQUENCY DOMAIN DESIGN

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.4

Chair: ***Satoh Atsushi, Nara Institute of Science and Technology, Japan***

Co-Chair: ***Pericles Barros, Universidade Federal de Campina Grande, Brazil***

1. (14:00) A Strategy for Vehicle Control Augmentation via Control Bandwidth Phase Shaping Approach

Atsushi Satoh, Nara Institute of Science and Technology, Japan

Kenji Sugimoto, Nara Institute of Science and Technology, Japan

2. (14:20) Auto-Tuning of Fractional Lead-Lag Compensator

Concha Monje Micharet, Universidad de Extremadura, Spain

Blas Manuel Vinagre, Universidad de Extremadura, Spain

Antonio José Calderón, Universidad de Extremadura, Spain

Vicente Feliu, Universidad de Castilla-La Mancha, Spain

YangQuan Chen, Utah State University, United States

3. (14:40) Computing value sets from one point of frequency response with applications

Milos Schlegel, University of West Bohemia in Pilsen, Czech Republic

Martin Cech, University of West Bohemia in Pilsen, Czech Republic

4. (15:00) Controller Evaluation and Redesign using Relay Experiments

Marcus A. R. Berger, Universidade Federal de Campina Grande, Brazil

Péricles R. Barros, Universidade Federal de Campina Grande, Brazil

5. (15:20) Designing and Testing of Modern Tools for Control Systems Prototyping

Petru Dobra, TU Cluj, Romania

Mirela Trusca, TU Cluj, Romania

Daniel Moga, TU Cluj, Romania

FREQUENCY DOMAIN DESIGN

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.4

Chair: ***Satoh Atsushi, Nara Institute of Science and Technology, Japan***

Co-Chair: ***Pericles Barros, Universidade Federal de Campina Grande, Brazil***

6. (15:40) Tuning of Lead Compensators with Gain and Phase Margin Specifications

Qing-Guo Wang, National University of Singapore, Singapore

Chang Chieh Hang, National University of Singapore, Singapore

Zhen Ye, National University of Singapore, Singapore

NONLINEAR STABILIZATION II

Tuesday 05-Jul-2005 14:00-16:00, Meeting Room 3.5

Chair: ***Christophe Prieur, LAAS-CNRS, France***

Co-Chair: ***Martin Buss, TU Munchen, Germany***

1. (14:00) Generalized Block Control Principle

Heide Brandtstädter, Technische Universitaet Muenchen, Germany

Sachit Rao, The Ohio State University, United States

Vadim Utkin, The Ohio State University, United States

Martin Buss, Technische Universitaet Muenchen, Germany

2. (14:20) Passivity-based Approach to Problems of Robust Spatial Motion Control

Iliya Miroshnik, SPb State University ITMO, Russian Federation

3. (14:40) Finite-dimensional Controller Design for Nonlinear Evolution Equations using Inertial Forms

Daniel Coca, University of Sheffield, United Kingdom

4. (15:00) Stabilization of Discrete Time Systems with a Fold or Period Doubling Control Bifurcation

Boumediene Hamzi, UCDavis, United States

Wei Kang, Naval Postgraduate School, United States

Arthur J. Krener, UCDavis, United States

5. (15:20) Quasi-polynomial system representation for the analysis and control of nonlinear systems

Gabor Szederkenyi, Computer and Automation Research Institute, Hungarian Academy of Sciences, Hungary

Attila Magyar, University of Veszprém, Hungary, Hungary

Katalin M. Hangos, Computer and Automation Research Institute, Hungarian Academy of Sciences, Hungary

6. (15:40) Control Synthesis of Systems with Uncertain Parameters by Convex Optimization

Francesc Pozo Montero, Universitat Politècnica de Catalunya, Spain

Faycal Ikhouane, Universitat Politècnica de Catalunya, Spain

José Rodellar, Universitat Politècnica de Catalunya, Spain

ECONOMIC AND BUSINESS SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Mahmoud Kaboudan, Redlands University, United States***

Co-Chair: ***Reinhard Neck, University of Klagenfurt, Austria***

1. (16:30) Spatiotemporal forecasting of home prices: A GIS application

Mahmoud Kaboudan, University of Redlands, United States

2. (16:30) Generalised Wald type tests of nonlinear restrictions

Ratsimalahelo Zaka, University of Franche-Comté, France

3. (16:30) Dynamical Control in Oligopolies

Sandor Molnar, Systemexpert Ltd., Hungary

Ferenc Szidarovszki, University of Arizona, Tucson, USA, United States

Mark Molnar, Budapest University of Economic Sciences, Hungary

4. (16:30) Formal Description of Decision Processes

Laszlo Cserny, College of Dunau'jva'ros, Hungary

5. (16:30) R&D for Quality Improvement and Network Externalities

Luca Lambertini, University of Bologna, Italy

Raimondello Orsini, University of Bologna, Italy

6. (16:30) A System Marginal Price Forecasing Method Based on an Artificial Neural Network using Time and Day Information

Jong-Bae Park, Konkuk University, Korea

Jeong-Kyu Lee, Konkuk University, Korea

Joong-Rin Shin, Konkuk University, Korea

Kwang Y. Lee, Penn state University, United States

ECONOMIC AND BUSINESS SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Mahmoud Kaboudan, Redlands University, United States***

Co-Chair: ***Reinhard Neck, University of Klagenfurt, Austria***

7. (16:30) New Algorithms for Solving Single-item Reverse Auction

Thanh-Tung Dang, Institute of Informatics, Slovak Academy of Sciences, Slovakia

Baltazár Frankovič, Institute of Informatics, Slovak Academy of Sciences, Slovakia

Con Sheahan, Dept. Of Manufacturing & Operations Eng., University of Limerick, Limerick, Ireland, Ireland

Ivana Budinská, Institute of Informatics, Slovak Academy of Sciences, Slovakia

8. (16:30) A stochastic predictive control approach to project risk management

Ascensión Zafra-Cabeza, University of Seville. Escuela Superior de Ingenieros, Spain

Miguel A. Ridao, University of Seville. Escuela Superior de Ingenieros, Spain

Eduardo F. Camacho, University of Seville. Escuela Superior de Ingenieros, Spain

9. (16:30) Pension fund model design and state estimation

Ondrej Straka, University of West Bohemia in Pilsen, Czech Republic

Miroslav Simandl, University of West Bohemia in Pilsen, Czech Republic

Marek Lesek, University of West Bohemia in Pilsen, Czech Republic

NEW RESULTS IN CLOSED-LOOP IDENTIFICATION

Tuesday 05-Jul-2005 16:30-18:30, Club H

Organizer: ***Alessandro Chiuso, Univ. of Padova, Italy***

Chair: ***Alessandro Chiuso, University of Padova, Italy***

Co-Chair: ***Magnus Jansson, KTH, Sweden***

1. (16:30) Comparisons of Subspace Identification Methods for Systems Operating on Closed-loop

S. Joe Qin, The University of Texas at Austin, United States

Weilu Lin, The University of Texas at Austin, United States

Lennart Ljung, Linkoping University, Sweden

2. (16:50) A New Subspace Identification Method for Open and Closed Loop Data

Magnus Jansson, KTH - Royal Inst of Technology, Sweden

3. (17:10) Prediction Error Vs Subspace methods in closed loop identification

Alessandro Chiuso, Univ. of Padova, Italy

Giorgio Picci, Univ. of Padova, Italy

4. (17:30) A Simple Subspace Identification Method of Closed-Loop Systems Using Orthogonal Decomposition

Tohru Katayama, Kyoto University, Japan

Hideyuki Tanaka, Kyoto University, Japan

Takeya Enomoto, Kyoto University, Japan

5. (17:50) Closed loop identification of unstable poles and non-minimum phase zeros

Jonas Mårtensson, KTH - Department of Signals, Sensors and Systems, Sweden

Håkan Hjalmarsson, KTH - Department of Signals, Sensors and Systems, Sweden

6. (18:10) Least disturbing closed-loop identification experiment for control

Xavier Bombois, Delft University of Technology, Netherlands

Gerard Scorletti, GREYC, EQUIPE AUTO, Caen, France

Paul Van den Hof, Delft University of Technology, Netherlands

LARGE SCALE COMPLEX SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Adrian Gheorghe, ETH Zurich, Switzerland***

Co-Chair: ***Zdenek Binder, CNRS- A3 Grenoble, France***

1. (16:30) A Decentralized Model Reference Adaptive Controller for Large-Scale Systems

Prabhakar Pagilla, Oklahoma State University, United States

Nilesh Siraskar, Oklahoma State University, United States

Ramamurthy Dwivedula, Oklahoma State University, United States

2. (16:30) Congestion Control in Communication Networks for Complex Systems

Melha Bitam, Laboratoire d'Automatique de Grenoble, France

Hassane Alla, Laboratoire d'Automatique de Grenoble, France

3. (16:30) Decentralized Neural Control Structure

Victor H. Benitez, CINVESTAV, Unidad Guadalajara, Mexico

Edgar N. Sanchez, CINVESTAV, Unidad Guadalajara, Mexico

Alexander G. Loukianov, CINVESTAV, Unidad Guadalajara, Mexico

4. (16:30) Decentralized Stochastic Control of Power Systems using Genetic Algorithms for Interaction Estimation

Maryam Dehghani, Amirkabir University of Technology, Iran

Ahmad Afshar, Amirkabir University of Technology, Iran

Seyyed Kamaleddin Nikravesh, Amirkabir University of Technology, Iran

5. (16:30) Design and performance analysis of tracking controller of nonlinear composite systems using neural networks

En-dong Liu, Northeastern university, China

Yuan-wei Jing, Northeastern university, China

Si-ying Zhang, Northeastern university, China

You Zhang, Northeastern university, China

LARGE SCALE COMPLEX SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Adrian Gheorghe, ETH Zurich, Switzerland***

Co-Chair: ***Zdenek Binder, CNRS- A3 Grenoble, France***

6. (16:30) Distributed Load Balancing in the presence of Node Failure and Network Delays

Jean Ghanem, University of New Mexico, United States

Chaouki Abdallah, University of New Mexico, United States

Majeed Hayat, University of New Mexico, United States

John Chiasson, University of Tenesee, United States

J. Douglas Birdwell, University of Tennessee, United States

7. (16:30) Optimal Decisions for Large Scale Systems

Dumitru Popescu, University Politehnica of Bucharest, Romania

Mihaela Mateescu, University Politehnica of Bucharest, Romania

Bogdan Ciubotaru, University Politehnica of Bucharest, Romania

8. (16:30) Coordinated Motion Control of Swarms with Dynamic Connectivity in Potential Flows

Hua O. Wang, Boston University, United States

Guohua Ye, Boston University, United States

Kazuo Tanaka, University of Electro-Communications, Japan

9. (16:30) Decentralized Adaptive Robust Tracking and Model Following for Uncertain Large Scale Systems

Hansheng Wu, Hiroshima Prefectural University, Japan

10. (16:30) Decentralized Output Feedback Control of Large-Scale Interconnected Nonlinear Systems: The LMI Approach

Yongliang Zhu, Oklahoma State University, United States

Prabhakar Pagilla, Oklahoma State Universit, United States

LARGE SCALE COMPLEX SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Adrian Gheorghe, ETH Zurich, Switzerland***

Co-Chair: ***Zdenek Binder, CNRS- A3 Grenoble, France***

11. (16:30) Development of Tele-Robotic Interface System for the Hot-Line Maintenance

Chang-Hyun Kim, Korea Advanced Institute of Science and Technology, Korea

Min-Soeng Kim, Korea Advanced Institute of Science and Technology, Korea

Ju-Jang Lee, Korea Advanced Institute of Science and Technology, Korea

12. (16:30) Fully Automated Test-Plant for Calibration

Andreas Dedinak, ARCsr / Mechatronic Automation Systems, Austria

Wolfgang Studecker, ARCsr / Mechatronic Automation Systems, Austria

Alfons Witt, ARCsr / Mechatronic Automation Systems, Austria

13. (16:30) Minimizing Interconnection of Subsystems in Large-Scale Interconnected Systems using Generalized Sampling

Rafael Becerril-Arreola, Concordia University, Canada

Amir G. Aghdam, Concordia University, Canada

Edward J. Davison, University of Toronto, Canada

14. (16:30) Novel Methodology for Partitioning Complex Systems for Fault Diagnosis Purposes

Cosmin Danut Bocaniala, Instituto Superior Tecnico, Portugal

Jose Sa da Costa, Instituto Superior Tecnico, Portugal

15. (16:30) Production Process Management System for Production Indices Optimization of Mineral Processing

Xiaoling Huang, Northeastem University, China, China

Yangang Chu, Northeastem University, China, China

Yi Hu, Northeastem University, China, China

Tianyou Chai, Northeastem University, China, China

LARGE SCALE COMPLEX SYSTEMS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Adrian Gheorghe, ETH Zurich, Switzerland***

Co-Chair: ***Zdenek Binder, CNRS- A3 Grenoble, France***

16. (16:30) Using Fuzzy Measures of Uncertainty to Manage Complex Systems

Dan Stefanoiu, Bucharest University of Technology, Romania

APPLICATIONS OF NONLINEAR MODELING METHODS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Spilios Fassois, University of Patras, Greece***

Co-Chair: ***Olaf Kahrs, RWTH Aachen, Germany***

1. (16:30) Control Problem Classification for a Plasma Process

Petar Iordanov, NUI Maynooth, Ireland

John Ringwood, NUI Maynooth, Ireland

Sean Doherty, NUI Maynooth, Ireland

2. (16:30) Control-oriented NARX modeling of magneto-rheological dampers

Alberto Leva, Politecnico di Milano, Italy

Luigi Piroddi, Politecnico di Milano, Italy

3. (16:30) Dynamical Modelling Using Ck Spline Functions With Application To Weight Sensors

Zakaria Lakhdari, LUSAC, Université de Caen, France, Metropolitan

Philippe Makany, Université de Caen, France, Metropolitan

Marc Rouff, Université de Caen, France, Metropolitan

4. (16:30) Friction Identification Based upon the LuGre and Maxwell Slip Models

Spilios Fassois, University of Patras, Greece

Demosthenis Rizos, University of Patras, Greece

5. (16:30) Friction Identification and Compensation in a DC Motor

Tegoeh Tjahjowidodo, KU Leuven, Belgium

Farid Al-Bender, KU Leuven, Belgium

Hendrik Van Brussel, KU Leuven, Belgium

6. (16:30) Friction identification with genetic algorithms

Michel Vergé, ENSAM, France

7. (16:30) Incremental identification of NARX models by sparse grid approximation

Olaf Kahrs, RWTH Aachen University, Germany

Marc Brendel, RWTH Aachen University, Germany

Wolfgang Marquardt, RWTH Aachen University, Germany

APPLICATIONS OF NONLINEAR MODELING METHODS

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Spilios Fassois, University of Patras, Greece***

Co-Chair: ***Olaf Kahrs, RWTH Aachen, Germany***

8. (16:30) Interactive Visualization as a Tool for Analysing Time-Varying and Non-Linear Systems

Jimmy Johansson, Linköping University, Sweden

David Lindgren, Linköping University, Sweden

Matthew Cooper, Linköping University, Sweden

Lennart Ljung, Linköping University, Sweden

9. (16:30) Methods for parameter ranking in nonlinear, mechanistic models

Berit Floor Lund, Norwegian University of Science and Technology, Norway

Hans E. Berntsen, SINTEF, Norway

Bjarne A. Foss, Norwegian University of Science and Technology, Pakistan

10. (16:30) Modelling of Disturbance Propagation in Anisotropic Media Using Differential Game Methods

Nikolay Botkin, Research center caesar, Bonn, Germany

Arik A. Melikyan, Institute for problems in mechanics, Moscow, Russian Federation

Varvara L. Turova, Research center caesar, Bonn, Germany

11. (16:30) Neural Identification of Supercritical Extraction Process with Few Experimental Data

Rosana Soares, Universidade Federal do Para, Brazil

Roberto Limão de Oliveira, Universidade Federal do Para, Brazil

Vladimiro Miranda, Faculty of Engineering of the University of Porto/Institute of Engineering in Systems and Computers of Porto, Portugal

José Augusto Barreiros, Universidade Federal do Para, Brazil

12. (16:30) Neural modeling for crude oil blending

Wen Yu, CINVESTAV-IPM, Mexico

América Morales, Instituto Mexicano del Petroleo, Mexico

OUTPUT REGULATION AND TRACKING

Tuesday 05-Jul-2005 16:30-18:30, Terrace 2

Chair: ***Bernd Tibken, Wuppertal University, Germany***

Co-Chair: ***Lorenzo Marconi, Universita di Bologna, Italy***

1. (16:30) Further results on output regulation by pure error feedback

Christopher Byrnes, Washington University, St. Louis, United States

Alberto Isidori, University of Rome, Italy

Lorenzo Marconi, University of Bologna, Italy

2. (16:50) Limits of performance in reference-tracking and path-following for nonlinear systems

A. Pedro Aguiar, University of California, Santa Barbara, United States

Joao P. Hespanha, University of California, Santa Barbara, United States

Petar Kokotovic, University of California, Santa Barbara, United States

3. (17:10) The uniform global output regulation problem for discontinuous systems

Alexei Pavlov, Eindhoven University of Technology, Netherlands

Alexander Pogromsky, Eindhoven University of Technology, Netherlands

Nathan van de Wouw, Eindhoven University of Technology, Netherlands

Henk Nijmeijer, Eindhoven University of Technology, Netherlands

4. (17:30) Output Tracking for Chua's Circuit in Presence of Disturbances

Stefano Di Gennaro, University of L'Aquila, Italy

Franco Di Paolo, University of L'Aquila, Italy

5. (17:50) Nonlinear Discrete-time Robust Output Regulation Problem

Jie Huang, Chinese University of Hong Kong, Hong Kong

Weiyao Lan, Chinese University of Hong Kong, Hong Kong

OUTPUT REGULATION AND TRACKING

Tuesday 05-Jul-2005 16:30-18:30, Terrace 2

Chair: ***Bernd Tibken, Wuppertal University, Germany***

Co-Chair: ***Lorenzo Marconi, Universita di Bologna, Italy***

6. (18:10) Application of genealogical decision trees for open-loop tracking control

Enso Ikonen, University of Oulu, Finland

Kaddour Najim, E.N.S.I.A.C.E.T., France

Pierre Del Moral, Laboratoire de Statistics et Probabilities, Toulouse, France

ROBOT MANIPULATORS

Tuesday 05-Jul-2005 16:30-18:30, Club A

Chair: ***Luis Basanez, Universitat Politecnica de Catalunya, Spain***

Co-Chair: ***Krzysztof Tchon, Wroclaw University of Technology, Poland***

1. (16:30) Recursive Algorithm for the Inverse Kinematics of Redundant Robotic Manipulators

Fabricio Nicolato, Unicamp, Brazil

Marconi Madrid, Unicamp, Brazil

2. (16:50) Experiments on Stabilizing Receding Horizon Control of a Direct Drive Manipulator

Yasunori Kawai, Kanazawa University, Japan

Yujiro Nakaso, Kanazawa University, Japan

Takehito Azuma, Kanazawa University, Japan

Masayuki Fujita, Kanazawa University, Japan

3. (17:10) Smooth Sliding Mode Control for Constrained Manipulator with Joint Flexibility

Chin-I Huang, National Taiwan University, Taiwan

Kuang-Yow Lian, Chung-Yuan Christian University, Taiwan

Chian-Song Chiu, Chienkuo Technology University, Taiwan

Li-Chen Fu, National Taiwan University, Taiwan

4. (17:30) Flatness-Based Control of a Parallel Robot Actuated by Pneumatic Muscles

Harald Aschemann, University of Ulm, Germany

Eberhard P. Hofer, University of Ulm, Germany

5. (17:50) Forcefree Control with Independent Compensation for Industrial Articulated Robot Arm

Satoru Goto, Saga University, Japan

Yuji Ishida, Saga University, Japan

Nobuhiro Kyura, Kinki University, Japan

Masatoshi Nakamura, Saga University, Japan

ROBOT MANIPULATORS

Tuesday 05-Jul-2005 16:30-18:30, Club A

Chair: ***Luis Basanez, Universitat Politecnica de Catalunya, Spain***

Co-Chair: ***Krzysztof Tchon, Wroclaw University of Technology, Poland***

6. (18:10) Passive Bilateral Control of Teleoperators under Constant Time-delay

Dongjun Lee, Univ. of Illinois at Urbana-Champaign, United States

Mark W. Spong, Univ. of Illinois at Urbana-Champaign, United States

ROBOT CONTROL II

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Štefan Kozák, Slovak University of Technology, Slovakia***

1. (16:30) **A Neural Network-based Impedance Controller For a Redundantly Actuated Closed-Chain Robot Manipulator**

Asghar Mesbah-Nejad, The University of Western Ontario, Canada

Mehrdad Moallem, The University of Western Ontario, Canada

2. (16:30) **A Parametric Robust Approach PID Control for a Laparoscopic Surgery Robot**

Antoni Grau, Technical Univ. of Catalonia, Spain

Yolanda Bolea, Technical Univ. of Catalonia, Spain

Pere Dot, Technical Univ. of Catalonia, Spain

Damia Pujol, Technical Univ. of Catalonia, Spain

3. (16:30) **Adaptive Neuro-Fuzzy Controller for Hybrid Position/Force Control of Robotic Manipulators**

Mohammad Farrokhi, Iran University of Science & Technology, Iran

Arash Fanaei, Iran University of Science & Technology, Iran

4. (16:30) **An Industrial Autonomous Guided Robot**

Carlos Cardeira, Instituto Superior Técnico, Portugal

Ramalho Mário, Instituto Superior Técnico, Portugal

Loureiro Rui, Instituto Superior Técnico, Portugal

Hugo Freitas, Instituto Superior Técnico, Portugal

Pedro Vilela, Instituto Superior Técnico, Portugal

Jorge Bengala, Omron, Portugal

5. (16:30) **Behavioural Adaptation of Real-time Emotional Robotic Agents**

Houcine Hassan Mohamed, Polytechnical University of Valencia, Spain

Carlos Domínguez, Polytechnical University of Valencia, Spain

Alfons Crespo, Polytechnical University of Valencia, Spain

ROBOT CONTROL II

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Štefan Kozák, Slovak University of Technology, Slovakia***

6. (16:30) Cartesian Sliding PD Force-Position Control for Constrained Robots under Jacobian Uncertainty

Vicente Parra-Vega, Cinvestav, Mexico

Rodolfo García-Rodríguez, Cinvestav, Mexico

Francisco Ruiz-Sanchez, Cinvestav, Mexico

7. (16:30) Dynamic Gait Pattern Generation with Reinforcement Learning

Mustafa Suphi Erden, Middle East Technical University, Turkey

Kemal Leblebicioglu, Middle East Technical University, Turkey

8. (16:30) Fault-tolerant system based on output feedback H-infinity Markovian control for manipulator robots

Adriano Siqueira, University of São Paulo at São Carlos, Brazil

Cleber Buosi, University of São Paulo at São Carlos, Brazil

Marco Terra, University of São Paulo at São Carlos, Brazil

9. (16:30) Immunology-Based Motion Control For Modular Hyper-Redundant Manipulators

Alex K. S. Ng, The University Of Hong Kong, Hong Kong

Henry Y. K. Lau, The University of Hong Kong, Hong Kong

10. (16:30) Impact and Force Control with Switching between Mechanical Impedance Parameters

Ranko Zotovic, Universidad Politecnica de Valencia, Spain

Angel Valera Fernandez, Universidad Politecnica de Valencia, Spain

Pedro Jose Garcia Gil, Universidad Politecnica de Valencia, Spain

ROBOT CONTROL II

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Štefan Kozák, Slovak University of Technology, Slovakia***

11. (16:30) Integrated Vision Tools and Signature Analysis for Part Measurement and Recognition in Robotic Tasks

Theodor Borangiu, University Politehnica of Bucharest, Faculty of Control and Computers, Romania

Florin Anton, University Politehnica of Bucharest, Faculty of Control and Computers, Romania

Silvia Tunaru, University Politehnica of Bucharest, Faculty of Control and Computers, Romania

Andrei-Nick Ivanescu, University Politehnica of Bucharest, Faculty of Control and Computers, Romania

12. (16:30) Intelligent Control of Biped Robot with Heterogeneous Legs

Binrui Wang, Northeastern University, China

Xinhe Xu, Northeastern University, China

Jindong Tan, Michigan Technological University, United States

13. (16:30) Joint Space Point-To-Point Motion Planning for Robots. An Industrial Implementation

Gianluca Antonelli, Universita\' degli Studi di Cassino, Italy

Stefano Chiaverini, Universita\' degli Studi di Cassino, Italy

Marco Palladino, Consorzio C.R.E.A.T.E., Italy

GianPaolo Gerio, Comau S.p.A., Italy

Gerardo Renga, Comau S.p.A., Italy

14. (16:30) Nonlinear Control Design of Robotic Manipulators with Velocity Observers

Jung-Shan Lin, National Chi Nan University, Taiwan

Fang-Shiung Chen, National Chi Nan University, Taiwan

15. (16:30) Offline Service Discovery in Human, Robot, Environment Interaction

Bum-Jae You, Korea Institute of Science and Technology, Korea

Dong To Nguyen, Korea Institute of Science and Technology, Korea

Sang-Rok Oh, Korea Institute of Science and Technology, Korea

ROBOT CONTROL II

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Štefan Kozák, Slovak University of Technology, Slovakia***

16. (16:30) On the Passivity of a One-Link Rigid Master - Flexible Slave Manipulator

Takahiro Mori, Gifu National College of Technology, Japan

Yoshifumi Morita, Nagoya Institute of Technology, Japan

Hiroyuki Ukai, Nagoya Institute of Technology, Japan

17. (16:30) Optimal Tool Trajectory Integration In Surface Manufacturing

Heping Chen, Michigan State University, United States

Ning Xi, Michigan State University, United States

Weihua Sheng, Kettering University, United States

Jeffrey Dahl, Ford Motor Company, United States

Zhaojie Li, Chinese Academy of Sciences, China

18. (16:30) Positivstellensatz Certificates for Non-Feasibility of Connectivity Graphs in Multi-agent Coordination

Abubakr Muhammad, Georgia Institute of Technology, United States

Magnus Egerstedt, Georgia Institute of Technology, United States

19. (16:30) Practical Swing-up controller design for a cart-type single inverted pendulum having a serial second pendulum as parasitic dynamics

Arika Inoue, Okayama University, Japan

Mingcong Deng, Okayama University, Japan

Masaaki Kosugi, Okayama University, Japan

Tomohiro Henmi, Okayama University, Japan

20. (16:30) Predictive computed-torque control of a PUMA 560 manipulator robot

Victor Becerra, The University of Reading, United Kingdom

Steven Cook, The University of Reading, United Kingdom

Jiamei Deng, The University of Reading, United Kingdom

ROBOT CONTROL II

Tuesday 05-Jul-2005 16:30-18:30, North Hall

Chair: ***Štefan Kozák, Slovak University of Technology, Slovakia***

21. (16:30) Second Order Sliding Mode Adaptive Neurocontrol for Robot

Vicente Parra-Vega, Cinvestav, Mexico

Rodolfo Garcia-Rodriguez, Cinvestav, Mexico

Francisco J. Ruiz-Sanchez, Cinvestav, Mexico

22. (16:30) Theoretical and Experimental Results of Energy Based Swinging up Control for a Remotely Driven Acrobot

Xin Xin, Okayama Prefectural University, Japan

Masahiro Kaneda, Okayama Prefectural University, Japan

Taiga Yamasaki, Okayama Prefectural University, Japan

Kazuhisa Omasa, Okayama Prefectural University, Japan

FUSION OF ANALYTICAL AND SOFT COMPUTING METHODS IN FAULT DIAGNOSIS

Tuesday 05-Jul-2005 16:30-18:30, Club E

Organizer: ***Jozef Korbicz, University of Zielona Gora, Poland***

Co-Organizer ***Joseba Quevedo, Universitat Politecnica Catalunia, Spain***

Chair: ***Jozef Korbicz, University of Zielona Gora, Poland***

Co-Chair: ***Stephane Ploix, LAG / INPG, France***

1. (16:30) Diagnosis of continuous dynamic systems: integrating consistency-based diagnosis with machine-learning techniques

Belarmino Pulido, Universidad de Valladolid, Spain

Juan J. Rodriguez Diez, Universidad de Burgos, Spain

Carlos Alonso González, Universidad de Valladolid, Spain

Oscar J. Prieto Izquierdo, Universidad de Valladolid, Spain

Esteban R. Gelso, UNCPBA, Argentina

2. (16:50) Robust fault detection using neuro-fuzzy networks

Marek Kowal, University of Zielona Gora, Poland

Józef Korbicz, University of Zielona Gora, Poland

3. (17:10) Experimental Fault Detection and Accommodation for an Agricultural Mobile Robot

Kasper Oestergaard, Aalborg University, Denmark

Morten Bisgaard, Aalborg University, Denmark

Dennis Vinther, Aalborg University, Denmark

Roozbeh Izadi-Zamanabadi, Aalborg University, Denmark

Jan D. Bendtsen, Aalborg University, Denmark

4. (17:30) Robust fault diagnosis in catalytic cracking converter using artificial neural networks

Krzysztof Patan, University of Zielona Gora, Poland

FUSION OF ANALYTICAL AND SOFT COMPUTING METHODS IN FAULT DIAGNOSIS

Tuesday 05-Jul-2005 16:30-18:30, Club E

Organizer: ***Jozef Korbicz, University of Zielona Gora, Poland***

Co-Organizer ***Joseba Quevedo, Universitat Politecnica Catalunia, Spain***

Chair: ***Jozef Korbicz, University of Zielona Gora, Poland***

Co-Chair: ***Stephane Ploix, LAG / INPG, France***

5. (17:50) A GMDH Neural Network Based Approach to Passive Robust Fault Detection using a Constraints Satisfaction Backward Test

Vicenç Puig, Universitat Politècnica de Catalunya, Spain

Marcin Mrugalski, University of Zielona Góra, Poland

Ari Ingimundarson, Universitat Politècnica de Catalunya, Spain

Joseba Quevedo, Universitat Politècnica de Catalunya, Spain

Marcin Witczak, University of Zielona Góra, Poland

Jozef Korbicz, University of Zielona Góra, Poland

6. (18:10) Optimal activation strategy of discrete scanning sensors for fault detection in distributed-parameter systems

Maciej Patan, University of Zielona Gora, Poland

Dariusz Ucinski, University of Zielona Gora, Poland

SIMULATION AND CONTROL OF ADVANCED MATERIALS MANUFACTURING PROCESSES

Tuesday 05-Jul-2005 16:30-18:30, Small Theatre

Organizer: ***Raymond Adomaitis, University of Maryland, United States***

Co-Organizer ***Panagiotis Christofides, UCLA, United States***

Chair: ***Panagiotis Christofides, UCLA, United States***

Co-Chair: ***Raymond Adomaitis, University of Maryland, United States***

1. (16:30) Control of Film Uniformity Properties in a Planetary Radial-Flow Gallium Nitride CVD System

Raymond Adomaitis, University of Maryland, United States

Rinku P. Parikh, University of Maryland, United States

2. (16:50) Optimal operation of thin film growth with multiscale process objectives

Amit Varshney, Pennsylvania State University, United States

Antonios Armaou, Pennsylvania State University, United States

3. (17:10) More Process System Engineering (PSE) Applications in Integrated Circuit (IC) Manufacturing

Daniel Lewin, Technion, Israel

Sivan Lachman-Shalem, Technion, Israel

Benyamin Grosman, Technion, Israel

4. (17:30) Multiscale Modeling of HVOF Thermal Spray Process

Panagiotis Christofides, University of California, United States

Mingheng Li, University of California, United States

5. (17:50) POD based model approximation for an industrial glass feeder

Siep Weiland, Eindhoven University of Technology, Netherlands

Patricia Astrid, Eindhoven University of Technology, Netherlands

SIMULATION AND CONTROL OF ADVANCED MATERIALS MANUFACTURING PROCESSES

Tuesday 05-Jul-2005 16:30-18:30, Small Theatre

Organizer: ***Raymond Adomaitis, University of Maryland, United States***

Co-Organizer ***Panagiotis Christofides, UCLA, United States***

Chair: ***Panagiotis Christofides, UCLA, United States***

Co-Chair: ***Raymond Adomaitis, University of Maryland, United States***

6. (18:10) Electroless Nickel Plating: Bath Control

Kalle Kantola, Helsinki University of Technology, Finland

Robert Tenno, Helsinki University of Technology, Finland

Heikki Koivo, Helsinki University of Technology, Finland

RESEARCH AND DEVELOPMENTS CHALLENGES AND OPEN ISSUES IN MANUFACTURING AUTOMATION

Tuesday 05-Jul-2005 16:30-18:30, Terrace 1

Chair: ***Christian Diedrich, ifak Magdeburg, Germany***

Co-Chair: ***Luca Ferrarini, Politecnico di Milano, Italy***

1. (16:30) Production Automation & Control, Networking Innovation in Europe

Armando Walter Colombo, Schneider Electric, Germany

Michael Hoepf, Fraunhofer IPA, Germany

2. (16:50) Control Functions Development for Distributed Automation Systems using the TORERO Approach

Luca Ferrarini, Politecnico di Milano, Italy

Veber Carlo, Politecnico di Milano, Italy

Schwab Christian, University of Magdeburg, Germany

Tangermann Marcus, University of Magdeburg, Germany

Prayati Aggeliki, University of Patras, Greece

3. (17:10) The Proteus Approach of Maintenance Work Flow Management

Mario Thron, ifak Magdeburg, Germany

Thomas Bangemann, ifak Magdeburg, Germany

4. (17:30) Objectives of Integrated Digital Production Engineering in the Automotive Industry

Guenter Schmidgall, Daimler Chrysler AG, Germany

Jens Kiefer, Daimler Chrysler AG, Germany

Thomas Bär, Daimler Chrysler AG, Germany

5. (17:50) Using Ontology-Based Reference Models in Digital Production Engineering Integration

Peter Szulman, Universität Karlsruhe, Germany

Mark Hefke, Universität Karlsruhe, Germany

Adrian Trifu, Universität Karlsruhe, Germany

Martin Soto, Fraunhofer IESE, Germany

Danilo Assmann, Fraunhofer IESE, Germany

Joerg Doerr, Fraunhofer IESE, Germany

Michael Eisenbarth, Fraunhofer IESE, Germany

RESEARCH AND DEVELOPMENTS CHALLENGES AND OPEN ISSUES IN MANUFACTURING AUTOMATION

Tuesday 05-Jul-2005 16:30-18:30, Terrace 1

Chair: ***Christian Diedrich, ifak Magdeburg, Germany***

Co-Chair: ***Luca Ferrarini, Politecnico di Milano, Italy***

6. (18:10) Support of Control Application Design using Digital Design and Planning of Manufacturing Cells

Christian Diedrich, ifak Magdeburg, Germany

Günter Franz, Aucotec GmbH, Germany

Karl-Heinz John, Infoteam GmbH, Germany

Jan Krause, ifak Magdeburg, Germany

Frank Poignee, Infoteam GmbH, Germany

THERMAL POWER PLANT CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Club B

Chair: ***Yrjo Majjane, ., Finland***

Co-Chair: ***Harald Weber, University of Rostock, Germany***

1. (16:30) Control Design for a Gas Turbine Cycle with CO2 Capture Capabilities

Dagfinn Snarheim, NTNU, Norway

Lars Imsland, NTNU, Norway

Bjarne Foss, NTNU, Norway

Ragnhild Ulfsnes, NTNU, Norway

Olav Bolland, NTNU, Norway

2. (16:50) Estimation of NOx Emissions in Thermal Power Plants using Eng-Genes Neural Networks

Kang Li, Queen's University Belfast, United Kingdom

Jian-xun Peng, Queen's University Belfast, United Kingdom

George W. Irwin, Queen's University Belfast, United Kingdom

Luigi Piroddi, Politecnico di Milano, Italy

William Spinelli, Politecnico di Milano, Italy

3. (17:10) Fuzzy Control of Combustion with Genetic Learning Automata

Zoltán Himer, Oulu University, Finland

Géza Dévényi, Technical University of Budapest, Hungary

Jenő Kovács, Oulu University, Finland

Urpo Kortela, Oulu University, Finland

4. (17:30) Nonlinear Model Predictive Control of Combined Cycle Power Plants

Claudio Aurora, CESI spa, Italy

Moritz Diehl, University of Heidelberg, Germany

Peter Kuehl, University of Heidelberg, Germany

Lalo Magni, University of Pavia, Italy

Riccardo Scattolini, Politecnico di Milano, Italy

THERMAL POWER PLANT CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Club B

Chair: ***Yrjo Majjane, ., Finland***

Co-Chair: ***Harald Weber, University of Rostock, Germany***

5. (17:50) Modelling of an Integrated Superheater based on a Wiener Approach

Jari Mononen, University of Oulu, Finland

Enso Ikonen, University of Oulu, Finland

6. (18:10) The Use of The Astrom-Bell Model for The Design of Drum Level Controllers in Power Plant Boilers

Chris Lu, University of New South Wales, Australia

N.W. Rees, University of New South Wales, Australia

S.C. Donaldson, Energy Australia, Australia

ADAPTIVE NEURO-FUZZY CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Club D

Chair: ***David Naso, Politecnico di Bari, Italy***

Co-Chair: ***Antonio Sala, Universidad Politecnica, Spain***

1. (16:30) Adaptive Neural-Fuzzy Control of Uncertain Nonholonomic Systems

Zhuping Wang, National University of Singapore, Singapore

S. S. Ge, National University of Singapore, Singapore

T. H. Lee, National University of Singapore, Singapore

2. (16:50) Composite Adaptive Fuzzy Control

Domenico Bellomo, Politecnico di Bari, Italy

David Naso, Politecnico di Bari, Italy

Biagio Turchiano, Politecnico di Bari, Italy

Robert Babuska, Delft University of Technology, Netherlands

3. (17:10) Self-Tuning Neuro-Fuzzy Generalized Minimum Variance Controller

Sergio Enrique Pinto Castillo, University of Strathclyde/Industrial Control Centre, Mexico

Mike J. Grimble, University of Strathclyde/Industrial Control Centre, United Kingdom

Reza Katebi, University of Strathclyde/Industrial Control Centre, United Kingdom

4. (17:30) Avoiding Controller Singularities in Adaptive Recurrent Neural Control

Ramon Felix, FIME Universidad de Colima, Mexico

Edgar N. Sanchez, CINVESTAV Guadalajara, Mexico

Alexander G. Loukianov, CINVESTAV Guadalajara, Mexico

5. (17:50) Fuzzy estimation of the robot load

Andreja Rojko, University of Maribor, Faculty of electrical engineering, Slovenia

Karel Jezernik, University of Maribor, Faculty of electrical engineering, Slovenia

ADAPTIVE NEURO-FUZZY CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Club D

Chair: ***David Naso, Politecnico di Bari, Italy***

Co-Chair: ***Antonio Sala, Universidad Politecnica, Spain***

6. (18:10) Sliding Mode Control of Aerobic Bioprocess using Recurrent Neural Identifier

Ieroham Baruch, CINVESTAV-IPN, Mexico

Luis-Alberto Hernandez, CINVESTAV-IPN, Mexico

Jesus-Roberto Valle, CINVESTAV-IPN, Mexico

Josefina Barrera-Cortes, CINVESTAV-IPN, Mexico

ROBUST ADAPTIVE AND SWITCHED CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Club C

Chair: ***Faryar Jabbari, University of California, United States***

Co-Chair: ***Daniel Miller, University of Waterloo, Canada***

1. (16:30) A switching scheme for the robust stabilization of discrete time systems with unmatched uncertainties

Maria Letizia Corradini, Università di Camerino, Italy

Giuseppe Orlando, Università Politecnica delle Marche, Italy

2. (16:50) An observer-based fault-accommodating controller for nonlinear systems in the presence of sensor failures

Maria Letizia Corradini, University of Lecce, Italy

Giuseppe Orlando, Università Politecnica delle Marche, Italy

Gianfranco Parlangeli, University of Lecce, Italy

3. (17:10) Weighted Sensitivity Minimization in the Presence of an Uncertain Gain

Daniel Miller, University of Waterloo, Canada

4. (17:30) Simultaneous Identification of Time-Varying Parameters and Estimation of System States Using

Wen Chen, Nanyang Technological University, Singapore

Meng Joo Er, Nanyang Technological University, Singapore

5. (17:50) Robust stability of discrete-time adaptive nonlinear control

Liang-Liang Xie, Chinese Academy of Sciences, China

Chanying Li, Chinese Academy of Sciences, China

Lei Guo, Chinese Academy of Sciences, China

6. (18:10) Disturbance estimation and cancellation for a class of linear uncertain systems

Hwi J. Kim, Coventry University, United Kingdom

David P. Goodall, Coventry University, United Kingdom

LINEAR SYSTEMS III

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 2.2

Chair: ***Mario Salgado, Univ. Tecnica Frederico Santa Maria, Chile***

Co-Chair: ***Tadeusz Kaczorek, Warsaw University of Technology, Poland***

1. (16:30) Diagonally-Invariant Exponential Stability

Octavian Pastravanu, Technical University "Gh. Asachi" of Iasi, Romania

Matcovschi Mihaela-Hanako, Technical University "Gh. Asachi" of Iasi, Romania

Voicu Mihail, Technical University "Gh. Asachi" of Iasi, Romania

2. (16:50) Stable Dynamic Inversion of Nonminimum-phase Scalar Linear Systems

Aurelio Piazzi, University of Parma, Italy

Daniele Pallastrelli, SELTA, Italy

3. (17:10) Interconnection of the Kronecker Canonical Form and Special Coordinate Basis of General Multivariable Linear Systems

Ben M. Chen, National University of Singapore, Singapore

Xinmin Liu, National University of Singapore, Singapore

Zongli Lin, University of Virginia, United States

4. (17:30) MIMO interactions in sampled data systems

Mario Salgado, UTFSM, Chile

Diego Rojas, UTFSM, Chile

5. (17:50) Linear symmetric dynamical systems

Paolo Vettori, University of Aveiro, Portugal

Jan Willems, University of Leuven, Belgium

6. (18:10) Generalization of Cayley-Hamilton Theorem for n-D polynomial matrices

Tadeusz Kaczorek, Warsaw University of Technology, Poland

SWITCHED DYNAMIC SYSTEMS I

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 4.1

Chair: ***David Hill, Australian National University, Australia***

Co-Chair: ***Carlos Canudas-de-Wit, CNRS, INPG Grenoble, France***

1. (16:30) Vector L 2-Gain and a Small Gain Theorem for Switched Systems

Jun Zhao, City University of Hong Kong, China

David J. Hill, The Australian National University, Australia

2. (16:50) Stability of a Class of Hybrid Impulsive and Switching Systems

Zhi-Hong Guan, Huazhong University of Science and Technology, China

David J. Hill, The Australian National University, Australia

Xuemin (Sherman) Shen, University of Waterloo, Canada

3. (17:10) Invariant Sets for Switched Discrete Time Systems subject to Bounded Disturbances

Pascal Grieder, ETH Zurich, Switzerland

S.V. Rakovic, Imperial College London, United Kingdom

M. Morari, ETH Zurich, Switzerland

D.Q. Mayne, Imperial College London, United Kingdom

4. (17:30) Reachability Analysis of Switched Linear Systems with Switching/Input Constraints

Zhendong Sun, NUI Maynooth, Ireland

5. (17:50) Switched state jump observers for switched systems

Stefan Pettersson, Chalmers University of Technology, Sweden

6. (18:10) Suboptimal control of switched nonlinear systems under location and switching constraints

Sid Ahmed Attia, INPG, France

Mazen Alamir, INPG, France

Carlos Canudas de Wit, INPG, France

MODEL REDUCTION TECHNIQUES

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 4.2

Chair: ***Boris Lohmann, Technische Universitaet Muenchen, Germany***

Co-Chair: ***Herbert Werner, Hamburg University of Technology, Germany***

1. (16:30) ELO Model Reduction and Case Study of Evenly Distributed RC Interconnect

Sheng-Guo Wang, University of North Carolina at Charlotte, United States

Ben Wang, IBM, United States

Baoguo Yuan, Shanghai Second Polytechnic University, China

2. (16:50) Parameter Reduction for LPV Systems via Principal Components Analysis

Andreas Kwiatkowski, Hamburg University of Technology, Germany

Herbert Werner, Hamburg University of Technology, Germany

3. (17:10) Real Interpolation Points in Model Reduction: Justification, Two Schemes and Error Bound

Lan Yue Ji, University of Bremen, Germany

Behnam Salimbahrami, Technical University of Munich, Germany

Boris Lohmann, Technical University of Munich, Germany

4. (17:30) Reducing Second Order Systems by an integrated state space and back Conversion procedure

Behnam Salimbahrami, Technical University of Munich, Germany

Boris Lohmann, Technical University of Munich, Germany

Rike Grotmaack, University of Bremen, Germany

Angelika Bunse-Gerstner, University of Bremen, Germany

5. (17:50) Reduction of Second Order Systems using Second Order Krylov subspaces

Boris Lohmann, Technical University of Munich, Germany

Behnam Salimbahrami, Technical University of Munich, Germany

MODEL REDUCTION TECHNIQUES

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 4.2

Chair: ***Boris Lohmann, Technische Universitaet Muenchen, Germany***

Co-Chair: ***Herbert Werner, Hamburg University of Technology, Germany***

6. (18:10) Stable reduced Order Modelling of Large Scale Systems using Prescribed Poles

Behnam Salimbahrami, Technical University of Munich, Germany

Boris Lohmann, Technical University of Munich, Germany

OPTIMAL CONTROL APPLICATIONS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 1.1

Chair: ***Sebastian Engell, Universitat Dortmund, Germany***

Co-Chair: ***Jerome Harmand, INRA Narbonne, France***

1. (16:30) Time-optimal control of a particle in a dielectrophoretic system

Dong Eui Chang, ENSMP, France

Nicolas Petit, ENSMP, France

Pierre Rouchon, ENSMP, France

2. (16:50) Attainability and Suboptimal Minimal Time Control of a Class of Biological Sequencing Batch Reactor

Djalel Eddine Mazouni, INRA Narbonne, France

Jérôme Harmand, INRA Narbonne, France

Alain Rapaport, INRA Montpellier, France

3. (17:10) Exploring Optimal Gaits for Planar Carangiform Robot Fish Locomotion

Keehong Seo, Pohang University of Science and Technology, Korea

Richard M. Murray, California Institute of Technology, United States

Jin S. Lee, Pohang University of Science and Technology, Korea

4. (17:30) Optimal Ramp Metering Strategy with Extended LWR Model, Analysis and Computational Methods

Denis Jacquet, Institut National Polytechnique de Grenoble, France

Carlos Canudas de Wit, Institut National Polytechnique de Grenoble, France

Damien Koenig, Institut National Polytechnique de Grenoble, France

5. (17:50) Optimal Sample Time Selections for Interpolation and Smoothing

Florent Delmotte, Georgia Institute of Technology, United States

Magnus Egerstedt, Georgia Institute of Technology, United States

Clyde Martin, Texas Tech University, United States

OPTIMAL CONTROL APPLICATIONS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 1.1

Chair: ***Sebastian Engell, Universitat Dortmund, Germany***

Co-Chair: ***Jerome Harmand, INRA Narbonne, France***

6. (18:10) A Methodology for Control Structure Selection based on Rigorous Process Models

Sebastian Engell, Universität Dortmund, Germany

Tobias Scharf, Universität Dortmund, Germany

Marten Völker, Universität Dortmund, Germany

TELEMATICS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 2.3

Organizer: ***Hubert Roth, Universitaet Siegen, Germany***

Chair: ***Hubert Roth, University of Siegen, Germany***

Co-Chair: ***Aarne Halme, Helsinki University of Technology, Finland***

1. (16:30) Communication and Data Sharing in Human-Robot Heterogenous Teams

Jiří Pavlíček, Czech Technical University in Prague, Czech Republic

Libor Přeučil, Czech Technical University in Prague, Czech Republic

Frauke Driewer, Julius-Maxmilians University Würzburg, Germany

Herbert Baier, Julius-Maxmilians University Würzburg, Germany

2. (16:50) Creating Common Presence for a Multientity Rescue Team

Jussi Suomela, Helsinki University of Technology, Finland

Jari Saarinen, Helsinki University of Technology, Finland

Aarne Halme, Helsinki University of Technology, Finland

3. (17:10) Remote Control of Mobile Robots for Emergencies

Klaus Schilling, Julius-Maximilians Universität Würzburg, Germany

Frauke Driewer, Julius-Maximilians Universität Würzburg, Germany

4. (17:30) Extended Stability Margins on Controller Design for Nonlinear Input Delay Systems

Otto Juergen Roesch, University Siegen, Germany

Hubert Roth, University Siegen, Germany

Asif Iqbal, University Siegen, Germany

5. (17:50) Network Traffic Reduction in Haptic Telepresence Systems by Deadband Control

Sandra Hirche, Technische Universität München, Germany

Peter Hinterseer, Technische Universität München, Germany

E. Steinbach, Technische Universität München, Germany

Martin Buss, Technische Universität München, Germany

TELEMATICS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 2.3

Organizer: ***Hubert Roth, Universitaet Siegen, Germany***

Chair: ***Hubert Roth, University of Siegen, Germany***

Co-Chair: ***Aarne Halme, Helsinki University of Technology, Finland***

6. (18:10) Driver Support System Based on a Non-Linear Slip Observer for Off Road Vehicles

Zibin Song, Kings College London, United Kingdom

Yahya H. Zweiri, Kings College London, United Kingdom

Lakmal D. Seneviratne, Kings College London, United Kingdom

Kaspar Althoefer, Kings College London, United Kingdom

MECHATRONIC CONTROL OF MOTORS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.1

Chair: ***Lino Guzzella, ETH Zurich, Switzerland***

Co-Chair: ***Nadine Piat, Laboratoire d'automatique de Besançon, France***

1. (16:30) Experimental results of a Cascade Observer for sensorless induction motor on low frequencies Benchmark

Malek Ghanes, IRCCyN, Ecole Centrale Nantes, France

Jesus Deleon, Departement of Electrical Engineering, University of Nuevo Leon, Mexico

Alain Glumineau, IRCCyN, Ecole Centrale Nantes, France

2. (16:50) Low Speed Sensorless Variable Structure Control of Induction Motor

Karel Jezernik, University of Maribor, Slovenia

Gregor Edelbaher, University of Maribor, Slovenia

Asif Šabanović, Sabanci University, Turkey

3. (17:10) Sensorless Speed and Flux Regulation of Induction Motors: A Sliding Mode Approach

Claudio Aurora, CESI spa, Italy

Antonella Ferrara, Università di Pavia, Italy

4. (17:30) Cascaded Nonlinear Receding-Horizon Control of Induction Motors

Patrick Boucher, Supelec, France

Ramdane Hedjar, Control and Instrumentation Dept.-USTHB, Algeria

Didier Dumur, Supelec, France

5. (17:50) Sliding-Mode Control for Linear Permanent-Magnet Motor Position Tracking

Gerardo Tapia-Otaegui, University of the Basque Country, Spain

Arantxa Tapia-Otaegui, University of the Basque Country, Spain

6. (18:10) Robust Adaptive Control of Transverse Flux Permanent Magnet Machines using Neural Networks

Amir Babazadeh, university of Bremen, Germany

Hamidreza Karimi, University of Tehran, Iran

Nejila Parspour, University of Bremen, Germany

INTEGRATION OF BUSINESS AND MANUFACTURING CONTROL SYSTEMS - ENTERPRISE ENGINEERING MODELS, TOOLS AND STANDARDS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.2

Organizer: ***Hervé Panetto, University Henri Poincaré Nancy I, France***

Chair: ***Hervé Panetto, University Henri Poincaré Nancy I/CRAN, France***

Co-Chair: ***Emmanuel delaHostria, Rockwell Automation, United States***

1. (16:30) ISO 18629 PSL : A Standardised Language for Specifying and Exchanging Process Information

Anne-Francoise Cutting-Decelle, University of Evry / IUT, France

Line Pouchard, Oak Ridge National Laboratory, United States

Jean-Jacques Michel, Idpiconseil, France

Michael Grüninger, National Institute of Standards and TEchnology, United States

2. (17:10) Harmonisation of standards for eenterprise integration - an urgent need

Martin Zelm, CIMOSA Association, Germany

3. (17:30) Manufacturing Application Integration Scheme using ISO 15745 and IEC 62264

Emmanuel delaHostria, Rockwell Automation, United States

4. (17:50) Holon-Oriented B2M Process Modelling Approach for Applications Interoperability in Manufacturing Systems Environment

Salah Baïna, University Henri Poincaré Nancy I/CRAN, France

Hervé Panetto, University Henri Poincaré Nancy I/CRAN, France

Gérard Morel, University Henri Poincaré Nancy I/CRAN, France

5. (18:10) Enriched Multi-Process Modelling

Kamran Chatha, Loughborough University, United Kingdom

Richard Weston, Loughborough University, United Kingdom

HOT ROLLING

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.3

Chair: ***Kazuya Asano, JFE R&D Corporation, Japan***

Co-Chair: ***Il Seop Choi, The University of Sheffield, United Kingdom***

1. (16:30) A Hybrid Approach to Tension Control in Hot Rolling

Kazuya Asano, JFE R&D Corporation, Japan

Kazuro Tsuda, JFE R&D Corporation, Japan

Jun-ichi Imura, Tokyo Institute of Technology, Japan

Akira Kojima, Tokyo Metropolitan Institute of Technology, Japan

Shiro Masuda, Tokyo Metropolitan Institute of Technology, Japan

2. (16:50) A Survey of the Looper-Tension Control Technology in Hot Rolling Mills

Il Seop Choi, The University of Sheffield, United Kingdom

Anthony Rossiter, The University of Sheffield, United Kingdom

Peter Fleming, The University of Sheffield, United Kingdom

3. (17:10) Fault Diagnosis of Roll Shape under the Speed Change in Hot Rolling Mill

Kee Hyun Shin, Konkuk University, Korea

Chang Woo Lee, Konkuk University, Korea

Hyun Kyoo Kang, Konkuk University, Korea

Cheol Jae Park, POSCO, Korea

4. (17:30) Input Selection Technology of Neural Network and its Application for Hot Strip Mill

Cheol Jae Park, POSCO, Korea

Duk Man Lee, POSCO, Korea

5. (17:50) Nonlinear Control of the Interstand Looper in Hot Strip Mills: a Backstepping Approach

Francesco A. Cuzzola, Danieli Automation SpA, Italy

Thomas Parisini, University of Trieste, Italy

HOT ROLLING

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.3

Chair: ***Kazuya Asano, JFE R&D Corporation, Japan***

Co-Chair: ***Il Seop Choi, The University of Sheffield, United Kingdom***

6. (18:10) Coiler Control in Endless Hot Strip Rolling

Takashi Motomura, JFE steel corporation, Japan

Kiyoshi Ueda, JFE steel corporation, Japan

Toshio Imazeki, JFE steel corporation, Japan

Yoshimitsu Fukui, JFE steel corporation, Japan

Kazuhiro Yahiro, JFE steel corporation, Japan

FLEXIBLE ROBOTS

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 4.3

Chair: ***Jurek Sasiadek, Carleton University, Ottawa, Canada***

Co-Chair: ***Heinz Erbe, Technical University of Berlin, Germany***

1. (16:30) Sensor Location Effect on Flexible Robot Stability and Control

Anthony Green, Carleton University, Canada

Jurek Z. Sasiadek, Carleton University, Canada

2. (16:50) Position Estimation and Modeling of a Flexible Industrial Robot

Mikael Norrlöf, Linköping University, Sweden

Rickard Karlsson, Linköping University, Sweden

3. (17:10) Modeling and Control of a Flexible Sensor Structure in Microassembly

Yantao Shen, Michigan State University, United States

Ning Xi, Michigan State University, United States

Wen J. Li, The Chinese University of Hong Kong, China

4. (17:30) A Singularly Perturbed Model for Robust Control of Linear Single-Link Flexible Manipulator

Hamidreza Karimi, University of Tehran, Iran

Mohammad Javad Yazdanpanah, University of Tehran, Iran

5. (17:50) Force control and exponential stability for one-link flexible arm

Takahiro Endo, Tokyo Institute of Technology, Japan

Fumitoshi Matsuno, The University of Electro-Communications, Japan

6. (18:10) Robotic Manipulation of a Hyper-flexible Body

Hiromi Mochiyama, Nagoya Institute of Technology, Japan

Hideo Fujimoto, Nagoya Institute of Technology, Japan

LEARNING AND ADAPTIVE CONTROL OF MECHANICAL STRUCTURES

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 2.1

Organizer: ***Sandor M Veres, University of Southampton, United Kingdom***

Co-Organizer ***Akira Sano, Keio University, Japan***

Chair: ***Akira Sano, Keio University, Japan***

Co-Chair: ***Sandor M. Veres, University of Southampton, United Kingdom***

1. (16:30) Active Structural Acoustic Control of a Machine Enclosure

Sandor M Veres, University of Southampton, United Kingdom

Jian Luo, University of Southampton, United Kingdom

2. (16:50) Periodic Disturbance Rejection with an Internal Model-Based H2 Optimal Controller

C.E. Kinney, University of California, San Diego, United States

R.A. de Callafon, University of California, San Diego, United States

E. Dunens, Hewlett-Packard Company, United States

R. Bargerhuff, Hewlett-Packard Company, United States

C.E. Bash, Hewlett-Packard Company, United States

3. (17:10) Fully Adaptive Semi-active Control of Vibration Isolation by MR Damper

Takashi Terasawa, Keio University, Japan

Akira Sano, Keio University, Japan

4. (17:30) Filtering Structural Modes in Aircraft: Notch Filters VS Kalman Filters

Scott Halsey, Loughborough University, United Kingdom

Roger Goodall, Loughborough University, United Kingdom

Brian Caldwell, BAE Systems, United Kingdom

John Pearson, BAE Systems, United Kingdom

LEARNING AND ADAPTIVE CONTROL OF MECHANICAL STRUCTURES

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 2.1

Organizer: ***Sandor M Veres, University of Southampton, United Kingdom***

Co-Organizer ***Akira Sano, Keio University, Japan***

Chair: ***Akira Sano, Keio University, Japan***

Co-Chair: ***Sandor M. Veres, University of Southampton, United Kingdom***

5. (17:50) Autonomous Flight Control and Hardware-In-The-Loop Simulator for a Small Helicopter

Farshad Khorrami, Polytechnic University, United States

Tzer L. Ng, Polytechnic University, United States

Prashanth Krishnamurthy, Polytechnic University, United States

Stephen Fujikawa, IntelliTech Microsystems, Inc., United States

6. (18:10) Logitudinal Control of Platoon for Electric Vehicle Using Adaptive Neural Networks

Hiromitsu Ohmori, Keio University, Japan

Makoto Kayayama, Keio University, Japan

Kouji Ichikawa, Keio University, Japan

Yoshitaka Oikawa, Keio University, Japan

PREDICTIVE CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.4

Chair: ***Daniel Davison, University of Waterloo, Canada***

Co-Chair: ***Marcin Cychowski, Cork Institute of Technology, Ireland***

1. (16:30) A Logarithmic-Time Solution to the Point Location Problem for Closed-Form Linear MPC

Colin Jones, University of Cambridge, United Kingdom

Pascal Grieder, Swiss Federal Institute of Technology, Switzerland

Sasa Rakovic, Imperial University, United Kingdom

2. (16:50) Control of PWA systems using a stable receding horizon method

Ion Necoara, Technical University Delft, Netherlands

Bart De Schutter, Technical University Delft, Netherlands

Maurice Heemel, Technical University Eindhoven, Netherlands

Siep Weiland, Technical University Eindhoven, Netherlands

Mircea Lazar, Technical University Eindhoven, Netherlands

Ton van den Boom, Technical University Delft, Netherlands

3. (17:10) Efficient Off-line Solutions to Robust Model Predictive Control Using Orthogonal Partitioning

Marcin Cychowski, Cork Institute of Technology, Ireland

Thomas O'Mahony, Cork Institute of Technology, Ireland

4. (17:30) MPC for tracking of piece-wise constant references for constrained linear systems

Daniel Limon, University of Seville, Spain

Ignacio Alvarado, University of Seville, Spain

Teodoro Alamo, University of Seville, Spain

Eduardo F. Camacho, University of Seville, Spain

5. (17:50) Model Predictive Controller for Piecewise Affine System

Miguel Edgardo Peña, INAUT, Fac. de Ingeniería, U.N. San Juan, Argentina

Eduardo Fernández Camacho, ESI, U. de Sevilla, Spain

Sandra Piñón, ESI, U. de Sevilla, Spain

Ricardo Carelli, INAUT, Fac. de Ingeniería, U.N. San Juan, Argentina

PREDICTIVE CONTROL

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.4

Chair: ***Daniel Davison, University of Waterloo, Canada***

Co-Chair: ***Marcin Cychowski, Cork Institute of Technology, Ireland***

6. (18:10) Optimal Transient Response Shaping in Model Predictive Control

Daniel Davison, University of Waterloo, Canada

Ruth Milman, University of Toronto, Canada

Edward J. Davison, University of Toronto, Canada

INPUT-TO-STATE STABILITY AND PASSIVITY

Tuesday 05-Jul-2005 16:30-18:30, Meeting Room 3.5

Chair: ***Lars Grune, University of Bayreuth, Germany***

Co-Chair: ***Chen Tianshi, Harbin Institute of Technology, China***

1. (16:30) Disturbance rejection with LTI internal models for passive nonlinear systems

Bayu Jayawardhana, Imperial College London, United Kingdom

George Weiss, Imperial College London, United Kingdom

2. (16:50) A speed-gradient-based method to passify nonlinear discrete-time systems

Eva Maria Navarro-Lopez, Instituto Mexicano del Petroleo, Mexico

3. (17:10) Remarks on Input-to-Output Stability for Discrete Time Systems

Zhong-Ping Jiang, Polytechnic University, United States

Yuandan Lin, Florida Atlantic University, United States

Yuan Wang, Florida Atlantic University, United States

4. (17:30) On Nonuniform and Semi-Uniform Input-to-State Stability for Time Varying Systems

Yuandan Lin, Florida Atlantic University, United States

Yuan Wang, Florida Atlantic University, United States

Daizhan Cheng, Institute of Systems Science, Chinese Academy of Sciences, China

5. (17:50) Constrained input-to-state stability of nonlinear systems

Tianshi Chen, Harbin Institute of Technology, China

Zhiyuan Liu, Harbin Institute of Technology, China

Hong Chen, Jilin University, China

Run Pei, Harbin Institute of Technology, China

6. (18:10) Input-to-State Stability of Switched Nonlinear Systems

Wei Feng, Chinese Academy of Sciences, China

Ji-Feng Zhang, Chinese Academy of Sciences, China