Wednesday

July 6, 2005

Industry Day II

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)
2.3. Non-Linear Control Systems	F. Allgöwer (DE)
2.4. Optimal Control	A. Kleimenov (RU)
2.5. Robust Control	C. Scherer (DE)
3.1. Computers for Control	R. Sanz (ES)
3.2. Cognition and Control	R. Babuska (NL)
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.

CONGRESS TECHNICAL AREAS

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

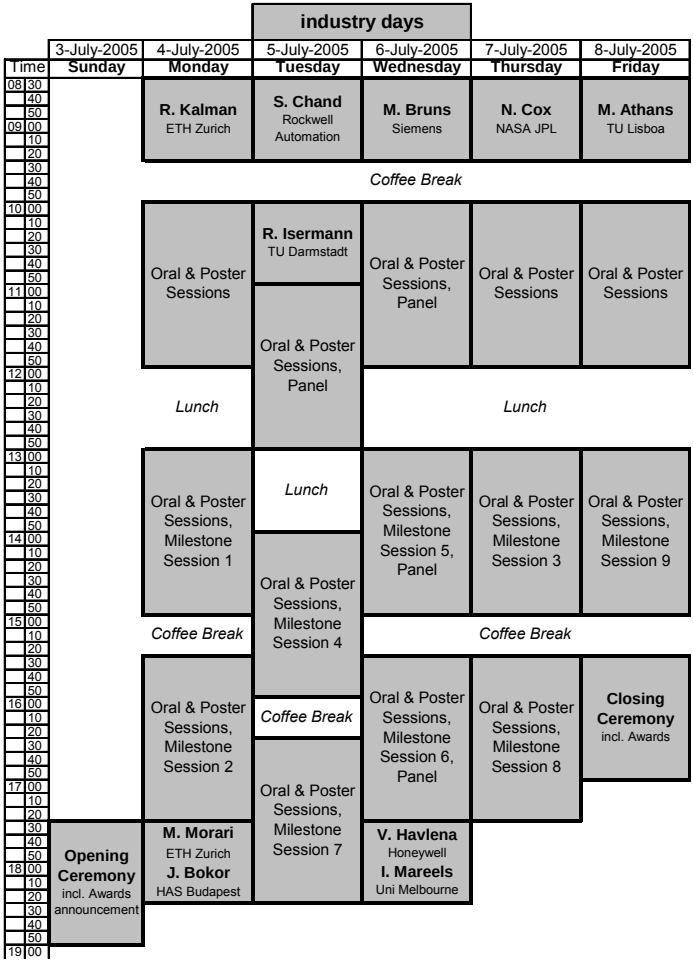
5. Manufacturing Systems
   5.1 Manufacturing Plant Control
   5.2 Manufacturing Modelling for Management & Control
   5.3 Enterprise Integration and Networking
   5.4 Large Scale Complex Systems

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
   9.5 Supplemental Ways of Improving International Stability


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
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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
Coffee Break
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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

Wednesday July 6, 2005 Session	Area	Poster	Invited	08:30 - 09:30	10:00 - 12:00	13:00 - 15:00	15:30 - 17:30	17:30 - 18:30	Page
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Semi-Plenary – I. Mareels								♠	3
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Milestone – Industrial systems	**7.**						**01**		5
Panel – Infotronic Technologies for e-maintenance regarding the cost aspects	**4.4.**				**01**				6
Panel – Industrial Perspectives on Process Control	**6.1.**					**03**			7
Panel – Rethinking Control Education in the Modern World	**9.4.**						**03**		8
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Wednesday July 6, 2005 Session	Area	Poster	Invited	08:30 - 09:30	10:00 - 12:00	13:00 - 15:00	15:30 - 17:30	17:30 - 18:30	Page
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Satellite Event:

Wednesday July 6, 2005						12:00 - 13:00			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 II

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 on the next page introduces sessions organized as part of the Industry Day II technical program.

INDUSTRY DAY PROGRAM AT A GLANCE – WEDNESDAY, JULY 6, 2005

Wednesday July 6, 2005 Industry Day Sessions	Area	Poster	Invited	08:30 - 09:30	10:00 - 12:00	13:00 - 15:00	15:30 - 17:30	17:30 - 18:30	Page
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Plenary – M. Bruns				♣					1
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Semi-Plenary – I. Mareels								♠	3
Milestone – Manufacturing systems	**5.**					**01**			4
Milestone – Industrial systems	**6.**						**01**		5
Panel – Infotronic Technologies for e-maintenance regarding the cost aspects	**4.4.**				**01**				6
Panel – Industrial Perspectives on Process Control	**6.1.**					**03**			7
Advances in Automation in Pulp Industry	6.1.		**X**		**20**				49
Advances in Automation in Paper Making Industry	6.1.		**X**			**20**			93
Advanced Manufacturing Plant Control	5.1.		**X**		**07**				31
Adaptive Integrated Driver-Vehicle Interface-AIDE	4.1.		**X**			**07**			73
Industrial Applications of Process Control	6.1.		**X**		**06**				29
Steel Mills, Sintering, Furnaces and Converters	6.2.		**X**		**22**				51
Rolling Mills II	6.2.					**21**			95
Mineral Processing	6.2.					**22**			97
Aircraft Turbofan Engine Control	7.3.		**X**				**22**		141
Holonic and Agent-based Control	5.4.		**X**				**06**		114
Micro-Electro-Mechanical Systems	4.1.						**21**		139
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Rockwell Automation and Advanced Technology	**12:00 – 13:00** lunch time	Chamber Hall	142

MICHAEL BRUNS

SOME TRENDS IN INDUSTRIAL AUTOMATION: RFID, INDUSTRIAL WIRELESS LAN, ISOCHRONOUS REAL-TIME ETHERNET, AUGMENTED REALITY

Wednesday 06-Jul-2005 08:30-09:30, Forum Hall

Chair: ***Alberto Isidori, University of Rome, Italy***

Abstract

RFID technology is available for 20 years. Today's applications are still limited due to cost and technological issues. Latest developments will leverage much broader application and revolutionize logistics, supply chain management and last but not least our daily life in the next 5 to 10 years.

Industrial Wireless LAN is already available. Acceptance for industrial application is growing fast. Main goal is to increase reliability to a level where "wireless is as safe as a wire".

Isochronous Real-Time Ethernet ICs to support isochronous RT Ethernet have been released. The objective of this technology is to use the same Ethernet infrastructure for office and also for time critical applications e.g. machine & drive control. Current R&D focuses on refining network traffic control algorithms in order to ensure safe and reliable data transmission even under high and highest load.

Augmented Reality Augmented Reality is the intelligent combination of normal human visual perception and of computer generated information. Today's R&D focuses on applications like plant design, complex service & maintenance and remote expert support. Due to continuing progress in technology and cost, in the near future this promising technology will also help to speed up and improve not only plant, but also shopfloor and workflow design and optimization. Last but not least it will be a key technology to support virtual teams, spread around the world, to join easier, to cooperate closer and to communicate more efficiently.

Prof. Dr. Michael Bruns
Vice President A&D AS Process Automation
Siemens AG, DE

VLADIMÍR HAVLENA

A DISTRIBUTED AUTOMATION FRAMEWORK FOR PLANTWIDE CONTROL, OPTIMIZATION, SCHEDULING AND PLANNING

Wednesday 06-Jul-2005 17:30-18:30, Meeting Hall I

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

Abstract

The objective of the talk will be to demonstrate distributed, solution component based architecture for integrated process management, embracing the layers of Advanced Process Control, Real Time Optimization and Planning & Scheduling.

Emerging solutions bring together process control and optimization functions based on both technical/technological criteria and economic criteria, using the tools for cross-functional integration provided by the latest software technologies.

The concepts will be illustrated by the coordinated control and optimization of the process side and the utility side, covered by Honeywell Profit Suite and Unified Energy Solutions with the objective to operate the plant with maximum achievable profit (maximum efficiency) under the constraints imposed by technology and environmental impacts.

Prof. Vladimír Havlena
Senior Fellow
Honeywell Laboratory Prague

Dr. Joseph Lu
Chief Scientist
Honeywell Process Solutions

IVEN MAREELS

IRRIGATION SYSTEMS: ENGINEERING SUCCESSES AND CHALENGES

Wednesday 06-Jul-2005 17:30-18:30, Panorama Hall

Chair: ***Pedro Albertos, Universidad Politecnica de Valencia, Spain***

Abstract

Gravity fed irrigation systems are essential infrastructure in support of the world's food supply. By supplementing these large scale civil engineering systems with appropriate sensors, actuators and a supervisory control and data acquisition communication infrastructure, systems engineering ideas can be applied to improve their overall utility. This paper reports on our experience of working together with the irrigation industry in Australia in delivering irrigation systems automation in support of a more sustainable irrigation. Exploiting systems engineering ideas significant water savings can be achieved and modern water policies can be pursued. Side benefits include such diverse items as improved occupational health and safety, better measurements, and a greater capacity to account for infrastructure and water use. Whereas not all challenges are technical in nature, the irrigation systems bring into focus a number of interesting open research problems in large scale systems.

Session authored by Iven Mareels & Erik Weyer

Professor Iven Mareels
Department of Electrical and Electronic Engineering
The University of Melbourne
Australia

We-A01-MS **Milestone Session** **Area 5.**

SHIMON Y. NOF, GÉRARD MOREL, LASZLO MONOSTORI, ARTURO MOLINA, FLORIN FILIP

FROM PLANT AND LOGISTICS CONTROL TO MULTI-ENTERPRISE COLLABORATION

Wednesday 06-Jul-2005 13:00-15:00, Chamber Hall

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

Chair: ***Shimon Y. Nof, Purdue University, United States***

Abstract

Current and emerging manufacturing and logistics systems are posing new challenges and opportunities for the automation and control community. This milestone report describes the main problems, such as management of complexity, scalability, increasing costs, coordination, market-based resource allocation, and more. Recent accomplishments and trends are discussed: Control and automation techniques, manufacturing plant automation, collaborative control through integration and networking, and control methods applied to extended enterprises and large-scale critical infrastructure. Finally, forecasts are presented for the next generation manufacturing system; e-work; integration, coordination and collaboration; networked, distributed decision support (NDSS); and active middleware.

Shimon Y. Nof, Purdue University, United States

Gérard Morel, Université Henri Poincaré Nancy, France

Laszlo Monostori, SZTAKI Budapest, Hungary

Arturo Molina, Monterrey University of Technology, Mexico

Florin Filip, The Romanian Academy of Sciences, Romania

We-E01-MS **Milestone Session** **Area 6.**

DENIS DOCHAIN, WOLFGANG MARQUARDT, SANG CHUL WON, OM MALIK, MICHEL KINNAERT

MONITORING AND CONTROL OF PROCESS AND POWER SYSTEMS: TOWARDS NEW PARADIGMS

Wednesday 06-Jul-2005 15:30-17:30, Chamber Hall

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

Chair: ***Denis Dochain, Université catholique de Louvain, Belgium***

Abstract

Process and power plant control, along with fault detection/isolation are being addressed by significant on-going research with many theoretical developments focused on improvements for all of these major industrial applications. This report provides an overview of the current key problems, recent accomplishments and trends, as well as a forecast of anticipated developments within this very important field of industrial applications.

Denis Dochain, Université catholique de Louvain, Belgium

Wolfgang Marquardt, RWTH Aachen University, Germany

Sang Chul Won, Pohang University of Science and Technology, Korea

Om Malik, University of Calgary, Canada

Michel Kinnaert, Université libre de Bruxelles, Belgium

We-M01-PD **Panel Discussion** **Area 4.4**

INFOTRONIC TECHNOLOGIES FOR E-MAINTENANCE REGARDING THE COST ASPECTS

Wednesday 06-Jul-2005 10:00-12:00, Chamber Hall

Organizers: ***H. Erbe, Technische Universität Berlin, Germany***

G. Morel, Université Henri Poincaré Nancy, France

J. Lee, University of Cincinnati, United States

G. Seliger, TU Berlin and Fraunhofer IPK- Berlin, Germany

M. Hecht, TU Berlin & Rail Vehicles, Germany

E. Hohwieler, Fraunhofer IPK-Berlin, Germany

F. Kimura, University of Tokio, Japan

H. Hang, Texas Tech College of Engineering, United States

D. Kiritsis, EPF Lausanne, Switzerland

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

Abstract

The panel session aims to discuss emerging technologies in the area of infotronics-based e-maintenance systems as well as the underlying issues in cost related aspects. Infortronics technologies transform the paradigm from precision machine to precision information through the use of intertwined embedded informatics and electronic intelligence in a networked and tether-free environment and enable products and systems to intelligently monitor, predict, and optimize its performance and ultimately perform self-maintenance activities autonomously.

Maintenance should keep a system or facilities to sustain its functionality in order to contribute to the enterprise productivity target. The implementation of advanced e-maintenance technologies should consider Cost, Reliability, Availability, Maintainability, and Productivity for any equipment and associated applications. It necessitates a holistic approach for integrating views and evaluations, not only of the systems themselves, but also for their mutual interactions and their interactions with the environment.

INDUSTRIAL PERSPECTIVES ON PROCESS CONTROL

Wednesday 06-Jul-2005 13:00-15:00, Terrace 2

Organizers: ***Wolfgang Marquardt, RWTH Aachen University, Germany***

Alf Isaksson, ABB, Sweden

Barry J. Cott, Shell, United Kingdom

Karsten-Ulrich Klatt, Bayer, Germany

Jorge A. Mandler, Air Products, United States

Chair: ***Prodromos Daoutidis, University of Minnesota, United States***

Abstract

This panel discussion will provide a forum whereby representatives of major industrial sectors from U.S. and Europe (ABB, Shell, Bayer, Air Products) will:

i) discuss successful applications of Process Control in industrial practice,

ii) identify major needs and opportunities for application of advanced Process Control in industrial problems, and

iii) discuss the interplay between academic research in Process Control and industrial practice.

RETHINKING CONTROL EDUCATION IN THE MODERN WORLD

Wednesday 06-Jul-2005 15:30-17:30, Terrace 2

Organizers: ***Ljubo Vlacic; Griffith University, Australia***

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

Sebastián Dormido Bencomo, Universidad Nacional de Educación a Distancia, Spain

Stephen Kahne, Embry-Riddle Aeronautical University, United States

Christos G. Cassandras, Boston University, United States

Theodore Djaferis, University of Massachusetts, United States

Chair: ***Ljubo Vlacic; Griffith University, Australia***

Co-Chair: ***Bozenna Pasik-Duncan, University of Kansas, United States***

Abstract

Organised by the IFAC TC on Control Education, this Session is aimed at provoking discussion on numerous challenging questions that will influence the ways in which we will teach control topics in the future.

In an effort to make the discipline of control more attractive to students we often introduce this subject as an enabling technology in the context of embedded electronic systems, intelligent robots, mechatronic systems, advanced communication systems, space technology, etc. While this approach works well in promoting the field of control, it however raises numerous questions such as:

a) how much of the advanced computing technology do we need to use in presenting the basic control topics?
b) are we going to fall into the trap of being technology driven and thus, in the long term, start to lose analytical problem solving skills?
c) are we about to change the way we teach control?
d) are all of these approaches going to change the profile of the control discipline?

Do we need to worry about these changes or, maybe, even strongly support them?

SOFT COMPUTING FOR CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Esko Juuso, University of Oulu, Finland***

Co-Chair: ***Stefan Preitl, Politehnica University Of Timisoara, Romania***

1. (10:00) Embedded Fuzzy Systems in Welding Power Sources

Marjan Golob, University of Maribor, Slovenia

Arpad Koves, Welding Institute, Slovenia

Boris Tovornik, University of Maribor, Slovenia

2. (10:00) Generating a fuzzy rule base with an additive interpretation

Martin Štěpnička, University of Ostrava, IRAFM, Czech Republic

Radek Valášek, University of Ostrava, IRAFM, Czech Republic

3. (10:00) Generating Hierarchical Fuzzy Systems

Zdenek Vlcek, ProTyS Inc., Czech Republic

4. (10:00) Hierarchical Fuzzy Systems

Radek Sindelar, Czech Technical University, Czech Republic

5. (10:00) Low Effort Control for Chaotic Systems via a Fuzzy Model-Based Approach

Kuang-Yow Lian, Chung-Yuan Christian University, Taiwan

Jeih-Jang Liou, Chung-Yuan Christian University, Taiwan

6. (10:00) Possibilistic robust control for fuzzy plants: controlling performance degradation

Jorge Bondia Company, Technical University of Valencia, Spain

Antonio Sala Piqueras, Technical University of Valencia, Spain

Jesús Picó Marco, Technical University of Valencia, Spain

7. (10:00) Robust Adaptive Fuzzy Control Based on Generalized Fuzzy Hyperbolic Model

Mingjun Zhang, Key Laboratory of Process Industry Automation, Ministry of Education, Northeastern University and Beihua University, China

Huaguang Zhang, Northeastern University, China

SOFT COMPUTING FOR CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Esko Juuso, University of Oulu, Finland***

Co-Chair: ***Stefan Preitl, Politehnica University Of Timisoara, Romania***

8. (10:00) Adaptive-Predictive Control with Intelligent Virtual Sensor

Yul Yunazwin Nazaruddin, Institut Teknologi Bandung, Indonesia

Aria Muhammad, Institut Teknologi Bandung, Indonesia

9. (10:00) Adaptive Control of Parametric Strict Feedback Systems with Improved Performance Using Modified Backstepping

Erick Vile Grinits, UNICAMP, Brazil

Celso Pascoli Bottura, UNICAMP, Brazil

10. (10:00) Generalized Predictive Control with Flexible Inequality Constraints

Tao Zou, Shanghai Jiaotong University, China

Shao-Yuan Li, Shanghai Jiaotong University, China

11. (10:00) On the Utility of Linear Transformations for Population-Based Optimization Algorithms

Petr Pošík, Czech Technical University, Faculty of Electrical Engineering, Czech Republic

12. (10:00) Soft Computing Approach for Time Series Prediction

Yang Gao, University of Surrey, United Kingdom

Meng Joo Er, Nanyang Technological University, Singapore

13. (10:00) Two Applications of Eng-genes based Nonlinear Identification

George Irwin, Queen's University Belfast, United Kingdom

Patrick Connally, Queen's University Belfast, United Kingdom

Kang Li, Queen's University Belfast, United Kingdom

SOFT COMPUTING FOR CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Esko Juuso, University of Oulu, Finland***

Co-Chair: ***Stefan Preitl, Politehnica University Of Timisoara, Romania***

14. (10:00) The study on an improved Genetic Algorithm

Dakuo He, 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

Mingxing Jia, Key Laboratory of Process Industry Automation, Ministry of Education, Northeastern University, China

15. (10:00) Emotional Learning to Control Large-Scale Systems

Reyhaneh Bakhtiari, Tehran University, Iran

Batool Labibi, K. N. Toosi University of Technology, Iran

16. (10:00) Customer Satisfaction Degree Evaluation Model in Logistics using SVM

Huali Sun, Shanghai JiaoTong University, China

Jianying Xie, Shanghai JiaoTong University, China

Shao-Yuan Li, Shanghai JiaoTong University, China

Yaofeng Xue, Shanghai JiaoTong University, China

17. (10:00) An UML modeling of a neuro-fuzzy monitoring system

Nicolas Palluat, Laboratoire d'Automatique de Besançon, France

Daniel Racoceanu, Laboratoire d'Automatique de Besançon, France

Noureddine Zerhouni, Laboratoire d'Automatique de Besançon, France

18. (10:00) Discovering reservoir management criteria: the case study of Pozzillo reservoir

Simona Consoli, University of Catania, Italy

Salvatore Barbagallo, University of Catania, Italy

Nello Pappalardo, University of Catania, Italy

Santo Marcello Zimbone, University of Reggio Calabria, Italy

SOFT COMPUTING FOR CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Esko Juuso, University of Oulu, Finland***

Co-Chair: ***Stefan Preitl, Politehnica University Of Timisoara, Romania***

19. (10:00) Intelligent Internal Model Control of Robots for Upper-Limb Rehabilitation

D. T. Pham, Cardiff University, United Kingdom

A. A. Fahmy, Cardiff University, United Kingdom

20. (10:00) MACSim: A Simulink Enabled Environment for Multi-Agent System

Peter Mendham, University of York, United Kingdom

Tim Clarke, University of York, United Kingdom

21. (10:00) Methodology for Parameters Optimization of an Hybrid Architecture of Control

Lounis Adouane, LAB CNRS 6596, France

Nadine le Fort-Piat, LAB CNRS 6596, France

22. (10:00) Nonlinear Control in Changing Operating Conditions

Esko Juuso, University of Oulu, Finland

23. (10:00) Sensitivity Analysis of Low Cost Fuzzy Controlled Servo Systems

Stefan Preitl, Politehnica University of Timisoara, Romania

Radu-Emil Precup, Politehnica University of Timisoara, Romania

Zsuzsa Preitl, Politehnica University of Timisoara, Romania

AUTOMOTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Lino Guzzella, ETH Zurich, Switzerland***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

1. (10:00) A Collision Warning System based on an Inter-distance Reference Model

Martinez John Jairo, INPG - LAG, France

Carlos Canudas-de-Wit, LAG, CNRS, France

2. (10:00) A New Analytical Model for Vehicle Dynamics in the Plan (X,Y)

Hassan Shraim, Université Paul Cézanne, Aix-Marseille III, France

Mustapha Ouladsine, Université Paul Cézanne, Aix-Marseille III, France

Mostfa El Adel, Université Paul Cézanne, Aix-Marseille III, France

Hassan Noura, Université Paul Cézanne, Aix-Marseille III, France

3. (10:00) A Sensor Array for Control of Engine Exhaust After-treatment Systems

Ahmed Soliman, OSU/CAR, United States

Prabhu J.Jackson, OSU/CAR, United States

Giorgio Rizzoni, OSU/CAR, United States

Prabir Dutta, OSU/CISM, United States

4. (10:00) Adaptive Modelling and Predictive Control of an IC Engine

S.W. Wang, Liverpool John Moores University, United Kingdom

D. L. Yu, Liverpool John Moores University, United Kingdom

J.B. Gomm, Liverpool John Moores University, United Kingdom

M. Beham, BNW AG E-30, Germany

G.W. Page, Liverpool John Moores University, United Kingdom

S.S. Douglas, Liverpool John Moores University, United Kingdom

AUTOMOTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Lino Guzzella, ETH Zurich, Switzerland***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

5. (10:00) Brake control combined with prediction to prevent the rollover of heavy vehicles

Peter Gaspar, Computer and Automation Institute, Hungary

Zoltan Szabo, Computer and Automation Institute, Hungary

Jozsef Bokor, Computer and Automation Institute, Hungary

6. (10:00) Control-oriented Model of Isooctane HCCI Combustion

Faming Sun, University of Windsor, Canada

Xiang Chen, University of Windsor, Canada

David S-K Ting, University of Windsor, Canada

Andrzej Sobiesiak, University of Windsor, Canada

7. (10:00) Energy Management in a Vehicle with a Dual Storage Power Net

Michiel Koot, Technische Universiteit Eindhoven, Netherlands

John Kessels, Technische Universiteit Eindhoven, Netherlands

Bram De Jager, Technische Universiteit Eindhoven, Netherlands

8. (10:00) Experimental Frequency-Domain Method for Control Design in Heavy-Duty Vehicles

Geert van der Zalm, Eindhoven University of Technology, Netherlands

Rudolf Huisman, DAF Trucks NV, Netherlands

Maarten Steinbuch, Eindhoven University of Technology, Netherlands

AUTOMOTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Lino Guzzella, ETH Zurich, Switzerland***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

9. (10:00) Fault Detection and Identification of Automotive Engines using Neural Networks

James Barry Gomm, Liverpool John Moores University, United Kingdom

Mahavir Sangha, Liverpool John Moores University, United Kingdom

Dingli Yu, Liverpool John Moores University, United Kingdom

George Page, Liverpool John Moores University, United Kingdom

10. (10:00) Fuzzy Adaptive Sliding Mode Control for Vehicle Brake Systems

Jung Hua Yang, National Pingtung University of Science and Technology, Taiwan

Cheng Jer Yang, National Pingtung University of Science and Technology, Taiwan

Chyuan Yow Tseng, National Pingtung University of Science and Technology, Taiwan

11. (10:00) Mode Detection in Automotive Vehicles Using A Sliding Mode Estimator

Christopher Edwards, University of Leicester, United Kingdom

Roderick G. Hebden, University of Leicester, United Kingdom

Sarah K. Spurgeon, University of Leicester, United Kingdom

12. (10:00) Nonlinear Controller Design for Active Suspension Systems Using the Immersion and Invariance Method

Ponesit Santhanapipatkul, Chulalongkorn University, Thailand

Watcharapong Khovidhungij, Chulalongkorn University, Thailand

AUTOMOTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Lino Guzzella, ETH Zurich, Switzerland***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

13. (10:00) Optimal control of a Laboratory Antilock Brake System

Piotr Bania, AGH University of Science and Technology, Poland

Adam Korytowski, AGH University of Science and Technology, Poland

Maciej Szymkat, AGH University of Science and Technology, Poland

Przemyslaw Gorczyca, AGH University of Science and Technology, Poland

14. (10:00) Performance Analysis of the Confidentiality Service in CAN

Miguel Angel León Chávez, Universidad Autónoma de Puebla, Mexico

Francisco Rodriguez Henriquez, CINVESTAV, Mexico

15. (10:00) Scaled Experimental Study of an Automatic Collision Avoidance System for Passenger Cars

Antonella Ferrara, University of Pavia, Italy

16. (10:00) Sensor Selection for Observer Feedback in Turbocharged Spark Ignited Engines

Per Andersson, Linköpings universitet, Sweden

Lars Eriksson, Linköpings universitet, Sweden

Erik Frisk, Linköpings universitet, Sweden

17. (10:00) Solenoid Valve Failure Diagnosis for Electronic Diesel Fuel Injection Control Systems

Chyuan-Yow Tseng, National Pingtung University of Science and Technology, Taiwan

Chiu-Feng Lin, National Pingtung University of Science and Technology, Taiwan

18. (10:00) Steering Stability based on Fuzzy-Logic

Beatriz L. Boada, Universidad Carlos III de Madrid, Spain

Maria Jesus L. Boada, Universidad Carlos III de Madrid, Spain

Belen Munoz, Universidad Carlos III de Madrid, Spain

Vicente Diaz, Universidad Carlos III de Madrid, Spain

AUTOMOTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Lino Guzzella, ETH Zurich, Switzerland***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

19. (10:00) Utilizing Cylinder Pressure for Compression Ratio Estimation

Marcus Klein, Linköpings Universitet, Sweden

Lars Eriksson, Linköpings Universitet, Sweden

IDENTIFICATION OF MULTIVARIABLE SYSTEMS

Wednesday 06-Jul-2005 10:00-12:00, Club H

Chair: ***Adrian Wills, The University of Newcastle, Australia***

Co-Chair: ***Andrea Gombani, isib-cnr, Italy***

1. (10:00) On Gradient-Based Search for Multivariable System Estimates

Adrian Wills, University of Newcastle, Australia

Brett Ninness, University of Newcastle, Australia

Stuart Gibson, University of Newcastle, Australia

2. (10:20) The University of Newcastle Identification Toolbox (UNIT)

Brett Ninness, University of Newcastle, Australia

Adrian Wills, University of Newcastle, Australia

Stuart Gibson, Lehman Brothers, United Kingdom

3. (10:40) On a simple overlapping state-space parametrization for linear time series models

Thomas Ribarits, University of Technology Vienna, Austria

Andrea Gombani, ISIB-CNR, Padua, Italy

4. (11:00) Blind Identifiability Analysis in a MIMO LTI System with Inputs from a Finite-Alphabet Set

Soonman Kwon, KERI, Korea

D. R. Fuhrmann, Washington University, United States

Seog-Joo Kim, KERI, Korea

Jongmoo Lee, KERI, Korea

5. (11:20) Extended Global Total Least Square Approach to Multiple-Model Identification

Benoit Vinsonneau, Coventry University, United Kingdom

David P. Goodall, Coventry University, United Kingdom

Keith J. Burnham, Coventry University, United Kingdom

6. (11:40) Identification of State-space Models for Processes with Irregularly Sampled Outputs

Sirish L. Shah, University of Alberta, Canada

H. Raghavan, Honeywell Ltd., India

A. Tangirala, IIT Madras, India

MANUFACTURING MODELLING, MANAGEMENT AND CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Laszlo Monostori, SZTAKI, Hungary***

1. (10:00) A Single Machine Scheduling Problem with Fuzzy Delays

Yuan Xie, Shanghai Jiao Tong University, China

Jian-Ying Xie, Shanghai Jiao Tong University, China

Shao-Yuan Li, Shanghai Jiao Tong University, China

Xiao-Long Deng, Shanghai Jiao Tong University, China

2. (10:00) Development of PC-based Integrated Scheduling System with Demand Forecasting for PVC Plant

Sunwon Park, KAIST, Korea

Min-gu Kang, KAIST, Korea

Sookil Kang, KAIST, Korea

Ho-kyung Lee, LG Chemical, Korea

4. (10:00) Inheritance of Behavior in Object-oriented Designs for Industrial Control Systems

Marcello Bonfe', University of Ferrara, Italy

Cesare Fantuzzi, University of Modena and Reggio Emilia, Italy

Cristian Secchi, University of Modena and Reggio Emilia, Italy

5. (10:00) Industrial Application of Data Reconciliation for Hybrid Systems

Qiran Zhang, Zhejiang University, China

Gang Rong, Zhejiang University, China

6. (10:00) Improved Genetic Algorithm for Integrated Steelmaking Optimum Charge Plan

Yun-Can Xue, Hohai University, China

Xin Wang, Shanghai Jiao Tong University, China

Shao-Yuan Li, Shanghai Jiao Tong University, China

MANUFACTURING MODELLING, MANAGEMENT AND CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Laszlo Monostori, SZTAKI, Hungary***

7. (10:00) In-Situ Fault Detection of Wafer Warpage in Lithography

Arthur Tay, National University of Singapore, Singapore

Weng Ho, National University of Singapore, Singapore

Christopher Yap, National University of Singapore, Singapore

Chen Wei, National University of Singapore, Singapore

Kuen-Yu Tsai, Intel, United States

8. (10:00) Robust Scheduling of Batch Processes in Uncertain Cases

Soon-Ki Heo, Pohang University of Science & Technology, Korea

Hong-Rok Son, Pohang University of Science & Technology, Korea

In-Beum Lee, Pohang University of Science & Technology, Korea

9. (10:00) Production Planning under Stochastic Time-varying Demand: Flexible Service Level Approach

Juuso Rantala, Tampere University of Technology, Finland

Hannu Koivisto, Tampere University of Technology, Finland

10. (10:00) Inventory Control by Model Predictive Control Methods

Paris Pennesi, Università Politecnica delle Marche, Italy

Giuseppe Conte, Università Politecnica delle Marche, Italy

11. (10:00) An ICT Platform for the Vertical and Horizontal Integration of Information in Large Utilities Plants

Salvatore Cavalieri, University of Catania, Italy

12. (10:00) Model Checking Plans for Flexible Manufacturing Systems

Leandro Dias da Silva, Federal University of Campina Grande, Brazil

Hyggo Almeida, Federal University of Campina Grande, Brazil

Angelo Perkusich, Federal University of Campina Grande, Brazil

Péricles Rezende Barros, Federal University of Campina Grande, Brazil

MANUFACTURING MODELLING, MANAGEMENT AND CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Laszlo Monostori, SZTAKI, Hungary***

13. (10:00) Diagnosis with Causality Relationships and Directed Paths in PN Models

Dimitri Lefebvre, University Le Havre, France

Catherine Delherm, University Le Havre, France

NONLINEAR CONTROL APPLICATIONS I

Wednesday 06-Jul-2005 10:00-12:00, Terrace 2

Chair: ***Bjarne Foss, Norwegian University of Science and Technology, Norway***

Co-Chair: ***Herbert Werner, Hamburg University of Technology, Germany***

1. (10:00) Nonlinear Model Predictive Control Solution for a Hybrid Life Support System

Dharmashankar Subramanian, Honeywell Labs, United States

Nitin Lamba, Honeywell Labs, United States

2. (10:20) Backlash Compensation Using Receding Horizon Control

Maria Seron, The University of Newcastle, Australia

Kyung Sang Yoo, Doowon Technical College, Korea

Graham Goodwin, The University of Newcastle, Australia

3. (10:40) New Formation Control Designs with Virtual Leaders

Eyad Abed, University of Maryland, United States

Xiaorui Xi, University of Maryland, United States

4. (11:00) Rhythmic Stabilization of Periodic Orbits in a Wedge

Manuel Gerard, Université de Liège, Belgium

Rodolphe Sepulchre, Université de Liège, Belgium

NEURAL NETWORKS IN MODELLING AND CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Victor Becerra, The University of Reading, United Kingdom***

Co-Chair: ***Sean McLoone, Queen's University Belfast, United Kingdom***

1. (10:00) A novel dynamic neural network structure for nonlinear system identification

Jiamei Deng, The University of Reading, United Kingdom

Victor Becerra, The University of Reading, United Kingdom

Slawomir Nasuto, The University of Reading, United Kingdom

2. (10:00) Adaptive Control Based on Neural Observer for Nonlinear Systems

Yonghong Tan, Guilin University of Electronic Technology, China

Chuntao Li, Nanjing University of Aeronautics and Astronautics, China

3. (10:00) Generalization of Reinforcement Learning with CMAC

Sunggyu Kwon, Keimyung University, Korea

Kwang Y Lee, The Pennsylvania State University, United States

4. (10:00) Hardware Implementation of a Neuralnetwork Controler with an MCU and an FPGA for a Nonlinear System

Seul Jung, Chungnam National Univ., Korea

S. Kim, Chungnam National Univ., Korea

5. (10:00) Hybrid visual-driven decision support system in video monitor manufacturing

Flavio Kawaoku, Instituto Tecnologico de Aeronautica, Brazil

Jose Araujo, Instituto Nacional de Pesquisas Espaciais, Brazil

Karl Kienitz, Instituto Tecnologico de Aeronautica, Brazil

L Mesquita, UNESP, Brazil

NEURAL NETWORKS IN MODELLING AND CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Victor Becerra, The University of Reading, United Kingdom***

Co-Chair: ***Sean McLoone, Queen's University Belfast, United Kingdom***

6. (10:00) Improving GPS Accuracy using Neuro-Fuzzy System

Samer Akoum, American University of Sharjah, United Arab Emirates

Yousef Al-Assaf, American University of Sharjah, United Arab Emirates

7. (10:00) Optimal Self Tuning Neural Network Controller Design

Ladislav Korosi, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology, Slovakia

Stefan Kozak, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology, Slovakia

8. (10:00) Particle Swarm Optimization Approach for Multi-step-ahead Prediction using Radial Basis Function Neural Network

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

Cezar Sierakowski, Pontifical Catholic University of Parana, Brazil

Fábio Guerra, TECPAR – Parana Institute of Technology, Brazil

9. (10:00) Position Control for LMCTS with Nonlinear Friction and Detent Force using DR-FNN Controller

Jin Woo Lee, Dong-A University, Korea

Jin Ho Suh, Dong-A University, Korea

Young Jin Lee, Korea Aviation Polytechnic College, Korea

Hyun Do Nam, Dankook University, Korea

Kwon Soon Lee, Dong-A University, Korea

NEURAL NETWORKS IN MODELLING AND CONTROL

Wednesday 06-Jul-2005 10:00-12:00, North Hall

Chair: ***Victor Becerra, The University of Reading, United Kingdom***

Co-Chair: ***Sean McLoone, Queen's University Belfast, United Kingdom***

10. (10:00) Robust Stability of a Class of Nonlinear Delayed Impulsive Neural Networks with Interval Uncertainties

Zhi-Hong Guan, Huazhong University of Science and Technology, China

Guanrong Chen, City University of Hong Kong, Hong Kong

Tong-Hui Qian, Huazhong University of Science and Technology, China

ROBOT MANIPULATORS CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Club A

Chair: ***Krzysztof Tchon, Wroclaw University of Technology, Poland***

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

1. (10:00) Coordinating Control of Motion of Redundant Manipulators

Iliya Miroshnik, SPb State University ITMO, Russian Federation

Gennady Boltunov, SPb State University ITMO, Russian Federation

Dmitry Gorelov, SPb State University ITMO, Russian Federation

2. (10:20) Nonlinear H-infinity Controllers for Underactuated Cooperative Manipulators

Adriano Siqueira, University of São Paulo at São Carlos, Brazil

Marco Terra, University of São Paulo at São Carlos, Brazil

3. (10:40) Applying Efficient Computation of the Mass Matrix for Decoupling Control of Complex Parallel Manipulators

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

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

Christian Holz, Institute of Production Engineering and Machine Tools, University of Hannover, Germany

4. (11:00) Anticipative Iterative Learning Control of Robot Manipulators

Ilia Polushin, Carleton University, Canada

Abdelhamid Tayebi, Lakehead University, Canada

ROBOT MANIPULATORS CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Club A

Chair: ***Krzysztof Tchon, Wroclaw University of Technology, Poland***

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

5. (11:20) Performance Tuning for a New Class of Globally Stable Controllers for Robot Manipulators

Josip Kasac, University of Zagreb, Croatia (Local Name: Hrvatska)

Branko Novakovic, University of Zagreb, Croatia (Local Name: Hrvatska)

Dubravko Majetic, University of Zagreb, Croatia (Local Name: Hrvatska)

Danko Brezak, University of Zagreb, Croatia (Local Name: Hrvatska)

6. (11:40) Robots Control based on Parameter Identification and Adaptive Gain Smooth Sliding Observer-controller

Adrian Filipescu, University, Romania

Luc Dugard, Laboratoire d'Automatique Grenoble, France

Sabin Stamatescu, ASTI Control S.A, Bucharest, Romania

APPLICATIONS OF FAULT DETECTION AND ISOLATION

Wednesday 06-Jul-2005 10:00-12:00, Club E

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

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

1. (10:00) Managing Sensor Hardware Redundancy on a Small Commercial Aircraft with H-infinity FDI Observers

Massimiliano Mattei, Università di Reggio Calabria, Italy

Gaetano Paviglianiti, Università di Reggio Calabria, Italy

2. (10:20) The Attitude Determination Algorithm using Integrated GPS/INS Data

Yi-Min Huang, National Taiwan University, Taiwan

Fan-Ren Chang, National Taiwan University, Taiwan

Li-Sheng Wang, National Taiwan University, Taiwan

3. (10:40) Performance Monitoring of Control loops in Irrigation Channels using reference models

Erik Weyer, Melbourne University, Australia

Ping Zhang, Melbourne University, Australia

4. (11:00) Current Diagnostics of the Evaporation Station

Michal Syfert, Warsaw University of Technology, Poland

Pawel Rzepiejewski, Warsaw University of Technology, Poland

Pawel Wnuk, Warsaw University of Technology, Poland

Jan Maciej Koscielny, Warsaw University of Technology, Poland

5. (11:20) Sensor Fault Accommodation: Application to an Activated Sludge Process

Christophe Aubrun, University of Nancy, France

Christian Leick, University of Nancy, France

6. (11:40) Online Monitoring of an Aerobic SBR Process Based on Dissolved Oxygen Measurement

Dieter Wimberger, UNAM, Mexico

Cristina Verde Rodarte, UNAM, Mexico

INDUSTRIAL APPLICATIONS OF PROCESS CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Small Theatre

Organizer: ***Alf Isaksson, ABB, Sweden***

Chair: ***Alf Isaksson, ABB, Sweden***

Co-Chair: ***Sigurd Skogestad, NTNU, Norway***

1. (10:00) Application of a Networked Decentralized MPC to Syngas Process in Oil Industry

Sauro Longhi, Università Politecnica delle Marche, Italy

Roberto Trillini, API Oil Industry, Italy

Massimo Vaccarini, Università Politecnica delle Marche, Italy

2. (10:20) Implementation of MPC on a Deethanizer at Karstø Gas Plant

Elvira Marie Aske, NTNU, Norway

Stig Strand, STATOIL, Norway

Sigurd Skogestad, NTNU, Norway

3. (10:40) On-line pulp mill production optimization

Jens Pettersson, ABB Corporate Research, Sweden

Ulf Persson, ABB Automation Technology, Sweden

Thomas Lindberg, ABB Corporate Research, Sweden

Lars Ledung, ABB Corporate Research, Sweden

Xiaojing Zhang, ABB Corporate Research, Sweden

4. (11:00) Capturing and sustaining the benefits of advanced process control

Filippo Trivella, AspenTech, Italy

Dora Nogueira, GalpEnergia, Portugal

Steve Oglesby, AspenTech, United Kingdom

5. (11:20) Design of a Feedback Control System for Real-time Control of Flow in a Single-screw Extruder

Fabio Previdi, University of Bergamo, Italy

Sergio M. Savaresi, Politecnico di Milano, Italy

Angiolino Panarotto, CESAP, Italy

INDUSTRIAL APPLICATIONS OF PROCESS CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Small Theatre

Organizer: ***Alf Isaksson, ABB, Sweden***

Chair: ***Alf Isaksson, ABB, Sweden***

Co-Chair: ***Sigurd Skogestad, NTNU, Norway***

6. (11:40) Robust dead-time compensation of a evaporation process in sugar

Julio Elias Normey-Rico, Federal University of Santa Catarina, Brazil

Alejandro Merino, Universidad de Valladolid, Spain

Smaranda Cristea, Universidad de Valladolid, Spain

Cesar de Prada, Universidad de Valladolid, Spain

ADVANCED MANUFACTURING PLANT CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Terrace 1

Organizer: ***Paul Valckenaers, K.U.Leuven, Belgium***

Co-Organizer ***Bob Brennan, University of Calgary, Canada***

Co-Organizer ***Laszlo Monostori, SZTAKI, Hungary***

Co-Organizer ***Sergio Cavalieri, Università degli Studi di Bergamo, Italy***

Co-Organizer ***Duncan McFarlane, Cambridge University, United Kingdom***

Co-Organizer ***Vladimir Marik, Czech Technical University in Prague, Czech Republic***

Co-Organizer ***Benoit Iung, TBD, France***

Chair: ***Paul Valckenaers, K.U.Leuven, Belgium***

Co-Chair: ***Carlos Pereira, UFRGS, Brazil***

1. (10:00) Manufacturing Plant Control Challenges and Issues

Paul Valckenaers, K.U.Leuven, Belgium

Gérard Morel, CRAN, France

Carlos E. Pereira, UFRGS, Brazil

Jean-Marc Faure, Iurpa, France

Christian Diedrich, IFAK, Germany

2. (10:40) A Hybrid Simulation/Physical Environment for Benchmarking Real-time Distributed Control Systems

Robert Brennan, University of Calgary, Canada

Karthik Soundararajan, University of Calgary, Canada

3. (11:00) Stochastic Approximate Scheduling by Neurodynamic Learning

Balázs Csanád Csáji, Computer and Automation Research Institute, Hungarian Academy of Sciences, Hungary

László Monostori, Computer and Automation Research Institute, Hungarian Academy of Sciences, Hungary

4. (11:20) Towards Robust Part Tracking in an Automated Manufacturing Process using RFID

James Brusey, Cambridge University, United Kingdom

Duncan McFarlane, Cambridge University, United Kingdom

ADVANCED MANUFACTURING PLANT CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Terrace 1

Organizer: ***Paul Valckenaers, K.U.Leuven, Belgium***

Co-Organizer ***Bob Brennan, University of Calgary, Canada***

Co-Organizer ***Laszlo Monostori, SZTAKI, Hungary***

Co-Organizer ***Sergio Cavalieri, Università degli Studi di Bergamo, Italy***

Co-Organizer ***Duncan McFarlane, Cambridge University, United Kingdom***

Co-Organizer ***Vladimir Marik, Czech Technical University in Prague, Czech Republic***

Co-Organizer ***Benoit Iung, TBD, France***

Chair: ***Paul Valckenaers, K.U.Leuven, Belgium***

Co-Chair: ***Carlos Pereira, UFRGS, Brazil***

5. (11:40) Advances on Prognostics for Intelligent Maintenance Systems

Hai Qiu, University of Wisconsin-Milwaukee, United States

Jay Lee, University of Wisconsin-Milwaukee, United States

Dragan Djudjanovic, University of Michigan, United States

Jun Ni, University of Michigan, United States

ADVANCES IN PREDICTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Club D

Chair: ***Danlei Chu, University of Alberta, Canada***

Co-Chair: ***Keck Voon Ling, Nanyang Technological University, China***

1. (10:00) An Improved Architecture for Networked Control Systems

Daniel E. Quevedo, The University of Newcastle, Australia

Graham C. Goodwin, The University of Newcastle, Australia

2. (10:20) Design and Implementation of Networked Predictive Control Systems

Senchun Chai, University of Glamorgan, United Kingdom

G.P Liu, University of Glamorgan, United Kingdom

D Rees, University of Glamorgan, United Kingdom

3. (10:40) Discrete-time Adaptive Model Predictive Control based on Comparison Model

Tae-Hyoung Kim, Kyoto University, Japan

Toshiharu Sugie, Kyoto University, Japan

4. (11:00) Dynamic Output Controller MPC via LMI

Jacques Bernussou, LAAS-CNRS, France

Ernesto Granado, Universidad Simón Bolívar, Venezuela

William Colmenares, Universidad Simón Bolívar, Venezuela

Germain García, LAAS-CNRS, France

5. (11:20) Finite Horizon Robust Model Predictive Control Using Linear Matrix Inequalities

Danlei Chu, University of Alberta, Canada

Tongwen Chen, University of Alberta, Canada

Horacio J. Marquez, University of Alberta, Canada

6. (11:40) Multiplexed Model Predictive Control

Keck Voon Ling, Nanyang Technological Univ., Singapore

Jan Maciejowski, Cambridge University Engineering Department, United Kingdom

Bing Fang Wu, Nanyang Technological Univ., Singapore

ROBUST CONTROLLER SYNTHESIS I

Wednesday 06-Jul-2005 10:00-12:00, Club C

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

Co-Chair: ***Minyue Fu, University of Newcastle, Australia***

1. (10:00) Robust Output Regulation of Linear Systems with Structural Uncertainties

Minyue Fu, University of Newcastle, Australia

Jie Juang, Chinese University of Hong Kong, Hong Kong

2. (10:20) Backstepping Design for Robust Stabilizing Control of Nonlinear Systems with Time-Delay

Tielong Shen, Sophia University, Japan

Xiaohong Jiao, Tsinghua University, China

Yuanzhang Sun, Tsinghua University, China

3. (10:40) On Discontinuous Robust Static Output Feedback Control

Christopher Edwards, University of Leicester, United Kingdom

Xing-Gang Yan, University of Leicester, United Kingdom

Sarah K. Spurgeon, University of Leicester, United Kingdom

4. (11:00) Decentralized Guaranteed Cost Control for Discrete-Time Uncertain Large-Scale Systems Using Neural Networks

Hiroaki Mukaidani, Hiroshima University, Japan

Yasuhisa Ishii, Hiroshima University, Japan

Toshio Tsuji, Hiroshima University, Japan

5. (11:20) Robust Regulation of a Class of Nonlinear Singularly Perturbed Systems

Roya Amjadifard, Tarbiat Modarres University, Iran

Mohammad J. Yazdanpanah, University of Tehran, Iran

Mohammad T. H. Beheshti, Tarbiat Modarres University, Iran

6. (11:40) Application of Uncertain Variables to Stabilization and Parametric Optimization of Uncertain Dynamic Systems

Zdzislaw Bubnicki, Wroclaw University of Technology, Poland

CONTROL OF LINEAR SYSTEMS I

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 2.2

Chair: ***Vladimir Kucera, Czech Technical University in Prague, Czech Republic***

Co-Chair: ***Julio Braslavsky, The University of Newcastle, Australia***

1. (10:00) The H2 Control Problem for Descriptor Systems

Vladimir Kucera, Czech Technical University, Czech Republic

2. (10:20) Dynamic Controllers which Use Difference Approximates of Output Derivatives and their Practical Stability

Hideki Kokame, Osaka Prefecture University, Japan

Kentaro Hirata, Osaka Prefecture University, Japan

Takehiro Mori, Kyoto Institute of Technology, Japan

3. (10:40) Quantized Feedback Control for Sampled-Data Systems

Minyue Fu, University of Newcastle, Australia

Shinji Hara, University of Tokyo, Japan

4. (11:00) Effects of Time Delay on Feedback Stabilisation over Signal-to-Noise Ratio Constrained Channels

Julio Braslavsky, The University of Newcastle, Australia

Richard Middleton, The University of Newcastle, Australia

James Freudenberg, University of Michigan, Ann Arbor, United States

5. (11:20) Performance Limitations in Control Systems with Sensor Time Delays

Daniel Davison, University of Waterloo, Canada

Robert Tonita, University of Waterloo, Canada

6. (11:40) Robust Hinfinity control of a Bilateral Teleoperation System under Communication Time-Delay

Olivier Sename, Lab d'Automatique de Grenoble - INPG, France

Anas Fattouh, LASC Metz, France

ANALYSIS AND DESIGN OF HYBRID SYSTEMS I

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 4.1

Organizer: ***Janan Zaytoon, University of Reims, France***

Co-Organizer ***Herve Gueguen, SUPELEC - IETR, France***

Chair: ***Janan Zaytoon, CReSTIC, University of Reims, France***

Co-Chair: ***Herve Gueguen, SUPELEC - IETR, France***

1. (10:00) Analysis and design of discretely controlled switched positive systems

Jan Lunze, Ruhr-University Bochum, Germany

S. I. Kamau, University, Kenya

2. (10:20) Synthesis of Supervisory Controllers for Hybrid Systems Using Abstraction Refinement

Olaf Stursberg, University of Dortmund, Germany

3. (10:40) Hierarchical hybrid control of a multiproduct batch plant

Thomas Moor, Universitaet Erlangen-Nuernberg, Germany

Joerg Raisch, Otto-von-Guericke Universitaet Magdeburg, Germany

4. (11:00) Hybrid Abstractions of Affine Systems

Herve Gueguen, Supelec-IETR, France

Marie-Anne Lefebvre, Supelec-IETR, France

5. (11:20) Sampling-Based Planning, Control, and Verification of Hybrid Systems

Michael S. Branicky, Case Western Reserve University, United States

Michael M. Curtiss, Case Western Reserve University, United States

Joshua Levine, Case Western Reserve University, United States

Stuart Morgan, Case Western Reserve University, United States

ANALYSIS AND DESIGN OF HYBRID SYSTEMS I

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 4.1

Organizer: ***Janan Zaytoon, University of Reims, France***

Co-Organizer ***Herve Gueguen, SUPELEC - IETR, France***

Chair: ***Janan Zaytoon, CReSTIC, University of Reims, France***

Co-Chair: ***Herve Gueguen, SUPELEC - IETR, France***

6. (11:40) Symbolic Temporal Constraint Analysis, An Approach for Verifying Hybrid Systems

Nicolas Riviere, LAAS-CNRS, France

Hamid Demmou, LAAS-CNRS, France

Robert Valette, LAAS-CNRS, France

Malika Medjoudj, LAAS-CNRS, France

MODEL VALIDATION TECHNIQUES

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 4.2

Chair: ***Gary Balas, University of Minnesota, United States***

Co-Chair: ***Märta Barenthin, KTH, Sweden***

1. (10:00) Cross-Validation of Controlled Dynamic Models: Bayesian Approach

Miroslav Karny, UTIA, AV CR, Czech Republic

Petr Nedoma, UTIA, AV CR, Czech Republic

Vaclav Smidl, UTIA, AV CR, Czech Republic

2. (10:20) Physical consistency of the hysteretic Bouc-Wen model

Faycal Ikhouane, Universitat Politecnica de Catalunya, Spain

Jose Rodellar, Universitat Politecnica de Catalunya, Spain

3. (10:40) Robust Model Identification Application to a Turbofan Engine

Andres Marcos, University of Leicester, United Kingdom

Mylaraswamy, Dinkar, Honeywell Inc., United States

Balas, Gary, University of Minnesota, United States

4. (11:00) Semi--Blind Robust Identification/Model (In)Validation with Applications to Macro--Economic Modelling. Pennsylvania State University

Mario Sznaier, Pennsylvania State University, United States

Wenjing Ma, Pennsylvania State University, United States

Muhittin Yilmaz, Pennsylvania State University, United States

Constantino Lagoa, Pennsylvania State University, United States

5. (11:20) Validation of Stability for an Induction Machine Drive using Power Iterations

Märta Barenthin, KTH, Sweden

Henrik Mosskull, Bombardier Transportation/KTH, Sweden

Håkan Hjalmarsson, KTH, Sweden

Bo Wahlberg, KTH, Sweden

MODEL VALIDATION TECHNIQUES

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 4.2

Chair: ***Gary Balas, University of Minnesota, United States***

Co-Chair: ***Märta Barenthin, KTH, Sweden***

6. (11:40) Validity of the standard cross-correlation test for model structure validation

Sippe Geert Douma, Delft University of Technology, Netherlands

Xavier Bombois, Delft University of Technology, Netherlands

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

OPTIMAL CONTROL IN NONLINEAR SYSTEMS I

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 1.1

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

Co-Chair: ***Maria Tomas-Rodriguez, University of Sheffield, United Kingdom***

1. (10:00) On the Necessity of Barrier Certificates

Stephen Prajna, California Institute of Technology, United States

Anders Rantzer, Lund Institute of Technology, Sweden

2. (10:20) A Curse-of-Dimensionality-Free Numerical Method for a Class of HJB PDE's

William McEneaney, Univ. of California, San Diego, United States

3. (10:40) Discrete Mechanics and Optimal Control

Oliver Junge, University of Paderborn, Germany

Jerrold E. Marsden, California Institute of Technology, Pasadena, United States

Sina Ober-Bloebaum, University of Paderborn, Germany

4. (11:00) Empirical Results on Convergence and Exploration in Approximate Policy Iteration

Niket Kaisare, Georgia Institute of Technology, United States

Jong Min Lee, Georgia Institute of Technology, United States

Jay H. Lee, Georgia Institute of Technology, United States

5. (11:20) On non-local stability properties of extremum seeking control

Ying Tan, The University of Melbourne, Australia

D. Nesic, The University of Melbourne, Australia

I.M.Y. Mareels, The University of Melbourne, Australia

6. (11:40) Parametric approach to optimal nonlinear control problem using orthogonal expansions

Maria Tomas-Rodriguez, University of Sheffield, United Kingdom

C. Navarro-Hernandez, University of Sheffield, United Kingdom

S.P. Banks, University of Sheffield, United Kingdom

NETWORKED CONTROL SYSTEMS

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 2.3

Organizer: ***Guoping Liu, University of Glamorgan, United Kingdom***

Chair: ***George Irwin, Queen's University Belfast, United Kingdom***

Co-Chair: ***Liu Guoping, University of Glamorgan, United Kingdom***

1. (10:00) Analysis and Co-Simulation of an IEEE 802.11B Wireless Networked Control System

Jeremy Colandairaj, Queen's University Belfast, United Kingdom

George Irwin, Queen's University Belfast, United Kingdom

William Scanlon, Queen's University Belfast, United Kingdom

2. (10:20) Predictive Control of Networked Systems with Random Delays

Guoping Liu, University of Glamorgan, United Kingdom

Y Xia, University of Glamorgan, China

D Rees, University of Glamorgan, United Kingdom

3. (10:40) A networked control system with stochastically varying transmission delay and uncertain process parameters

Ye Yang, Huazhong University of Science and Technology, China

Yongji Wang, Huazhong University of Science and Technology, China

Shuang-Hua Yang, Loughborough University, United Kingdom

4. (11:00) Networked Control Systems and Communication Networks: Integrated Model and Stability Analysis

Silvia Mastellone, University of Illinois, United States

Chaouki Abdallah, University of New Mexico, United States

5. (11:20) Robust Networked Predictive Control for Systems with Random Network Delay

Hua Ouyang, University of Glamorgan, United Kingdom

Guoping Liu, University of Glamorgan, United Kingdom

D Rees, University of Glamorgan, United Kingdom

NETWORKED CONTROL SYSTEMS

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 2.3

Organizer: ***Guoping Liu, University of Glamorgan, United Kingdom***

Chair: ***George Irwin, Queen's University Belfast, United Kingdom***

Co-Chair: ***Liu Guoping, University of Glamorgan, United Kingdom***

6. (11:40) An LMI approach to robust stabilization of networked control systems

Mei Yu, Peking University, China

Long Wang, Peking University, China

Tianguang Chu, Peking University, China

OPTIMAL AND ADAPTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 3.1

Chair: ***Akira Kojima, Tokyo Metropolitan Institute of Technology, Japan***

Co-Chair: ***Zhengtao Ding, University of Manchester, United Kingdom***

1. (10:00) A New Development of Adaptive Model Predictive Control

D. L. Yu, Liverpool John Moores University, United Kingdom

D.W. Yu, Northeast University at Qinhuangdao, China

J.B. Gomm, Liverpool John Moores University, United Kingdom

G.W. Page, Liverpool John Moores University, United Kingdom

2. (10:20) Learning-Based Model Predictive Control for Markov Decision Processes

Rudy Negenborn, Delft University of Technology, Netherlands

Bart De Schutter, Delft University of Technology, Netherlands

Marco Wiering, Utrecht University, Netherlands

Hans Hellendoorn, Delft University of Technology, Netherlands

3. (10:40) A model predictive control based on input-output characterization of finite-horizon linear systems

Akira Kojima, Tokyo Metropolitan Institute of Technology, Japan

Yohei Kageyama, Hitachi Ltd., Japan

4. (11:00) Adaptive coordinated decentralized control of large-scale systems

Boris Mirkin, Technion - IIT, Israel

Per-Olof Gutman, Technion - IIT, Israel

5. (11:20) State and unknown input estimation for linear discrete-time systems

Thierry Floquet, Ecole Centrale de Lille, France

Jean-Pierre Barbot, ENSEA, France

OPTIMAL AND ADAPTIVE CONTROL

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 3.1

Chair: ***Akira Kojima, Tokyo Metropolitan Institute of Technology, Japan***

Co-Chair: ***Zhengtao Ding, University of Manchester, United Kingdom***

6. (11:40) Adaptive Estimation of Unknown Sinusoidal Disturbances in Non-minimum-Phase Nonlinear Systems

Zhengtao Ding, University of Manchester, United Kingdom

INDUSTRY APPLICATIONS INTEROPERABILITY: A CHALLENGE FOR MODERN ENTERPRISES

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 3.2

Chair: ***M. Zelm, CIMOSA Association e.V., Germany***

Co-Chair: ***A. Molina, Tecnologico de Monterrey, Mexico***

1. (10:00) A Common Model for XML Descriptions in Automation

Martin Wollschlaeger, TU Dresden, Germany

Henry Kulzer, Siemens AG, Germany

Daniel Nübling, PROFIBUS International, Germany

Peter Wenzel, PROFIBUS International, Germany

2. (10:20) Achieving Interoperable Enterprise Applications through Model-Driven Integration: The ERP-CRM Case

Yannis Charalabidis, Singular Software SA, Greece

Harald Kuhn, BOC, Austria

Avra Katzilieri, Athens University of Economics and Business, Greece

3. (10:40) Global Manufacturing in Networks

Karl-Heinz Sternemann, BizT@lk AG, Germany

Ulrich Homann, Microsoft Corp., United States

4. (11:00) Increased Plant Efficiency by Online Plant Asset Management

Herbert Grieb, Siemens AG, Germany

Edmund Linzenkirchner, Siemens AG, Germany

Bernd Theilmann, Siemens AG, Germany

5. (11:20) SME Interoperability in the Global Economy: A Discussion Paper

Colin Piddington, Cimmedia Ltd, United Kingdom

6. (11:40) Wireless Technology and its Application to Next Generation of Manufacturing Systems

Arturo Molina, ITESM, Mexico

Roberto Delgado, ITESM, Mexico

Istvan Mezgar, CARI, Hungary

Paul Wright, Berkeley, United States

MULTIPLE VEHICLES I

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 3.3

Chair: ***Klaus Schilling, Julius-Maximilians-University Wuerzburg, Germany***

Co-Chair: ***Soura Dasgupta, University of Iowa, United States***

1. (10:00) Coordinated fault-tolerant control of autonomous agents: geometry and communications architecture

Soura Dasgupta, University of Iowa, United States

Ryan O. Abel, University of Iowa, United States

Jon G. Kuhl, University of Iowa, United States

2. (10:20) Decentralized Motion Control of Multiple Agents with Double Integrator Dynamics

Dimos Dimarogonas, National Technical University of Athens, Greece

Kostas J. Kyriakopoulos, National Technical University of Athens, Greece

3. (10:40) Lightweight Control Methodology for Formation Control of Vehicle Swarms

Gabriel Elkaim, UC Santa Cruz, United States

Michael Siegel, UC Santa Cruz, United States

4. (11:00) Adaptive Evolutionary Search Algorithm with Obstacle Avoidance for Multiple UAVs

Barry Carruthers, University of Glasgow, United Kingdom

Euan W. McGookin, University of Glasgow, United Kingdom

David J. Murray-Smith, University of Glasgow, United Kingdom

5. (11:20) Analysis of coordination in multi-agent systems through Partial difference Equations. Part I: the Laplacian control

Giancarlo Ferrari-Trecate, INRIA, France

Annalisa Buffa, CNR, Italy

Mehdi Gati, Renault Research Department, France

6. (11:40) Analysis of coordination in multi-agent systems through Partial difference Equations. Part II: Nonlinear control

Giancarlo Ferrari-Trecate, INRIA, France

Annalisa Buffa, CNR, Italy

Mehdi Gati, Renault Research Center, France

ECOLOGICAL MODELING AND OTHER ENVIRONMENTAL ISSUES

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 4.3

Chair: ***Robert Haber, University of Applied Science Cologne, Germany***

Co-Chair: ***Giuseppe Nunnari, University of Catania, Italy***

1. (10:00) A decision support system for the management of coastal lagoons

Simone Paoletti, University of Siena, Italy

Marco Casini, University of Siena, Italy

Chiara Mocenni, University of Siena, Italy

Antonio Vicino, University of Siena, Italy

2. (10:20) An application of Structural Risk Minimization to the selection of ecological models

Giorgio Corani, Politecnico Milano, Italy

Marino Gatto, Politecnico Milano, Italy

3. (10:40) Piecewise-Constant Control Signal for Predator-Prey Systems: Application to Ecological Recovery

Hector Silveira, Universidade Federal de Santa Catarina, Brazil

Daniel Pagano, Universidade Federal de Santa Catarina, Brazil

4. (11:00) Can a modelling system bias air quality policy selection?

Claudio Carnevale, Università di Brescia, Italy

Marco Bedogni, Agenzia Mobilità e Ambiente, Italy

Guido Pirovano, CESI, Italy

Marialuisa Volta, Università di Brescia, Italy

5. (11:20) Forest Fire Dynamic Hazard Assessment and Pre-operational Resource Allocation

Francesco Gaetani, CIMA Università degli Studi di Genova, Italy

Paolo Fiorucci, CIMA Università degli Studi di Genova, Italy

Riccardo Minciardi, CIMA Università degli Studi di Genova, Italy

Eva Trasforini, CIMA Università degli Studi di Genova, Italy

ECOLOGICAL MODELING AND OTHER ENVIRONMENTAL ISSUES

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 4.3

Chair: ***Robert Haber, University of Applied Science Cologne, Germany***

Co-Chair: ***Giuseppe Nunnari, University of Catania, Italy***

6. (11:40) Formalised Model Representation for Wastewater Systems

Jens Alex, ifak Magdeburg, Germany

Michael Ogurek, ifak Magdeburg, Germany

Ulrich Jumar, ifak Magdeburg, Germany

ADVANCES IN AUTOMATION IN PULP INDUSTRY

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 2.1

Organizer: ***Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland***

Chair: ***Ismo Laukkanen, UPM Corporation, Finland***

1. (10:00) Pulp Bleaching Control and Optimization

Michel Perrier, Ecole Polytechnique, Canada

Danielle Major, Ecole Polytechnique, Canada

Sylvain Gendron, Paprican, Canada

Bernard Lupien, Papier Masson, Canada

2. (10:40) Performance Optimization of Large Control Systems – Case Study on a Continuous Pulp Digester

Kalle Halmevaara, Helsinki University of Technology, Finland

Heikki Hyötyniemi, Helsinki University of Technology, Finland

3. (11:00) Diagnosis system for continuous cooking process

Timo Ahvenlampi, University of Oulu, Finland

Manne Tervaskanto, University of Oulu, Finland

Urpo Kortela, University of Oulu, Finland

4. (11:20) Modelling of Peroxide-Bleaching of Pulp Using Gaussian Processes

Henning Lenz, Siemens AG, Germany

Joachim Horn, Helmut-Schmidt-University Hamburg, Germany

Thomas Runkler, Siemens AG, Germany

Markus Dinkel, Gebr. Lang GmbH Papierfabrik, Germany

Thomas Schmidt, Gebr. Lang GmbH Papierfabrik, Germany

Albrecht Sieber, Siemens AG, Germany

Volkmar Mickal, Siemens AG, Germany

ADVANCES IN AUTOMATION IN PULP INDUSTRY

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 2.1

Organizer: ***Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland***

Chair: ***Ismo Laukkanen, UPM Corporation, Finland***

5. (11:40) Prediction and Control of Blow-line Kappa Number

Rami Rantanen, University of Oulu, Finland

Timo Ahvenlampi, University of Oulu, Finland

Manne Tervaskanto, University of Oulu, Finland

Urpo Kortela, University of Oulu, Finland

Aki Korhonen, Metso Automation Oy, Finland

STEEL MILLS, SINTERING, FURNACES AND CONVERTERS

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 3.5

Organizer: ***Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland***

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

Chair: ***Jämsä-Jounela Sirkka-Liisa, Helsinki University of Technology, Finland***

Co-Chair: ***Sangchul Won, Pohang University of Science and Technology, Korea***

1. (10:00) Application of Large scale Database-based Online Modelling on Blast Furnace Operation

Masahiro Ito, Nippon Steel Corporation, Japan

Shinroku Matsuzaki, Nippon Steel Corporation, Japan

Harutoshi Ogai, Waseda University, Japan

Kenichi Mori, Waseda University, Japan

Kenko Uchida, Waseda University, Japan

Shinichi Saito, Nittetsu Elex Corporation, Japan

Nozomi Sasaki, Nippon Steel Corporation, Japan

2. (10:20) Fuzzy Neural Network's Application in Furnace Temperature Compensation Based on Rolling Information Feedback

Kaiju Zhang, Dalian University of Technology, China

Di Jin, Dalian University of Technology, China

Cheng Shao, Dalian University of Technology, China

3. (10:40) Modern Automation Technology in Service of Integrated Stainless Steel Mill

Jussi Yli-Niemi, Outokumpu Stainless Oy, Finland

Hannu Pakola, Outokumpu Stainless Oy, Finland

4. (11:00) Data Classification in Temperature Modelling of LD-KG Converter

Jari Ruuska, University of Oulu, Finland

Seppo Ollila, Rautaruukki Oyj, Ruukki Production, Raahe, Finland

Kauko Leiviskä, University of Oulu, Finland

STEEL MILLS, SINTERING, FURNACES AND CONVERTERS

Wednesday 06-Jul-2005 10:00-12:00, Meeting Room 3.5

Organizer: ***Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland***

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

Chair: ***Jämsä-Jounela Sirkka-Liisa, Helsinki University of Technology, Finland***

Co-Chair: ***Sangchul Won, Pohang University of Science and Technology, Korea***

5. (11:20) Diagnosis and Control Strategy for a Teniente Converter

Luis Bergh, Santa Maria University, Chile

Patricio Chacana, Codelco-Chile, Chile

Claudio Carrasco, Codelco-Chile, Chile

6. (11:40) Optimal Control of the Sintering Process

Imrich Koštial, Technical University of Kosice, Slovakia

Ľubomír Dorčák, Technical University of Kosice, Slovakia

Ján Terpák, Technical University of Kosice, Slovakia

INTELLIGENT COMPONENTS AND INSTRUMENTS

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Serge Boverie, Siemens, France***

Co-Chair: ***Francis Lepage, Université Henri Poincaré, France***

1. (13:00) A new fractional frequency synthesizer architecture with stability and robustness analysis

Marc Houdebine, ST Microelectronics, France

Sebastien Dedieu, ST Microelectronics, France

Mazen Alamir, Lab d'Automatique de Grenoble - INPG, France

Olivier Sename, Lab d'Automatique de Grenoble - INPG, France

2. (13:00) Left-Inverse System Dynamic Decoupling and Compensating Method Using Neural Networks

Dongchuan Yu, Tianjin University, China

Aiguo Wu, Tianjin University, China

3. (13:00) Automatic Inspection System for CMOS Camera Defect

Byoung-Wook Choi, Seoul Nat'l Univ. of Technology, Korea

Kuk-Won Ko, Sun Moon Univ., Korea

Kyoung-Chul Koh, Sun Moon Univ., Korea

Bok-Shin Ahn, P&C Tech., Korea

4. (13:00) Automatic calibration of sinusoidal encoder signals

Silvano Balemi, SUPSI, Switzerland

5. (13:00) Parameter Identification of the Pinhole Camera Vision System: An Enhanced Approach

Chao-Kuang Chen, National Cheng Kung University, Taiwan

M.J. Jang, East College, Taiwan

C.T. Chuang, National Cheng Kung UniversityFar, Taiwan

6. (13:00) Sub-Optimal Sensor Scheduling With Error Bounds

Peter Alriksson, Lund Institute of Technology, Lund University, Sweden

Anders Rantzer, Lund Institute of Technology, Lund University, Sweden

INTELLIGENT COMPONENTS AND INSTRUMENTS

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Serge Boverie, Siemens, France***

Co-Chair: ***Francis Lepage, Université Henri Poincaré, France***

7. (13:00) Sigma-Integration Analog to Digital Converter, Idea, Implementation and Results

Pavel Píša, Czech Technical University in Prague, Czech Republic

Petr Porazil, Czech Technical University in Prague, Czech Republic

8. (13:00) Unbiased Thermocouple Sensor Characterisation in Variable Flow Environments

Peter Chi Fai Hung, Queen's University Belfast, United Kingdom

Seán McLoone, National University of Ireland, Maynooth, Ireland

George Irwin, Queen's University Belfast, United Kingdom

Robert Kee, Queen's University Belfast, United Kingdom

NONLINEAR SYSTEM IDENTIFICATION - KERNEL METHODS

Wednesday 06-Jul-2005 13:00-15:00, Club H

Chair: ***Er-Wei Bai, University of Iowa, United States***

Co-Chair: ***Han-Fu Chen, Chinese Academy of Sciences, China***

1. (13:00) Almost Sure Convergence under Estimating Conditional Mean Based on Dependent Data

Kirill Chernyshov, Institute of Control Sciences, Russian Federation

2. (13:20) Application of a kernel method in modelling friction dynamics

Robert Harrison, The University of Sheffield, United Kingdom

Yufeng Wan, The University of Sheffield, United Kingdom

Chian X. Wong, The University of Sheffield, United Kingdom

Tony J. Dodd, The University of Sheffield, United Kingdom

3. (13:40) Gradient Based Methods: Functional vs Parametric Forms

Tony Dodd, The University of Sheffield, United Kingdom

Sumitra Nair, The University of Sheffield, United Kingdom

Robert F. Harrison, The University of Sheffield, United Kingdom

4. (14:00) Identification of IIR nonlinear systems without structural infromation

Er-Wei Bai, University of Iowa, United States

Robero Temo, CNR, Italy

Yun Liu, University of Iowa, United States

5. (14:20) Recursive identification for Hammerstein and Wiener systems with piece-wise linear memoryless block

Han-Fu Chen, Chinese Academy of Sciences, China

NONLINEAR SYSTEM IDENTIFICATION - KERNEL METHODS

Wednesday 06-Jul-2005 13:00-15:00, Club H

Chair: ***Er-Wei Bai, University of Iowa, United States***

Co-Chair: ***Han-Fu Chen, Chinese Academy of Sciences, China***

6. (14:40) Identification of a Hydraulic Servo-Axis Using Support Vector Machines

Jochen Schaab, University of Technology at Darmstadt, Germany

Marco Muenchhof, University of Technology at Darmstadt, Germany

Michael Vogt, University of Technology at Darmstadt, Germany

Rolf Isermann, University of Technology at Darmstadt, Germany

POWER PLANTS AND POWER SYSTEMS MODELLING AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

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

Co-Chair: ***Om P. Malik, University of Calgary, Canada***

1. (13:00) A Fuzzy Controller Synthesis for a Boost Converter

Abdelaziz Hamzaoui, CReSTIC, Université de Reims, France

Kamel Guesmi, CReSTIC, Université de Reims, France

Najib Essounbouli, CReSTIC, Université de Reims, France

Noureddine Manamanni, CReSTIC, Université de Reims, France

Janan Zaytoon, CReSTIC, Université de Reims, France

2. (13:00) A Generic Passivity Based Control for Multicellular Serial Converters

Herve Cormerais, Supelec, France, Metropolitan

P.Y. Richard, Supelec, France, Metropolitan

C. Morvan, Supelec, France, Metropolitan

J. Buisson, Supelec, France, Metropolitan

3. (13:00) Non Linear Model Based Predictive Controller of a Buck Boost Converter

Martin Pomar, Universidade Federal de Santa Catarina, Brazil

Julio Elias Normey Rico, Universidade Federal de Santa Catarina, Brazil

Eduardo Camponogara, Universidade Federal de Santa Catarina, Brazil

4. (13:00) Digital Internal Model Control of High-Precision Power Supply for Particle Accelerator Magnets

Alessandro Cavini, CASY-DEIS, University of Bologna, Italy

Fabio Ronchi, Arca Tecnologie s.r.l., Italy

Carlo Rossi, CASY-DEIS, University of Bologna, Italy

Andrea Tilli, CASY-DEIS, University of Bologna, Italy

POWER PLANTS AND POWER SYSTEMS MODELLING AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

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

Co-Chair: ***Om P. Malik, University of Calgary, Canada***

5. (13:00) Integration and Operation Strategies for Inverter-Interfaced Distributed Generation System

Il-Yop Chung, Seoul National University, Korea

Won-Wook Jung, Seoul National University, Korea

Seung-Il Moon, Seoul National University, Korea

Byung-Moon Han, Myongji University, Korea

Jae-Eon Kim, Chungbuk National University, Korea

Joon-Ho Choi, Chonnam National University, Korea

6. (13:00) A MPPT Algorithm for Single-Phase Single-Stage Photovoltaic Converters

Gabriele Grandi, Dept. of Electrical Engineering - University of Bologna, Italy

Claudio Rossi, Dept. of Electrical Engineering - University of Bologna, Italy

Domenico Casadei, Dept. of Electrical Engineering - University of Bologna, Italy

7. (13:00) A Note on the Passivity-based Control of Switched Reluctance Motors

Gerardo Espinosa-Perez, DEPFI-UNAM, Mexico

Christian Vazquez-Villanueva, DEPFI-UNAM, Mexico

Martin Velasco-Villa, CINVESTAV, Mexico

8. (13:00) Adaptive Speed Control of PMSMs with Unknown Load Torque

Fotis Koumboulis, Halkis Institute of Technology, Greece

N. D. Kouvakas, Halkis Institute of Technology, Greece

G. E. Panagiotakis, Halkis Institute of Technology, Greece

A. G. Pantelios, University of Ioannina, Greece

9. (13:00) Temperature Control of High Power Electronic Devices at Minimum Ventilation Power

Giampietro Fabbri, University of Bologna, Italy

POWER PLANTS AND POWER SYSTEMS MODELLING AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

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

Co-Chair: ***Om P. Malik, University of Calgary, Canada***

10. (13:00) Comparison of LMI based H2 control designs for VSC-HVDC Transmission

Martyn Durrant, Technical University of Hamburg, Germany

Katarina Aleksic, University of Nis, Serbia and Montenegro, Yugoslavia

Herbert Werner, Technical University of Hamburg, Germany

Keith Abbott, Areva T&D Ltd, United Kingdom

11. (13:00) Control of Power Systems with FACTS Devices Considering Different Load Characteristics

Ingo Winzenick, Helmut-Schmidt-Univeristy/University of the Federal Armed Forces Hamburg, Germany

Michael Fette, System & Dynamik / Beratungsunternehmen, Germany

Joachim Horn, Helmut-Schmidt-Univeristy/University of the Federal Armed Forces Hamburg, Germany

12. (13:00) Arcing Fault Detection and Fault Location on HV Transmission Lines

Joong-Rin Shin, Konkuk University, Korea

Zoran Radojevic, Konkuk University, Korea

Jong-Bae Park, Konkuk University, Korea

Chan-Joo Lee, Konkuk University, Korea

13. (13:00) Detection of incipient failures using an H2-norm criterion: application to electric point machines

Elena Zattoni, University of Bologna, Italy

14. (13:00) FPGA Based Real Time Simulation for Electrical Machines

T.X. Mei, The University of Leeds, United Kingdom

Y.J. Zhou, The University of Leeds, United Kingdom

15. (13:00) Identification of a state space model for a synchronous machine

Bin Wu, University of Calgary, Canada

Peng Zhao, University of Calgary, Canada

Om Malik, University of Calgary, Canada

POWER PLANTS AND POWER SYSTEMS MODELLING AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

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

Co-Chair: ***Om P. Malik, University of Calgary, Canada***

16. (13:00) Infinite-bus-equivalent estimation from local measurements on a synchronous machine

Alexandru Ticlea, Institut National Polytechnique de Grenoble, France, Metropolitan

Besançon Gildas, Institut National Polytechnique de Grenoble, France, Metropolitan

17. (13:00) Optimization of Power System Stabilizer by Genetic Algorithm

Eva Miklovicova, Slovak University of Technology, Slovakia

Ján Murgaš, Slovak University of Technology, Slovakia

Ivan Sekaj, Slovak University of Technology, Slovakia

Martin Foltin, Slovak University of Technology, Slovakia

18. (13:00) Decision Table Looking Up Approach for Fuzzy Logic Control of Multi-Area AGC Systems

Pingkang Li, Beijing Jiaotong University, China

Xiuxia Du, Beijing Jiaotong University, China

19. (13:00) On-line Fault Diagnosis in the Large Power System

Gyu-Seok Seo, Kyungpook National University, Korea

Young-Sik Baek, Kyungpook National University, Korea

Jung-Nyun Kim, LG Cable Ltd, Korea

Moo-Ho Han, Research Institute of Industrial Science & Technology, Korea

20. (13:00) Optimal Co-ordinated Control of Hydropower Plants

Thomas Rauschenbach, Fraunhofer Applications Center for System Technology, Germany

21. (13:00) An Electricity Market Analysis Method based on Probabilistic Production Costing Technique

Jong-Bae Park, Konkuk University, Korea

Joong-Rin Shin, Konkuk University, Korea

Yun-Won Jeong, Konkuk University, Korea

Gyu-Ha Choe, Konkuk University, Korea

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

POWER PLANTS AND POWER SYSTEMS MODELLING AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

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

Co-Chair: ***Om P. Malik, University of Calgary, Canada***

22. (13:00) Generation Markets Equilibrium Analysis using Residual Demands

Jinho Kim, Pusan National University, Korea

Jong-Bae Park, Konkuk University, Korea

Jun-Ho Park, Pusan National University, Korea

Joong-Rin Shin, Konkuk University, Korea

23. (13:00) Boiler Performance Optimization using Fuzzy Logic Controller

Yul Yunazwin Nazaruddin, Institut Teknologi Bandung, Indonesia

Handi Santoso, Institut Teknologi Bandung, Indonesia

Farida I. Muchtadi, Institut Teknologi Bandung, Indonesia

24. (13:00) Model-based Control of a Bottom Fired Marine Boiler

Brian Solberg, Aalborg Industries A/S, Denmark

Claus M. S. Karstensen, Aalborg Industries A/S, Denmark

Palle Andersen, Aalborg University, Denmark

Tom S. Pedersen, Aalborg University, Denmark

Poul U. Hvistendahl, F. L. Smidth, Denmark

25. (13:00) Object-oriented simulation for the control of the IRIS nuclear power plant

Francesco Casella, Politecnico di Milano, Italy

Antonio Cammi, Politecnico di Milano, Italy

Marco E. Ricotti, Politecnico di Milano, Italy

Francesco Schiavo, Politecnico di Milano, Italy

Gary D. Storrick, Westinghouse Electric Company, LLC, United States

26. (13:00) Sliding Mode Thermal Control System For Furnace in Laser Physics

Anna Khachaturova, Institute for Physical Research of NAS of Armenia, Armenia

Vardan Mkrttchian, All Armenian Internet University, Australia

POWER PLANTS AND POWER SYSTEMS MODELLING AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

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

Co-Chair: ***Om P. Malik, University of Calgary, Canada***

27. (13:00) The Way of District Heating Output Control by means of Hydrothermal Power Systems

Jaroslav Balátě, Tomas Bata University, Czech Republic

Petr Jeník, United Energy, Czech Republic

Bronislav Chramcov, Tomas Bata University, Czech Republic

28. (13:00) Modeling and Active Control of Thermoacoustic Instabilities

Andre Niederberger, ETH Zuerich, Switzerland

Bruno B.H. Schuermans, ALSTOM Switzerland Ltd., Switzerland

Lino Guzzella, ETH Zuerich, Switzerland

APPLICATIONS OF FAULT DIAGNOSIS AND FAULT TOLERANT CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Sauro Longhi, Universita Politecnica delle Marche, Italy***

1. (13:00) Control of an uncertain three-tank-system via on-line parameter identification and fault detection

Cedric Join, ALIEN, INRIA Futurs and CRAN, University of Nancy, France

Hebertt Sira-Ramirez, CINVESTAV, Mexico, Mexico

Michel Fliess, ALIEN, INRIA Futurs and LIX, Ecole Polytechnique, France

2. (13:00) Data Access in Distributed Control Systems

Matjaž Colnarič, University of Maribor, Slovenia

Domen Verber, University of Maribor, Slovenia

3. (13:00) Data reconciliation: a robust approach using contaminated distribution. Application to a petrochemical process.

José Ragot, Institut National Polytechnique de Lorraine, France

Didier Maquin, Institut National Polytechnique de Lorraine, France

4. (13:00) Distributed Diagnosis for Embedded Systems in Automotive Vehicles

Jonas Biteus, Linkopings Universitet, Sweden

Mathias Jensen, Scania AB, Sweden

Mattias Nyberg, Scania AB, Sweden

5. (13:00) Model-Based Sensor Fault Detection System for a Smart Wheelchair

Sauro Longhi, Universita` Politecnica delle Marche, Italy

Gianluca Ippoliti, Universita` Politecnica delle Marche, Italy

Andrea Monteriù, Universita` Politecnica delle Marche, Italy

APPLICATIONS OF FAULT DIAGNOSIS AND FAULT TOLERANT CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Sauro Longhi, Universita Politecnica delle Marche, Italy***

6. (13:00) Overcoming Sensor Faults in Controlled Induction Motor

Antonio Mendoza, CARTIF, Spain

Roberto Arnanz, CARTIF, Spain

Alicia Corrales, CARTIF, Spain

Jose Ramón Perán, ETSII University of Valladolid, Spain

Luis Javier de Miguel, ETSII University of Valladolid, Spain

7. (13:00) Pattern Recognition Method for Off-Board Automotive Vehicle Failure Isolation

Nasser Charkaoui, Université de Technologie de Compiègne/PSA Peugeot Citroën, France

Bernard Dubuisson, Université de Technologie de Compiègne, France

Christophe Ambroise, Université de Technologie de Compiègne, France

Armand Boatas, PSA Peugeot Citroën, France

8. (13:00) Process Fault Diagnosis using Recursive Multivariate Statistical Process Control

Xun Wang, Queen's University Belfast, United Kingdom

Uwe Krüger, Queen's University Belfast, United Kingdom

George W. Irwin, Queen's University Belfast, United Kingdom

9. (13:00) Robust Fault Isolation using Non-linear Interval Observers: The Damadics Benchmark Case Study

Vicenç Puig, Universitat Politècnica de Catalunya (UPC), Spain

Alexandru Stancu, Universitat Politècnica de Catalunya (UPC), Spain

Joseba Quevedo, Universitat Politècnica de Catalunya (UPC), Spain

10. (13:00) Safety and security checking in the design of Internet based control systems

Lili Yang, Loughborough University, United Kingdom

Shuang-Hua Yang, Loughborough University, United Kingdom

APPLICATIONS OF FAULT DIAGNOSIS AND FAULT TOLERANT CONTROL

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Sauro Longhi, Universita Politecnica delle Marche, Italy***

11. (13:00) Semi-qualitative Temporal Episodes Prognosis for Process Supervision

Sylviane Gentil, INPG, France

Carlos Garcia-Beltran, INPG, France

Sylvie Charbonnier, INPG, France

ROBOT SENSORS AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, Club A

Chair: ***Dan Necsulescu, University of Ottawa, Canada***

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

1. (13:00) Haptic Force Control based on Impedance/Admittance Control

Jurek Sasiadek, Carleton University, Canada

K. Wen, University of Ottawa, Canada

Dan Necsulescu, University of Ottawa, Canada

2. (13:20) Saturated Nonlinear PID Global Regulator for Robot Manipulators: Passivity Based Analysis

Jose Luis Meza, Instituto Tecnologico de la Laguna, Mexico

Victor Santibanez, Instituto Tecnologico de la Laguna, Mexico

Victor M. Hernandez, Universidad Autonoma de Queretaro, Mexico

3. (13:40) Passivity-based Dynamic Visual Feedback Control with a Movable Camera

Toshiyuki Murao, Kanazawa University, Japan

Hiroyuki Kawai, Hosei University, Japan

Masayuki Fujita, Kanazawa University, Japan

4. (14:00) Robust Image-Based Visual Servoing System using a Redundant Architecture

Nicolas Garcia Aracil, Universidad Miguel Hernandez, Spain

Rafael Aracil, Universidad Politecnica de Madrid, Spain

Carlos Pérez, Universidad Miguel Hernandez, Spain

Luis Payá, Universidad Miguel Hernandez, Spain

José María Sabater, Universidad Miguel Hernandez, Spain

José María Azorín, Universidad Miguel Hernandez, Spain

Luis M. Jiménez, Universidad Miguel Hernandez, Spain

5. (14:20) Visual control of robotic manipulators: designing a simplified stabilizing controller

Luca Bascetta, Politecnico di Milano, Italy

Paolo Rocco, Politecnico di Milano, Italy

ROBOT SENSORS AND CONTROL

Wednesday 06-Jul-2005 13:00-15:00, Club A

Chair: ***Dan Necsulescu, University of Ottawa, Canada***

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

6. (14:40) Visual servoing for an underactuated manipulator

Luis Enrique Ramos-Velasco, Universida Autonoma del Estado de Hidalgo, Mexico

Angelica Espejel Rivera, Universida Autonoma del Estado de Hidalgo, Mexico

Sergej Celikovsky, Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Czech Republic

MECHATRONIC APPLICATIONS

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Roger Goodall, Loughborough University, United Kingdom***

Co-Chair: ***Masayoshi Tomizuka, University of California, Berkeley, United States***

1. (13:00) A mechatronic approach to the control of machine tools

Paolo Rocco, Politecnico di Milano, Italy

Gianni Ferretti, Politecnico di Milano, Italy

Francesco Lucchini, Politecnico di Milano, Italy

GianAntonio Magnani, Politecnico di Milano, Italy

2. (13:00) Compensation of friction in robotic arms and slide tables

Tomasz Zabinski, Rzeszow University of Technology, Poland

Andrzej Turnau, University of Science and Technology Kraków, Poland

3. (13:00) Control of Weakly Damped Finite and Infinite Dimensional Euler-Lagrange Systems

Helmut Ennsbrunner, Johannes Kepler University Linz, Austria

Kurt Schlacher, Johannes Kepler University Linz, Austria

4. (13:00) Design and Realization of Programmable Emulator of Mechanical Loads

Radovan Macko, KAR FEI STU Bratislava, Slovakia

Milan Žalman, KAR FEI STU, Slovakia

5. (13:00) Disturbance Observer-Based Practical Control of Shaking Tables with Nonlinear Specimen

Iwasaki Makoto, Nagoya Institute of Technology, Japan

Kensuke Ito, Nagoya Institute of Technology, Japan

Motohiro Kawafuku, Nagoya Institute of Technology, Japan

Hiromu Hirai, Nagoya Institute of Technology, Japan

Yoshihiro Dozono, Mechanical Engineering Research Laboratory, Hitachi, Ltd., Japan

Katsuhiko Kurosaki, Hitachi Industries Co., Ltd., Japan

MECHATRONIC APPLICATIONS

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Roger Goodall, Loughborough University, United Kingdom***

Co-Chair: ***Masayoshi Tomizuka, University of California, Berkeley, United States***

6. (13:00) Friction Modelling and Robust Adaptive Compensation

Lorinc Marton, Sapienta University, Romania

Bela Lantos, Budapest University of Technology and Economics, Hungary

7. (13:00) Gain-Scheduling Approach to Mass Damper Type Anti-Sway System Design

Youngbok Kim, Pukyong National University, Korea

Dongkyu Kim, Pukyong National University, Korea

Guisheng Zhai, Osaka Prefecture University, China

Jiseong Jang, Pukyong National University, Korea

8. (13:00) Multivariable H-infinity controller design and testing for a 2.4m telescope

Paul Roberts, University of Leicester, United Kingdom

Matthew Turner, University of Leicester, United Kingdom

Gustavo Medrano-Cerda, Telescope Technologies Limited, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

Paul Rees, Telescope Technologies Limited, United Kingdom

9. (13:00) Nonlinear Control of 3-D Overhead Cranes: Energy-based Decoupling

Dongkyoung Chwa, Ajou University, Korea

Keum-Shik Hong, Pusan National University, Korea

10. (13:00) Nonlinear PID Control of Linear Plants for Improved Disturbance Rejection

Jinchuan Zheng, Data Storage Institute, Singapore

Guoxiao Guo, Data Storage Institute, Singapore

Youyi Wang, Nanyang Technological University, Singapore

MECHATRONIC APPLICATIONS

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Roger Goodall, Loughborough University, United Kingdom***

Co-Chair: ***Masayoshi Tomizuka, University of California, Berkeley, United States***

11. (13:00) Rejection of Repeatable Run-Out in HDDs Using Inverse Frequency Dynamics

Motohiro Kawafuku, Nagoya Institute of Technology, Japan

Makoto Iwasaki, Nagoya Institute of Technology, Japan

Hiromu Hirai, Nagoya Institute of Technology, Japan

Atsushi Okuyama, Hitachi STRC, Japan

12. (13:00) Robust Adaptive Control of Nonlinear Translating Beams with a Varying Speed

Kyung-Jinn Yang, University of Electro-Communications, Japan

Keum-Shik Hong, Pusan National University, Korea

Fumitoshi Matsuno, University of Electro-Communications, Japan

13. (13:00) Robust Following Control of Optical Disk Recording System Based on ZPET Control and Sudden Disturbance Observer

Kiyoshi Ohishi, Nagaoka University of Technology, Japan

Toru Hayano, Nagaoka University of Technology, Japan

Toshimasa Miyazaki, Nagaoka National College of Technology, Japan

Daiichi Koide, NHK Science and Technical Research Laboratories, Japan

Haruki Tokumaru, NHK Science and Technical Research Laboratories, Japan

14. (13:00) Software Environment for Robot Control Solutions Design, Optimisation and Testing

Gian Pietro Pagliarini, ITIA CNR, Italy

Emanuele Carpanzano, ITIA CNR, Italy

15. (13:00) Stability Analysis of Closed-Loop Input Shaping Control

John Huey, Georgia Institute of Technology, United States

William Singhose, Georgia Institute of Technology, United States

MECHATRONIC APPLICATIONS

Wednesday 06-Jul-2005 13:00-15:00, North Hall

Chair: ***Roger Goodall, Loughborough University, United Kingdom***

Co-Chair: ***Masayoshi Tomizuka, University of California, Berkeley, United States***

16. (13:00) Two Dimensional Feedrate Control for High Performance CNC Machine Tools

Seung Soo Lee, Kyungpook National University, Korea

Jung Hwan Cho, Kyungpook National University, Korea

Gi Joon Jeon, Kyungpook National University, Korea

17. (13:00) Vibration Control in Suspension Systems

Katerina Hyniova, Czech Technical University in Prague, Czech Republic

Jaroslav Honcu, Czech Technical University in Prague, Czech Republic

Antonin Stribrsky, Czech Technical University in Prague, Czech Republic

ELECTROMECHANICAL APPLICATIONS OF FAULT DIAGNOSIS AND FAULT TOLERANT CONTROL

Wednesday 06-Jul-2005 13:00-15:00, Club E

Chair: ***Fredrik Gustafsson, Linköping University, Sweden***

Co-Chair: ***Stephen Daley, University of Sheffield, United Kingdom***

1. (13:00) Fault detection filter applied to structural health monitoring: experimental results

Sauro Liberatore, UCLA, United States

Jason Speyer, UCLA, United States

Andy Chunliang Hsu, UCLA, United States

2. (13:20) Comparison of Change Detection Methods for a Residual of a Hydraulic Servo-Axis

Marco Muenchhof, University of Technology at Darmstadt, Germany

Rolf Isermann, University of Technology at Darmstadt, Germany

3. (13:40) In-depth fault diagnosis of small universal motors based on acoustic analysis

Uros Benko, Institute Jozef Stefan, Slovenia

Janko Petrovcic, Institute Jozef Stefan, Slovenia

Dani Juricic, Institute Jozef Stefan, Slovenia

4. (14:00) Improving the Control and Reliability of an Electromechanical Actuator

Roger Dixon, Loughborough University, United Kingdom

A.W. Pike, ALSTOM Power Technology Centre, United Kingdom

5. (14:20) Programmable Safety in the Automobile Industry

Fabio Chaves, Siemens Canada Limited, Canada

6. (14:40) A Method for Detecting Defects in Laser Weldings for the Automotive Industry

Sergio Saludes, CARTIF, Spain

José M. Bernárdez, CARTIF, Spain

Roberto Arnanz, CARTIF, Spain

Fernando Rodríguez, CARTIF, Spain

Luis J. Miguel, Universidad de Valladolid ITAP, Spain

José R. Perán, Universidad de Valladolid ETSII, Spain

ADAPTIVE INTEGRATED DRIVER-VEHICLE INTERFACE-AIDE

Wednesday 06-Jul-2005 13:00-15:00, Terrace 1

Organizer: ***Serge Boverie, Siemens VDO Automotive, France***

Co-Organizer ***Angelos Amditis, Institute of Communication and Computer Systems, Greece***

Chair: ***Serge Boverie, Siemens VDO Automotive, Toulouse, France***

Co-Chair: ***Angelos Amditis, Institute of Communication and Computer Systems, Greece***

1. (13:00) Development of a Driver Situation Assessment Module in the Aide Project

Hélène Tattegrain Veste, INRETS, France

Thierry Bellet, INRETS, France

Serge Boverie, Siemens VDO, France

Matti Kutila, VTT, Finland

Evangelos Bekiaris, Hellenic Institute of Transport, Greece

Maria Panou, Hellenic Institute of Transport, Greece

Johan Engström, VOLVO TECHNOLOGY CORPORATION, Sweden

2. (13:20) Design and Development of an Adaptive Integrated Driver-vehicle Interface: Overview of the Aide Project

Angelos Amditis, Institute of Communication and Computer Systems, Greece

Luisa Andreone, Centro Ricerche Fiat, Italy

Aris Polychronopoulos, Institute of Communication and Computer Systems, Greece

Johan Engström, Volvo Technology, Sweden

3. (13:40) Beyond Context-Awareness: Driver-Vehicle-Environment Adaptivity. From the Comunicar Project to the Aide Concept

Luisa Andreone, Centro Ricerche Fiat, Italy

Angelos Amditis, Institute of Communication and Computer Systems Athens, Greece

Enrica Deregibus, Centro Ricerche Fiat, Italy

Sergio Damiani, Centro Ricerche Fiat, Italy

Domenico Morreale, Centro Ricerche Fiat, Italy

Francesco Bellotti, University of Genoa, Italy

ADAPTIVE INTEGRATED DRIVER-VEHICLE INTERFACE-AIDE

Wednesday 06-Jul-2005 13:00-15:00, Terrace 1

Organizer: ***Serge Boverie, Siemens VDO Automotive, France***

Co-Organizer ***Angelos Amditis, Institute of Communication and Computer Systems, Greece***

Chair: ***Serge Boverie, Siemens VDO Automotive, Toulouse, France***

Co-Chair: ***Angelos Amditis, Institute of Communication and Computer Systems, Greece***

4. (14:00) Real Time Environmental and Traffic Supervision for Adaptive Interfaces in Intelligent Vehicles

Aris Polychronopoulos, ICCS, Greece

Angelos Amditis, ICCS, Greece

Luisa Andreone, Centro Ricerche Fiat, Italy

5. (14:20) From Driver Modelling to Human Machine Interface Personalisation

Maria Panou, Hellenic Institute of Transport, Greece

Nadia Cacciabue, KITE Solutions, Italy

Pietro Carlo Cacciabue, EC, Joint Research Centre, Italy

Evangelos Bekiaris, Hellenic Institute of Transport, Greece

6. (14:40) Integrating Nomadic Devices in an Adaptive Driver-vehicle Environment

Francesco Bellotti, Dept. of Electronics and Biophysical Engineering, University of Genoa, Italy

Riccardo Berta, Dept. of Electronics and Biophysical Engineering, University of Genoa, Italy

Patrick Robertson, Global Software Group, Motorola, United Kingdom

Paul Kompfner, ERTICO, Belgium

Angelos Amditis, ICCS-NTUA, Greece

NONLINEAR CONTROL APPLICATIONS II

Wednesday 06-Jul-2005 13:00-15:00, Club B

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

Co-Chair: ***Henk Neijmeijer, TU Eindhoven, Netherlands***

1. (13:00) Stabilization scheme for force reflecting teleoperation with time-varying communication delay based on IOS small gain theorem

Ilia Polushin, Carleton University, Canada

Abdelhamid Tayebi, Lakehead University, Canada

Horacio Marquez, University of Alberta, Canada

2. (13:20) Output based control for an underactuated system: Experimental results

René van der Steen, Eindhoven University of Technology, Netherlands

Henk Nijmeijer, Eindhoven University of Technology, Netherlands

3. (13:40) Feedback Regulation of a DC Motor via Interconnection and Damping Assignment

Miguel Rios-Bolivar, Universidad de Los Andes, Venezuela

Atilio Morillo, Universidad del Zulia, Venezuela

Vivian Acosta, Universidad de Los Andes, Venezuela

4. (14:00) Towards a regulation procedure for instantaneous reactive power in nonlinear electrical circuits

Dimitri Jeltsema, Delft University of Technology, Netherlands

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

Romeo Ortega, LSS-SUPELEC, France, Metropolitan

Jacquelien M.A. Scherpen, Delft University of Technology, Netherlands

5. (14:20) Positive control of Lotka-Volterra systems

Frédéric Grognard, INRIA Sophia-Antipolis, France

J.-L. Gouzé, INRIA Sophia-Antipolis, France

NONLINEAR CONTROL APPLICATIONS II

Wednesday 06-Jul-2005 13:00-15:00, Club B

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

Co-Chair: ***Henk Neijmeijer, TU Eindhoven, Netherlands***

6. (14:40) Price-Based Resource Allocation in CDMA Networks and Stability Analysis

Bo Yang, Yanshan University, China

Xinping Guan, Yanshan University, China

Chengnian Long, Yanshan University, China

PREDICTIVE CONTROL: IMPLEMENTATION AND APPLICATIONS

Wednesday 06-Jul-2005 13:00-15:00, Club D

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

Co-Chair: ***Massimo Canale, Politecnico di Torino, Italy***

1. (13:00) Delayed Generalized Predictive Control of Bilateral Teleoperation Systems

Tahar Slama, University of Orleans, France

Didier Aubry, University of Orleans, France

Pierre Vieyres, University of Orleans, France

Frédéric Kratz, University of Orleans, France

2. (13:20) Experimental verification of stabilizing spline-based continuous-time model predictive control scheme with adaptation of terminal set

Boris Rohal-Ilkiv, Slovak University of Technology, Slovakia

Martin Rusko, Slovak University of Technology, Slovakia

3. (13:40) FMPC: a fast implementation of model predictive control

Mario Milanese, Politecnico di Torino, Italy

Massimo Canale, Politecnico di Torino, Italy

4. (14:00) Optimization and Control of a District Heating Network

Guillaume Sandou, Ecole Supérieure d'Electricité, France

Stephane Font, Ecole Supérieure d'Electricité, France

Sihem Tebbani, Ecole Supérieure d'Electricité, France

Arnaud Hiret, Electricité de France, France

Christian Mondon, Electricité de France, France

5. (14:20) Predictive Control Applied to Planar Parallel Robots

Květoslav Belda, Institute of Information Theory and Automation, Czech Republic

Josef Böhm, Institute of Information Theory and Automation, Czech Republic

Michael Valášek, Czech Technical University in Prague, Czech Republic

PREDICTIVE CONTROL: IMPLEMENTATION AND APPLICATIONS

Wednesday 06-Jul-2005 13:00-15:00, Club D

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

Co-Chair: ***Massimo Canale, Politecnico di Torino, Italy***

6. (14:40) Process Integrated Design within a Model Predictive Control Framework

Mario Francisco, University of Salamanca, Spain

Pastora Vega, University of Salamanca, Spain

Omar Pérez, University of Simón Bolívar, Venezuela

ROBUST CONTROLLER SYNTHESIS II

Wednesday 06-Jul-2005 13:00-15:00, Club C

Chair: ***Edward Boje, Univ. KwaZulu-Natal, Durban, South Africa***

Co-Chair: ***Milos Schlegel, University of West Bohemia, Pilsen, Czech Republic***

1. (13:00) Fixed structure PID controller design for standard H-infinity control problem

Masami Saeki, Hiroshima University, Japan

2. (13:20) Pole Placement Controller based on Robust Internal-loop Compensator for High-accuracy Linear Motion System

Jung-il Park, Yeungnam Univ., Korea

Seong-Hyun. Jeong, Yeungnam Univ., Korea

Suk-Gyu. Lee, Yeungnam Univ., Korea

3. (13:40) Robust design of Smith predictive controller for moment model set

Milos Schlegel, University of West Bohemia in Pilsen, Czech Republic

Oldrich Vecerek, University of West Bohemia in Pilsen, Czech Republic

4. (14:00) Squaring Down Design for Over-Actuated Systems in Multivariable QFT

Edward Boje, Univ. KwaZulu-Natal, South Africa

5. (14:20) Vibration Suppression Shape Filter Generation From Window Functions

Li Zhou, Oklahoma State University, United States

Eduardo A. Misawa, Oklahoma State University, United States

6. (14:40) Systematic Approach to the Selection of Reduced Models. Application to a Practical Case

Teresa M. Rueda, Universidad de Cantabria, Spain

Francisco J. Velasco, Universidad de Cantabria, Spain

Eloy López, Universidad del País Vasco, Spain

Emiliano Moyano, Universidad de Cantabria, Spain

CONTROL OF LINEAR SYSTEMS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 2.2

Chair: ***Joao M. Gomes da Silva Jr., Univ. Federal do Rio Grande do Sul, Brazil***

Co-Chair: ***Matthew Turner, University of Leicester, United Kingdom***

1. (13:00) Anti-windup synthesis using Riccati equations

Matthew Turner, University of Leicester, United Kingdom

Jorge Sofrony, University of Leicester, United Kingdom

Ian Postlethwaite, University of Leicester, United Kingdom

2. (13:20) Aspects of Pole Placement Technique in Symmetrical Optimum Method for PID Controller Design

Viorel Nicolau, "Dunarea de Jos" University of Galati, Romania

Constantin Miholca, "Dunarea de Jos" University of Galati, Romania

Dorel Aiordachioaie, "Dunarea de Jos" University of Galati, Romania

Emil Ceanga, "Dunarea de Jos" University of Galati, Romania

3. (13:40) PID Controller Design with Specifications on the Infinity-Norm of Sensitivity Functions

Daniel Garcia, EPFL, Switzerland

Alireza Karimi, EPFL, Switzerland

Roland Longchamp, EPFL, Switzerland

4. (14:00) PID Controller Design for Multivariable Systems Using Gershgorin Bands

Daniel Garcia, EPFL, Switzerland

Alireza Karimi, EPFL, Switzerland

Roland Longchamp, EPFL, Switzerland

5. (14:20) Receding-Horizon Control for Linear Time-Delay Systems

Young Sam Lee, Inha University, Korea

6. (14:40) Time-varying dynamic controllers for discrete-time linear systems with input saturation

Joao Manoel Gomes da Silva Jr., UFRGS, Brazil

Fabien Lescher, EIGSI, France

ANALYSIS AND DESIGN OF HYBRID SYSTEMS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 4.1

Organizer: ***Janan Zaytoon, University of Reims, France***

Co-Organizer ***Hervé Gueguen, SUPELEC - IETR, France***

Chair: ***Hervé Gueguen, SUPELEC - IETR, France***

Co-Chair: ***Janan Zaytoon, CReSTIC, University of Reims, France***

1. (13:00) Switching observer design for an experimental piece-wise linear beam system

Apostolos Doris, Eindhoven University of Technology, Netherlands

A.Lj. Juloski, Eindhoven University of Technology, Netherlands

W.P.M.H. Heemels, Eindhoven Embedded System Institute, Netherlands

N. van de Wouw, Eindhoven University of Technology, Netherlands

H. Nijmeijer, Eindhoven University of Technology, Netherlands

2. (13:20) Sliding Mode Observer For Triangular Input Hybrid System

Mohamed Djemai, ECS- ENSEA, France

Noureddine Manamanni, CReSTIC, Université de Reims, France

Jean-Pierre Barbot, ECS- ENSEA, France

3. (13:40) Observer design for Lur'e systems with multivalued mappings

Aleksandar Juloski, Eindhoven University of Technology, Netherlands

Maurice Heemels, Embedded Systems Institute, Netherlands

Bernard Brogliato, INRIA, France

4. (14:00) Digital idle speed control of automotive engines using hybrid models

Giovanni Girasole, University of L'Aquila, Italy

Elena De Santis, University of L'Aquila, Italy

Maria Domenica Di Benedetto, University of L'Aquila, Italy

ANALYSIS AND DESIGN OF HYBRID SYSTEMS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 4.1

Organizer: ***Janan Zaytoon, University of Reims, France***

Co-Organizer ***Hervé Gueguen, SUPELEC - IETR, France***

Chair: ***Hervé Gueguen, SUPELEC - IETR, France***

Co-Chair: ***Janan Zaytoon, CReSTIC, University of Reims, France***

5. (14:20) Stabilization of switched systems via optimal control

Daniele Corona, University of Cagliari, Italy

Giua Alessandro, University of Cagliari, Italy

Seatzu Carla, University of Cagliari, Italy

6. (14:40) On Suboptimal Control Design for Hybrid Automata using Predictive Control Techniques

Michael Spathopoulos, University of Strathclyde, United Kingdom

Yan Pang, University of Strathclyde, United Kingdom

Joerg Raisch, Otto-von-Guericke Universitaet Magdeburg, Germany

MONITORING AND CHANGE DETECTION

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 4.2

Chair: ***McKelvey Tomas, Chalmers University of Technology, Sweden***

Co-Chair: ***Yoshifumi Morita, Nagoya Institute of Technology, Japan***

1. (13:00) Detection and Estimation of Structural Changes in Dynamical Regression Models

Boris Brodsky, Russian Academy of Sciences, Russian Federation

Boris Darkhovsky, Russian Academy of Sciences, Russian Federation

2. (13:20) Detection of State-of-Charge in Lead Acid Battery using RBF-NN

Yoshifumi Morita, Nagoya Institute of Technology, Japan

Lee Sun Hee, Nagoya Institute of Technology, Japan

Takaharu Kozawa, Nagoya Institute of Technology, Japan

Naoki Mizuno, Nagoya Institute of Technology, Japan

3. (13:40) Dynamic Modelling for Condition Monitoring of Gas Turbines

Tim Breikin, University of Manchester, United Kingdom

Gennady Kulikov, Ufa State Aviation Technical University, Russian Federation

Valentin Arkov, Ufa State Aviation Technical University, Russian Federation

Peter Fleming, University of Sheffield, United Kingdom

4. (14:00) GLR Tests for Fault Detection over Sliding Data Windows

David Tornqvist, Linkoping University, Sweden

Fredrik Gustafsson, Linkoping University, Sweden

Inger Klein, Linkoping University, Sweden

5. (14:20) On-line Fault Prediction Algorithm for the Pulse System

Yury Kolokolov, Department of Design and Technology of Electronic Systems, Russian Federation

Anna Monovskaya, Department of Design and Technology of Electronic Systems, Russian Federation

Abdelaziz Hamzaoui, CReSTIC, France

MONITORING AND CHANGE DETECTION

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 4.2

Chair: ***McKelvey Tomas, Chalmers University of Technology, Sweden***

Co-Chair: ***Yoshifumi Morita, Nagoya Institute of Technology, Japan***

6. (14:40) Vibration Monitoring for Fault Diagnosis of Helicopter Planetary Gears

Biqing Wu, Georgia Institute of Technology, United States

Abhinav Saxena, Georgia Institute of Technology, United States

Romano Patrick, Georgia Institute of Technology, United States

George Vachtsevanos, Georgia Institute of Technology, United States

OPTIMAL CONTROL IN NONLINEAR SYSTEMS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 1.1

Chair: ***Adam Korytowski, AGH University of Science and Technology, Poland***

Co-Chair: ***Raymond DeCarlo, Purdue University, United States***

1. (13:00) A numerical optimal control approach to the design of an optical fibre-based evanescent field sensor.

Peter Dower, University of Melbourne, Australia

Peter Farrell, University of Melbourne, Australia

Brant Gibson, University of Melbourne, Australia

2. (13:20) A robust repetitive control scheme with relaxed minimum time criterion

Andrzej Turnau, AGH University of Science and Technology, Poland

Maciej Szymkat, AGH University of Science and Technology, Poland

Adam Korytowski, AGH University of Science and Technology, Poland

Krzysztof Kołek, AGH University of Science and Technology, Poland

3. (13:40) Discrete Second Order Trajectory Generator with Nonlinear Constraints

Riccardo Morselli, University of Modena and Reggio Emilia, Italy

Roberto Zanasi, University of Modena and Reggio Emilia, Italy

Stefano Stramigioli, University of Twente, Netherlands

4. (14:00) Extremum-seeking Control over Periodic Orbits

Martin Guay, Queen's University, Canada

Denis Dochain, Universite Catholique de Louvain, Belgium

Michel Perrier, Ecole Polytechnique de Montreal, Canada

Nicolas Hudon, Queen's University, Canada

OPTIMAL CONTROL IN NONLINEAR SYSTEMS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 1.1

Chair: ***Adam Korytowski, AGH University of Science and Technology, Poland***

Co-Chair: ***Raymond DeCarlo, Purdue University, United States***

5. (14:20) Sensitivity Analysis in Index-1 Differential Algebraic Equations by ESDIRK Methods

Morten Rode Kristensen, Technical University of Denmark, Denmark

John Bagterp Jørgensen, 2-control ApS, Denmark

Per Grove Thomsen, Technical University of Denmark, Denmark

Michael Locht Michelsen, Technical University of Denmark, Denmark

Sten Bay Jørgensen, Technical University of Denmark, Denmark

6. (14:40) Suboptimal Supervisory Level Power Flow Control of a Hybrid Electric Vehicle

Kasemsak Uthaichana, Purdue University, United States

Sorin Bengea, Eaton Innovation Center, United States

Raymond DeCarlo, Purdue University, United States

WIRELESS NETWORKS FOR CONTROL

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 2.3

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

Co-Chair: ***Klaus Schilling, Julius-Maximilians Universität Würzburg, Germany***

1. (13:00) Wireless Ad-Hoc Networks for Industrial Automation: Current Trends and Future Prospects

Mogens L. Mathiesen, ABB, Norway

Gilles Thonet, ABB, Belgium

Niels Aakvaag, ABB, Norway

2. (13:40) Research on Simulation of Wireless Sensor Network

Wei Liang, Shenyang Institute of Automation, Chinese Academy of Sciences, China

Haibin Yu, Shenyang Institute of Automation, Chinese Academy of Sciences, China

Chang Che, Shenyang Jianzhu University, China

Jieyin Bai, Shenyang Institute of Automation, Chinese Academy of Sciences, China

3. (14:00) New Congestion Control Schemes over Wireless Networks: Stability Analysis

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

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

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

4. (14:20) Quantization in Model Based Networked Control Systems

Luis Montestruque, University of Notre Dame, United States

Panos J. Antsaklis, University of Notre Dame, United States

5. (14:40) Primal and dual approaches to distributed cross-layer optimization

Björn Johansson, KTH, Sweden

Mikael Johansson, KTH, Sweden

ITERATIVE LEARNING CONTROL

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.1

Chair: ***Peter Goldsmith, University of Calgary, Canada***

Co-Chair: ***Yoshihiko Miyasato, The Institute of Statistical Mathematics, Japan***

1. (13:00) Stability analysis of iterative learning control system with interval uncertainty

YangQuan Chen, CSOIS, Utah State University, United States

Hyosung Ahn, CSOIS, Utah State University, United States

Kevin L. Moore, APL, Johns Hopkins University, United States

2. (13:20) Discrete-time Model for Linear Continuous-time Repetitive System

Jerzy Kurek, Warsaw University of Technology, Poland

3. (13:40) Iterative Learning Control for a Class of Nonlinear Systems with Parametric Uncertainties

Jing Xu, Nanyang Technological University, Singapore

Meng Joo Er, Nanyang Technological University, Singapore

4. (14:00) Iterative Learning Control of Robotic Manipulators by Hybrid Adaptation Schemes ~Application of 2-Dimensional Adaptive Control~

Yoshihiko Miyasato, The Institute of Statistical Mathematics, Japan

5. (14:20) Learning Control of Current-Fed Induction Motor with Mechanical Uncertainties

Marcello Montanari, CASY-DEIS, University of Bologna, Italy

Andrea Tilli, CASY-DEIS, University of Bologna, Italy

6. (14:40) Robust Iterative Learning Control on Finite Time Intervals

Peter Goldsmith, U of Calgary, Canada

INTELLIGENT MODELLING AND IDENTIFICATION I

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.2

Chair: ***Cong Wang, South China University of Technology, China***

Co-Chair: ***Lavinia Ferariu, Gh. Asachi Technical University, Romania***

1. (13:00) Eng-genes: A new genetic modelling approach for nonlinear dynamic systems

Kang Li, Queen's University Belfast, United Kingdom

2. (13:20) Machine Learning of Expert Decision or System Behaviour

Peter Otto, Technische Universität Ilmenau, Germany

3. (13:40) Nonlinear System Identification based on Evolutionary Dynamic Neural Networks with Hybrid Structure

Lavinia Ferariu, Gh. Asachi Technical University, Romania

Mihail Voicu, Gh. Asachi Technical University, Romania

4. (14:00) Deterministic learning and rapid dynamical pattern recognition

Cong Wang, South China University of Technology, China

David Hill, The Australian National University, Australia

5. (14:20) A novel GA-based neural modelling platform for nonlinear dynamic systems

Kang Li, Queen's University Belfast, United Kingdom

Jian-Xun Peng, Queen's University Belfast, United Kingdom

6. (14:40) Application of RBF for Strip Shape Recognition

Zhe Xu, Beijing University of Technology, China

Yanling Lu, Beijing University of Technology, China

Junfei Qiao, Beijing University of Technology, China

Jianmin Duan, Beijing University of Technology, China

MULTIPLE VEHICLES II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.3

Chair: ***Antonio Pascoal, Instituto Superior Tecnico, Portugal***

Co-Chair: ***Kronreif Gernot, ARC Seibersdorf Research GmbH, Austria***

1. (13:00) Dynamic Consensus on Mobile Networks

Demetri Spanos, California Institute of Technology, United States

Reza Olfati-Saber, University of California, Los Angeles, United States

Richard M. Murray, California Institute of Techonlogy, United States

2. (13:20) On quantization and communication topologies in multi-vehicle rendezvous

Karl Henrik Johansson, Royal Institute of Technology, Sweden

Alberto Speranzon, Royal Institute of Technology, Sweden

Sandro Zampieri, University of Padova, Italy

3. (13:40) On robust rendezvous for mobile autonomous agents

Jorge Cortes, UCSC, United States

Sonia Martinez, UCSB, United States

Francesco Bullo, UCSB, United States

4. (14:00) Stabilization of Dynamic Vehicle Formation Configurations using Graph Laplacians

Carlos Gonzalez, University of Washington, United States

Kristi Morgansen, University of Washington, United States

5. (14:20) Strategic Control of Mobile Robots

Bohumil Horak, VSB-TU Ostrava, Czech Republic

Vaclav Snasel, VSB-TU Ostrava, Czech Republic

6. (14:40) Team-Oriented Formation Control for Multiple Mobile Robots

Bo Sun, Shanghai Jiao Tong University, China

Weidong Chen, Shanghai Jiao Tong University, China

Yugeng Xi, Shanghai Jiao Tong University, China

MODELING AND CONTROL OF WATER RESOURCES, IRRIGATION AND DISTRIBUTION SYSTEMS

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 4.3

Chair: ***Hiroyuki Tamura, Kansai University, Japan***

Co-Chair: ***Rodolfo Soncini-Sessa, Politecnico di Milano, Italy***

1. (13:00) Data Based Mechanistic Modelling of a Snow Affected Basin

Andrea Castelletti, Politecnico di Milano, Italy

Francesca Pianosi, Politecnico di Milano, Italy

Rodolfo Soncini-Sessa, Politecnico di Milano, Italy

Peter C. Young, Lancaster University, United Kingdom

2. (13:20) A selective improvement technique for fastening Neuro-Dynamic Programming in Water Resources Network Management

Daniele de Rigo, Politecnico di Milano, Italy

Andrea Castelletti, Politecnico di Milano, Italy

Andrea Emilio Rizzoli, IDSIA, Switzerland

Rodolfo Soncini-Sessa, Politecnico di Milano, Italy

Enrico Weber, Politecnico di Milano, Italy

3. (13:40) LPV VS Multi-model PI(D) Gain-scheduling Applied to Canal Control

Yolanda Bolea, Universitat Politècnica de Catalunya (UPC), Spain

Vicenç Puig, Universitat Politècnica de Catalunya (UPC), Spain

Joaquín Blesa, Universitat Politècnica de Catalunya (UPC), Spain

Manuel Gómez, Universitat Politècnica de Catalunya (UPC), Spain

José Rodellar, Universitat Politècnica de Catalunya (UPC), Spain

MODELING AND CONTROL OF WATER RESOURCES, IRRIGATION AND DISTRIBUTION SYSTEMS

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 4.3

Chair: ***Hiroyuki Tamura, Kansai University, Japan***

Co-Chair: ***Rodolfo Soncini-Sessa, Politecnico di Milano, Italy***

4. (14:00) Stability and Performance Analysis of Classical Decentralized Control of Irrigation Canals

Iana Guenova Welz, Cemagref, France

Xavier Litrico, Cemagref, France

Vincent Fromion, INRA, France

Manuel Rijo, Universidade de Evora, Portugal

Pierre-Olivier Malaterre, Cemagref, France

5. (14:20) Detection of Sluggish Control Loops in Irrigation Channels

Su Ki Ooi, The University of Melbourne, Australia

Erik Weyer, The University of Melbourne, Australia

6. (14:40) First Results of Predictive Control Application on Water Supply and Distribution in Santiago-Chile

Joseba Quevedo, Universitat Politècnica de Catalunya (UPC), Spain

Gabriela Cembrano, Universitat Politècnica de Catalunya (UPC), Spain

Vicenç Puig, Universitat Politècnica de Catalunya (UPC), Spain

Ramon Perez, Universitat Politècnica de Catalunya (UPC), Spain

Jaume Figueras, Universitat Politècnica de Catalunya (UPC), Spain

Gustavo Ramon, CLABSA, Spain

ADVANCES IN AUTOMATION IN PAPER MAKING INDUSTRY

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 2.1

Organizer: ***Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland***

Chair: ***Michel Perrier, Ecole Polytechnique de Montreal, Canada***

1. (13:00) Signal Monitoring Using Adaptive Threshold Classifier in Pulp & Paper Processes

Jukka Hiltunen, University of Oulu, Finland

Manne Tervaskanto, University of Oulu, Finland

Sauli Kivikunnnas, Technical Research Centre of Finland, Finland

Lauri Pohjanheimo, Technical Research Centre of Finland, Finland

Janne Haltamo, UPM-Kymmene, Finland

2. (13:20) Operation was a Success, but the Patient Died – Call for More Advanced Process Diagnostics

Ville Hietanen, Metso Automation, Finland

Harri Happonen, Metso Automation, Finland

Mats Friman, Metso Automation, Finland

Taisto Huhtelin, Metso Automation, Finland

Antti Kaunonen, Metso Automation, Finland

3. (13:40) A Toolset for Supporting Continuous Decision Making Case: Grade Change Optimization

Petteri Pulkkinen, Tampere University of Technology, Finland

Toni Ahonen, VTT, Finland

Risto Ritala, Tampere University of Technology, Finland

4. (14:00) Dynamic Simulation Studies for Enhanced Board Machine Control

Jari Lappalainen, Nalco Finland Oy, Finland

Jouni Savolainen, VTT, Finland

Tommi Myller, Stora Enso Oyj, Finland

Kaj Juslin, VTT, Finland

ADVANCES IN AUTOMATION IN PAPER MAKING INDUSTRY

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 2.1

Organizer: ***Sirkka-Liisa Jämsä-Jounela, Helsinki University of Technology, Finland***

Chair: ***Michel Perrier, Ecole Polytechnique de Montreal, Canada***

5. (14:20) Demand Estimation and Dynamic Modelling as Timber Products Industry SCM Tools

Heli Laurikkala, JAKK, Finland

Matti Ketonen, Finnforest Ltd., Finland

Sami Suominen, Tampere University of Technology, Finland

Pentti Huttunen, JAKK, Finland

Jere Alaruka, JAKK, Finland

6. (14:40) Hybrid Knowledge and performance support systems for paper machine operations

Ismo Laukkanen, UPM-Kymmene Corporation, Finland

ROLLING MILLS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.4

Chair: ***Luis Bergh, Santa Maria University, Chile***

Co-Chair: ***Imrich Koštial, TU Kosice, Slovakia***

1. (13:00) High Productivity Improvement in JFE Fukuyama No.1 Hot strip Mill

Shuji Yokota, JFE Steel Corporation, Japan

Hiroshi Sekine, JFE Steel Corporation, Japan

Hisashi Mugita, JFE Steel Corporation, Japan

Yoshiro Tsuchiya, JFE Steel Corporation, Japan

Koji Aimoto, JFE Steel Corporation, Japan

2. (13:20) Pass Schedule Optimization for a Tandem Cold Mill

Akira Murakami, Kobe Steel, Ltd., Japan

Makishi Nakayama, Kobe Steel, Ltd., Japan

Mitsuo Okamoto, Kobe Steel, Ltd., Japan

Kenichi Sano, Kobe Steel, Ltd., Japan

Tomoya Tsuchihashi, Kobe Steel, Ltd., Japan

Yoji Abiko, Kobe Steel, Ltd., Japan

3. (13:40) Sliding Mode Force Control during Drawing Processes in Presses

Joseba Landaluze, IKERLAN, Spain

Josu Goikoetxea, IKERLAN, Spain

Aron Pujana, IKERLAN, Spain

Carlos F. Nicolas, IKERLAN, Spain

Ana Martinez, IKERLAN, Spain

4. (14:00) Granular Computing and Evolutionary Fuzzy Modelling for Mechanical Properties of Alloy Steels

Mahdi Mahfouf, The University of Sheffield, United Kingdom

George Panoutsos, The University of Sheffield, United Kingdom

ROLLING MILLS II

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.4

Chair: ***Luis Bergh, Santa Maria University, Chile***

Co-Chair: ***Imrich Koštial, TU Kosice, Slovakia***

5. (14:20) Multi-Objective Particle Swarm Optimisation for Alloy Toughness Design using a Fuzzy Predictive Model

Mahdi Mahfouf, The University of Sheffield, United Kingdom

Minyou Chen, The University of Sheffield, United Kingdom

Derek A Linkens, The University of Sheffield, United Kingdom

6. (14:40) An Improved Friction Sliding Model for Web Handling Systems. Application to the Controller Parametrization

Marc Vedrines, INSA Strasbourg, France

Dominique Knittel, University of Strasbourg I, IPST, France

MINERAL PROCESSING

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.5

Chair: ***André Desbiens, Université Laval, Canada***

Co-Chair: ***Marc Vedrines, INSA Strasbourg, France***

1. (13:00) Optimization-free constrained nonlinear predictive control - Mineral processing applications

André Desbiens, Université Laval, Canada

Jocelyn Bouchard, Université Laval, Canada

René del Villar, Université Laval, Canada

2. (13:20) Dynamic modeling of an industrial copper solvent extraction process

Tiina Komulainen, Helsinki University of Technology, Finland

Ari Rantala, Outokumpu Technology, Finland

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

3. (13:40) Image Analysis Based Control of Copper Flotation

Jani Kaartinen, Helsinki University of Technology, Finland

Jari Hätönen, Sheffield University, United Kingdom

Martti Larinkari, Helsinki University of Technology, Finland

Heikki Hyötyniemi, Helsinki University of Technology, Finland

Jorma Miettunen, Pyhäsalmi Mine/Inmet Mining Corp., Finland

4. (14:00) Economical Effects of On-line Elemental Analysis Performance on Flotation Control

Antti Remes, Helsinki University of Technology, Finland

Matti Kongas, Outokumpu Technology, Finland

Kari Saloheimo, Outokumpu Technology, Finland

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

MINERAL PROCESSING

Wednesday 06-Jul-2005 13:00-15:00, Meeting Room 3.5

Chair: ***André Desbiens, Université Laval, Canada***

Co-Chair: ***Marc Vedrines, INSA Strasbourg, France***

5. (14:20) Robust Statistics for Soft Sensor Development in Cement Kiln

Bao Lin, CAPEC, Technical University of Denmark, Denmark

Bodil Recke, FLS Automation, Denmark

Philippe Renaudat, FLS Automation, Denmark

Jørgen Knudsen, FLS Automation, Dominican Republic

Sten Bay Jørgensen, CAPEC, Technical University of Denmark, Denmark

6. (14:40) Control Loop Performance Measures in the Evaluation of Process Economics

Nikolai Vatanski, Helsinki University of Technology, Finland

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

Ari Rantala, Outokumpu, Finland

Timo Harju, Metso Automation, Finland

ADVANCED MANUFACTURING APPLICATIONS

Wednesday 06-Jul-2005 15:30-17:30, North Hall

1. (15:30) A Differential Evolution Algorithm for Simple Assembly Line Balancing

Andreas C. Nearchou, University of Patras, Greece

2. (15:30) A New Response Surface Method for Manufacturing Process Optimization using Interval Computation

Daniel Lepadatu, ISTIA - LASQUO - University of Angers, France

Xavier Baguenard, University of Angers, France

Abdessamad Kobi, University of Angers, France

Ridha Hambli, University of Angers, France

Luc Jaulin, University of Angers, France

3. (15:30) A branch-and-bound algorithm with Lagrangian decomposition for parallel machine scheduling

Shunji Tanaka, Kyoto University, Japan

Mituhiko Araki, Kyoto University, Japan

4. (15:30) Inventory Management in High Uncertainty Environment with Model Reference Control

Heikki Rasku, Tampere University of Technology, Finland

Hannu Koivisto, Tampere University of Technology, Finland

5. (15:30) Proposal of a Framework for the Evaluation and Comparison of Production Schedules

Romeo Bandinelli, University of Florence, Italy

Sergio Cavalieri, University of Bergamo, Italy

Sergio Terzi, University of Bergamo, Italy

6. (15:30) Transfer Line Balancing by a Combined Approach

Nikolai Guschinsky, United Institute of Informatics Problems, Belarus

Alexandre Dolgui, Ecole Nationale Supérieure des Mines de Saint Etienne, France

Genrikh Levin, United Institute of Informatics Problems, Belarus

Wednesday 06-Jul-2005 15:30-17:30, North Hall

7. (15:30) Controlled-System Model Adapted to the Control Law Synthesis

Sébastien Henry, LAG-ENSIEG-INPGrenoble, France

Eric Zamaï, LAG-ENSIEG-INPGrenoble, France

Mireille Jacomino, LAG-ENSIEG-INPGrenoble, France

8. (15:30) ISLE - A Novel Immune-System Inspired Rule Extraction Algorithm

Anthony Soroka, Cardiff University, United Kingdom

Duc Pham, Cardiff University, United Kingdom

9. (15:30) Control of Self-Transfer-Type Automatic Pouring Robot with Cylindrical Ladle

Yoshiyuki Noda, Toyohashi University of Technology, Japan

Ken'ichi Yano, Gifu University, Japan

Kazuhiko Terashima, Toyohashi University of Technology, Japan

10. (15:30) Robust Sensing and Control of Weld Pool Surface

YuMing Zhang, University of Kentucky, United States

Wei Lu, University of Kentucky, United States

Chuan Zhang, University of Kentucky, United States

Bruce Walcott, University of Kentucky, United States

11. (15:30) Functional Analysis and T-S Fuzzy System Design

Renxi Qiu, MEC, Cardiff University, United Kingdom

D.T. Pham, MEC, Cardiff University, United Kingdom

NONLINEAR SYSTEM IDENTIFICATION - VOLTERRA METHODS

Wednesday 06-Jul-2005 15:30-17:30, Club H

Chair: ***Robert Harrison, The University of Sheffield, United Kingdom***

Co-Chair: ***Marco Lovera, Politecnico di Milano, Italy***

1. (15:30) Monitoring and Control of Process and Power Systems: Towards new Paradigms

Denis Dochain, Université catholique de Louvain, Belgium

Wolfgang Marquardt, RWTH Aachen, Germany

Sang Chul Won, Pohang University of Science and Technology, Korea

Om Malik, University of Calgary, Canada

Michel Kinnaert, Université libre de Bruxelles, Belgium1. (15:30) Choice of Free Parameters in Expansions of Discrete-Time Volterra Models using Kautz Functions

Wagner Amaral, Unicamp, Brazil

Alex da Rosa, Unicamp, Brazil

Ricardo J.G.B. Campello, Unicamp/Unisantos, Brazil

2. (15:50) Identification of SVD-PARAFAC based third-order Volterra models using an ARLS algorithm

Gérard Favier, UNSA/CNRS, France

Anis Khouaja, UNSA/CNRS, France

3. (16:10) Iterative optimization method of GOB-Volterra filters

Gérard Favier, UNSA/CNRS, France

Alain Kibangou, UNSA/CNRS, France

Moha Hassani, FSSM/UCAM, Morocco

4. (16:30) Identification of infinite degree Volterra series in the time and frequency domains

Robert Harrison, The University of Sheffield, United Kingdom

Yufeng Wan, The University of Sheffield, United Kingdom

Tony J Dodd, The University of Sheffield, United Kingdom

NONLINEAR SYSTEM IDENTIFICATION - VOLTERRA METHODS

Wednesday 06-Jul-2005 15:30-17:30, Club H

Chair: ***Robert Harrison, The University of Sheffield, United Kingdom***

Co-Chair: ***Marco Lovera, Politecnico di Milano, Italy***

5. (16:50) Modelling of power amplifier nonlinearities using Volterra series

Robert Harrison, The University of Sheffield, United Kingdom

Yufeng Wan, The University of Sheffield, United Kingdom

Tony Dodd, The University of Sheffield, United Kingdom

6. (17:10) On The Role of Pre-Filtering in Nonlinear System Identification

William Spinelli, Politecnico di Milano, Italy

Luigi Piroddi, Politecnico di Milano, Italy

Marco Lovera, Politecnico di Milano, Italy

NETWORKED CONTROL, SW FOR REAL-TIME CONTROL

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Jaehyun Park, Inha University, Korea, Democratic People's Republic of***

Co-Chair: ***Santos Galán, Universidad Politécnica de Madrid, Spain***

1. (15:30) A Hardware Implementation of EIA 709.1 Control Networking Standard

Byoung-Wook Choi, Seoul Nat'l Univ. of Technology, Korea

Jeon-Il Moon, LG Industrial Systems, Korea

Jung-Sub Kim, Penn State Univ., Korea

Jong-Bae Kim, LG Industrial Systems, Korea

Kye Young Lim, Korea Polytechnic Univ., Korea

2. (15:30) TCP/IP Protocol over IEEE-1394 Network for Real-time Control Applications

Jaehyun Park, Inha University, Korea

Bok-Jin Youm, Hyundai Heavy Industry, Korea

3. (15:30) A nonlinear ABR flow control with feed-forward compensation for ATM networks

Andrzej Bartoszewicz, Technical University of Lodz, Poland

4. (15:30) Performance of nonlinear queue management algorithms in best-effort networks

Timo Lehto, Tampere University of Technology, Finland

Hannu Koivisto, Tampere University of Technology, Finland

Teemu Ekola, Tampere University of Technology, Finland

Mikko Laurikkala, Tampere University of Technology, Finland

5. (15:30) Model Predictive Control of Systems with Communication Constraints

Mohamed El Mongi Ben Gaid, ESIEE, France

Arben Cela, ESIEE, France

NETWORKED CONTROL, SW FOR REAL-TIME CONTROL

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Jaehyun Park, Inha University, Korea, Democratic People's Republic of***

Co-Chair: ***Santos Galán, Universidad Politécnica de Madrid, Spain***

6. (15:30) A Flexible Software for Real-time Control Applications in Fusion Experiments

Alfredo Pironti, Università di Napoli Federico II, Italy

Gianmaria de Tommasi, Università di Napoli Federico II, Italy

Fabio Piccolo, EURATOM/UKAEA Fusion Association, United Kingdom

Filippo Sartori, EURATOM/UKAEA Fusion Association, United Kingdom

7. (15:30) The use of CORBA in Process Control

Santos Galán, ASLAB, Universidad Politécnica de Madrid, Spain

Manuel Rodríguez, ASLAB, Universidad Politécnica de Madrid, Spain

Ricardo Sanz, ASLAB, Universidad Politécnica de Madrid, Spain

Carlos García, ASLAB, Universidad Politécnica de Madrid, Spain

Rafael Chinchilla, ASLAB, Universidad Politécnica de Madrid, Spain

Adolfo Yela, ASLAB, Universidad Politécnica de Madrid, Spain

8. (15:30) Model Driven Development of Function Block based Distributed Control Applications

Kleanthis Thramboulidis, University of Patras, Greece

Dimitris Perdikis, University of Patras, Greece

Spiros Kantas, University of Patras, Greece

9. (15:30) Unified modeling of control software and physical plants

Cristian Secchi, University of Modena and Reggio Emilia, Italy

Cesare Fantuzzi, University of Modena and Reggio Emilia, Italy

Marcello Bonfe, University of Ferrara, Italy

CONTROL IN AGRICULTURAL AND HORTICULTURAL ENVIRONMENTS

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Nick Sigrimis, Agricultural University of Athens, Greece***

Co-Chair: ***Gerrit van Straten, Wageningen University, Netherlands***

1. (15:30) DNA Algorithms based on Exon Shuffling

Haruhiko Murase, Osaka Prefecture University, Japan

Tsuyoshi Okayama, Tokyo Uiversity of Agriculture and Technology, Japan

2. (15:30) Automatic Control Strategies Implemented on a Water Canal Prototype

Joao Figueiredo, Universidade Evora, Portugal

Miguel Ayalla Botto, Technical University of Lisbon, Portugal

3. (15:30) Fractional Robust Control to Delay Changes in Main Irrigation Canals

Raul Rivas Perez, Havana Polytechnic University (CUJAE), Cuba

Vicente Feliu, Universidad de Castilla la Mancha (UCLM), Spain

Fernando Castillo, Universidad de Castilla la Mancha (UCLM), Spain

4. (15:30) Dynamic optimization of watering for qualitative improvement of satsuma mandarin using intelligent control techniques

Tetsuo Morimoto, Ehime University, Japan

Y. Ouchi, Ehime Prefecture, Japan

M.S. Baloch, Ehime University, Japan

K, Hatou, Ehime University, Japan

Y. Hashimoto, Ehime University, Japan

CONTROL IN AGRICULTURAL AND HORTICULTURAL ENVIRONMENTS

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Nick Sigrimis, Agricultural University of Athens, Greece***

Co-Chair: ***Gerrit van Straten, Wageningen University, Netherlands***

5. (15:30) Improving Efficiency of Greenhouse Heating Systems using Model Predictive Control

Armando Ramírez-Arias, Universidad Autónoma de Chapingo, Mexico

Francisco Rodríguez, Universidad de Almería, Spain

José Luis Guzmán, Universidad de Almería, Spain

Manuel R. Arahal, Universidad de Sevilla, Spain

Manuel Berenguel, Universidad de Almería, Spain

Juan Carlos López, Cajamar-Estación Experimental Las Palmerillas, Spain

6. (15:30) Sliding Mode Thermal Control System for Dryer in Agriculture Productions

Vardan Mkrttchian, All Armenian Internet University, Armenia

7. (15:30) Studying the Affecting Factors on Drying Rates of Plum Fruits under Varying Drying Air Conditions

Baher Amer, Institute of Agricultural Engineering Bornim (ATB), Germany

Klaus Gottschalk, Institute of Agricultural Engineering Bornim (ATB), Germany

8. (15:30) Air speed sensor for measuring natural convection in dryers and storehouses

Istvan Seres, Szent Istvan University, Godollo, Hungary

Laszlo Kocsis, Hungarian Academy of Sciences, Hungary

Klaus Gottschalk, Institute of Agricultural Engineering, Potsdam, Germany

Istvan Farkas, Szent Istvan University, Godollo, Hungary

CONTROL IN AGRICULTURAL AND HORTICULTURAL ENVIRONMENTS

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Nick Sigrimis, Agricultural University of Athens, Greece***

Co-Chair: ***Gerrit van Straten, Wageningen University, Netherlands***

9. (15:30) Efficiency Increase in the Extraction of Sugar Cane Mills by Means of the Regulation of Hydraulic Pressures

Lester Suárez, Mechanical Department, University of Cienfuegos, Cuba

Nelson Arzola, Mechanical Department, University of Cienfuegos, Cuba

Rafael Goytisolo, Mechanical Department, University of Cienfuegos, Cuba

Ariel Fernandez, Mechanical Department, University of Cienfuegos, Cuba

10. (15:30) Multivariable Boundary Control Approach by Internal Model, applied to Irrigation Canals Regulation

Valérie Dos Santos, MAPMO - Université d'Orléans, France

Youssoufi Toure, IUT de Bourges - Université d'Orléans, France

Eduardo Mendes, INP de Grenoble, France

Estelle Courtail, CREA - Universite d'Amiens, France

INTELLIGENT AUTONOMOUS VEHICLES

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Isabel Ribeiro, Instituto Superior Tecnico, Portugal***

Co-Chair: ***Hajime Asama, The University of Tokyo, Japan***

1. (15:30) Application of 3D-PMD Video Cameras for Tasks in the Autonomous Mobile Robotics

Alexander Prusak, University of Siegen, Germany

Hubert Roth, University of Siegen, Germany

Rudolf Schwarte, University of Siegen, Germany

2. (15:30) Convergence of the EKF in mark-based vision for 3D vehicle tracking

Emma Delgado, University of Vigo, Spain

A. Barreiro, University of Vigo, Spain

J.A. Baltar, University of Vigo, Spain

3. (15:30) Distributed Sensor Fusion Using Dynamic Consensus

Demetri Spanos, California Institute of Technology, United States

Richard M. Murray, California Institute of Technology, United States

4. (15:30) Evaluation of Sliding Mode Observer for Vehicle Sideslip Angle

Joanny Stéphant, Heudiasyc Laboratory UMR CNRS-UTC 6599, France, Metropolitan

Ali Charara, Heudiasyc Laboratory UMR CNRS-UTC 6599, France, Metropolitan

Dominique Meizel, ENSIL - GERME, France, Metropolitan

5. (15:30) Federated Information Mode-Matched Filter in an IMM Algorithm

Yong-Shik Kim, Pusan National University, Korea

Keum-Shik Hong, Pusan National University, Korea

6. (15:30) Intelligent Vehicle Absolute Localisation Method Using GIS Information: A Data Fusion Approach

Maan El Badaoui El Najjar, LORIA - INRIA, France

Philippe Bonnifait, Université de Technologie de Compiègne, France

INTELLIGENT AUTONOMOUS VEHICLES

Wednesday 06-Jul-2005 15:30-17:30, North Hall

Chair: ***Isabel Ribeiro, Instituto Superior Tecnico, Portugal***

Co-Chair: ***Hajime Asama, The University of Tokyo, Japan***

7. (15:30) Static and Dynamic Attitude Decomposition for Estimation with Magnetometer Sensor

Sebastien Changey, SUPELEC, France

Dominique Beauvois, SUPELEC, France

Volker Fleck, ISL - French-German research institute of Saint-Louis, France

8. (15:30) Robust String Stability Controller Desigen of a Platoon of Vehicles based on LMI Approach

Lijuan Wu, Anshan University of Science and Technology, China

Yuanwei Jing, Northeast University, China

Xuebo Chen, Anshan University of Science and Technology, China

Wei Wang, Dalian University of Technology, China

GUIDANCE, NAVIGATION, AND CONTROL OF ROBOTS

Wednesday 06-Jul-2005 15:30-17:30, Club A

Chair: ***Marek Zaremba, Universite de Quebec a l'Outaouais, Canada***

Co-Chair: ***Dan Necsulescu, University of Ottawa, Canada***

1. (15:30) A Hierachical Hybrid Method for Simultaneous Localization and Mapping

G.Q. Huang, The Hong Kong Polytechnic University, Hong Kong

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

Y.K. Wong, The Hong Kong Polytechnic University, Hong Kong

2. (15:50) Simultaneous Localization and Map Building Algorithm for Real-Time Applications

Stefano Panzieri, Università "Roma Tre", Italy

Federica Pascucci, Università "Roma Tre", Italy

Roberto Setola, Università CAMPUS Biomedico, Roma, Italy, Italy

3. (16:10) Robust Navigation Techniques for The GVG-based SLAM in Unstructured Environment

Sunghwan Ahn, Pohang University of Science and Technology (POSTECH), Korea

Nakju Lett Doh, Pohang University of Science and Technology (POSTECH), Korea

Wan Kyun Chung, Pohang University of Science and Technology (POSTECH), Korea

4. (16:30) Path Planning and Navigation in a Sparse World Space Environment

Marek Zaremba, UQO, Canada

5. (16:50) Adaptive Robust Control of Nonholonomic Wheeled Mobile Robots

Tai-Yu Wang, Nan-Kai Institute of Technology, Taiwan

Ching-Chih Tsai, National Chung-Hsing University, Taiwan

GUIDANCE, NAVIGATION, AND CONTROL OF ROBOTS

Wednesday 06-Jul-2005 15:30-17:30, Club A

Chair: ***Marek Zaremba, Universite de Quebec a l'Outaouais, Canada***

Co-Chair: ***Dan Necsulescu, University of Ottawa, Canada***

6. (17:10) Synthesis of a Spatial Lookahead Path Tracking Controller

Angel Rodriguez Castaño, University of Seville, Spain

Anibal Ollero, University of Seville, Spain

Blas M. Vinagre, University of Extremadura, Spain

YangQuan Chen, Utah State University - CSOIS, United States

PLANT-WIDE PRODUCTION PLANNING AND CONTROL ISSUES

Wednesday 06-Jul-2005 15:30-17:30, Club E

Organizer: ***Alexandre Dolgui, Ecole des Mines de Saint Etienne, France***

Chair: ***Zbigniev Banaszak, University of Zielona Gora, Poland***

Co-Chair: ***Sergio Cavalieri, Università degli Studi di Bergamo, Italy***

1. (15:30) Autonomy versus Efficiency in Management of Large-scale Logistics Networks

Maurizio Bielli, National Research Council, Italy

Agostino Villa, Polytechnics of Turin, Italy

Mariagrazia Mecoli, National Research Council, Italy

2. (15:50) CP-based Decision Making for SME

Zbigniew Banaszak, Systems Research Institute of Polish Academy of Sciences, Poland, Poland

Marek Zaremba, Université du Québec, Gatineau, Quebec, Canada, Canada

Wojciech Muszynski, Technical University of Wroc ł aw, Poland, Poland

3. (16:10) A Unified Framework for Describing the Dynamics of Pull Control Policies with Batch Production

Maria Di Mascolo, Laboratoire d'Automatique de Grenoble, France

Jean Marc Bollon, Laboratoire d'Automatique de Grenoble, France

4. (16:30) Performance Evaluation and Optimization of a Two-stage Production-sistribution System with Batch Orders and Finite Transportation Time

Jie Li, University of Metz,France, France

Alexandru Sava, University of Metz,France, France

Xiaolan Xie, University of Metz,France, France

5. (16:50) Seasonal Time Series Prediction with Artificial Neural Networks and Local Measures

Sergio Cavalieri, Università degli Studi di Bergamo, Italy

Roberto Pinto, Università degli Studi di Bergamo, Italy

PLANT-WIDE PRODUCTION PLANNING AND CONTROL ISSUES

Wednesday 06-Jul-2005 15:30-17:30, Club E

Organizer: ***Alexandre Dolgui, Ecole des Mines de Saint Etienne, France***

Chair: ***Zbigniev Banaszak, University of Zielona Gora, Poland***

Co-Chair: ***Sergio Cavalieri, Università degli Studi di Bergamo, Italy***

6. (17:10) Bayesian Approach to Modelling of Quasi-Periodic Intermittent Demand

Alexandre Dolgui, Ecole des Mines de Saint Etienne, France

Anatoly Pashkevich, Belarusian State University of Informatics and Radioelectronics, Belarus

Maxim Pashkevich, Belarusian State University, Belarus

HOLONIC AND AGENT-BASED CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Small Theatre

Organizer: ***Vladimir Marik, Czech Technical University in Prague, Czech Republic***

Chair: ***Vladimir Marik, Czech Technical University, Czech Republic***

Co-Chair: ***Duncan McFarlane, University of Cambridge, United Kingdom***

1. (15:30) Collaborative Automation from Rigid Coupling towards Dynamic Reconfigurable Production Systems

Robert Harrison, Loughborough University, United Kingdom

Armando Walter Colombo, Schneider Electric, Germany

2. (16:10) Holonic and Agent-based Control

Kenwood H Hall, Rockwell Automation, United States

Raymond J Staron, Rockwell Automation, United States

Pavel Vrba, Rockwell Automation, Czech Republic

3. (16:30) An Ambient Intelligence Information Infrastructure for Production-to-Maintenance Processes

Joerg Mueller, Siemens AG Corp. Technology, Germany

Roland Zimmermann, FAU Erlangen-Nuremberg, Germany

4. (16:50) Rapid Reconfiguration of Machine-Tools for Holonic Manufacturing Systems

Thomas Strasser, PROFACTOR Produktionsforschungs GmbH, Austria

Kurt Fessl, PROFACTOR Produktionsforschungs GmbH, Austria

Alexander Hämmerle, PROFACTOR Produktionsforschungs GmbH, Austria

Martin Ankerl, PROFACTOR Produktionsforschungs GmbH, Austria

5. (17:10) Evaluating Holonic Control Systems: A Case Study

Duncan McFarlane, Cambridge Univ, United Kingdom

Jin-Lung Chirn, TTP Com, Taiwan

ENGINE CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Terrace 1

Chair: ***Gianfranco Rizzo, Universita di Salerno, Italy***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

1. (15:30) Modelling of a diesel engine Common Rail injection system

Christophe Gauthier, LAG / Delphi, France

Olivier Sename, LAG, France

Luc Dugard, LAG, France

Guillaume Meissonnier, Delphi, France

2. (15:50) Real-Time Nonlinear Individual Cylinder Air Fuel Ratio Observer on a Diesel Engine

Jonathan Chauvin, ENSMP, France, Metropolitan

Philippe Moulin, IFP, France, Metropolitan

Gilles Corde, IFP, France, Metropolitan

Nicolas Petit, ENSMP, France, Metropolitan

Pierre Rouchon, ENSMP, France, Metropolitan

3. (16:10) Observer Based Feedforward Air-Fuel Control of Turbocharged SI-Engines

Per Andersson, Linkopings Universitet, Sweden

Lars Eriksson, Linkopings Universitet, Sweden

4. (16:30) Dynamic Surface Control of Engine Exhaust Hydrocarbons and Catalyst Temperature for Reduced Coldstart Emissions

Pannag Sanketi, Univ of California Berkeley, United States

J. Carlos Zavala, Univ of California Berkeley, United States

J. Karl Hedrick, Univ of California Berkeley, United States

5. (16:50) PID controllers and their tuning for EGR and VGT control in diesel engines

Johan Wahlström, Linköping University, Sweden

Lars Eriksson, Linköping University, Sweden

Lars Nielsen, Linköping University, Sweden

Magnus Pettersson, Scania, Sweden

ENGINE CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Terrace 1

Chair: ***Gianfranco Rizzo, Universita di Salerno, Italy***

Co-Chair: ***Lars Eriksson, Linköping University, Sweden***

6. (17:10) Nicely Nonlinear Engine Torque Estimator

Paolo Falcone, Università del Sannio, Italy

Giovanni Fiengo, Università del Sannio, Italy

Luigi Glielmo, Università del Sannio, Italy

FEEDBACK LINEARIZATION

Wednesday 06-Jul-2005 15:30-17:30, Club B

Chair: ***Joachim Rudolph, Dresden University, Germany***

Co-Chair: ***Romeo Ortega, CNRS, France***

1. (15:30) From Nonlinear Systems To Port Controlled Hamiltonian Systems

Daizhan Cheng, Chinese Academy of Sciences, China

Romeo Ortega, Lab. des Signaux et Systemes, Supelec, France

Elena Panteley, Lab. des Signaux et Systemes, Supelec, France

2. (15:50) Dynamic Feedback Equivalence of Nonlinear Systems on Time Scales

Zbigniew Bartosiewicz, Bialystok Technical University, Poland

Ewa Pawluszewicz, Bialystok Technical University, Poland

3. (16:10) On a characteristic vector field for systems reducible to order two

Joachim Rudolph, TU Dresden, Germany

Victor Lehenkyi, Nat. Acad. Sci., Ukraine

4. (16:30) Dynamic Feedback Linearization of Two Input Nonlinear Systems

Claudia Califano, La Sapienza, Italy

Stefano Battilotti, La Sapienza, Italy

5. (16:50) An Adaptive Nonparametric Controller for a class of nonminimum phase non-linear system

Daniel Sbarbaro, Universidad de Concepcion, Chile

Roderick Murray-Smith, Uiversity of Glasgow, United Kingdom

6. (17:10) Robust Generic Model Control for Parameter Interval Systems

Joseph Istre, University of Kentucky, United States

YuMing Zhang, University of Kentucky, United States

NUMERICAL ISSUES IN SYSTEMS AND CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Club D

Chair: ***Andras Varga, German Aerospace Center, Germany***

Co-Chair: ***Bernardino Castillo-Toledo, CINVESTAV-IPN Unidad Guadalajara, Mexico***

1. (15:30) A Periodic Systems Toolbox for MATLAB

Andras Varga, German Aerospace Center, DLR - Oberpfaffenhofen, Germany

2. (15:50) An algorithm to reduce the tracking error in TS fuzzy models: A numerical approach

Jesus A. Meda-Campaña, CINVESTAV-IPN Unidad Guadalajara, Mexico

Bernardino Castillo-Toledo, CINVESTAV-IPN Unidad Guadalajara, Mexico

3. (16:10) Computationally efficient Min-Max MPC

Daniel R. Ramirez, Universidad de Sevilla, Spain

Teodoro Alamo, Universidad de Sevilla, Spain

Eduardo F. Camacho, Universidad de Sevilla, Spain

4. (16:30) Numerical Stability of Block Toeplitz Algorithms in Polynomial Matrix Computations

Juan Carlos Zuniga, LAAS-CNRS, France

Didier Henrion, LAAS-CNRS, CVUT, France

5. (16:50) Real-time optimization for nonlinear systems using algorithmic control

Tomoaki Kobayashi, Osaka Prefecture University, Japan

Joe Imae, Osaka Prefecture University, Japan

Michiyuki Magono, Nara Institute of Science and Technology, Japan

Kazutaka Yoshimizu, Osaka Prefecture University, Japan

Guisheng Zhai, Osaka Prefecture University, Japan

6. (17:10) System theory for numerical analysis

Kashima Kenji, Kyoto University, Japan

Shinjiro Ashida, Kyoto University, Japan

Yutaka Yamamoto, Kyoto University, Japan

ROBUST CONTROLLER SYNTHESIS WITH LMI'S

Wednesday 06-Jul-2005 15:30-17:30, Club C

Chair: ***Gary Balas, University of Minnesota, United States***

Co-Chair: ***Tetsuya Iwasaki, University of Virginia, United States***

1. (15:30) Dynamic Output Feedback Synthesis with General Frequency Domain Specifications

Tetsuya Iwasaki, University of Virginia, United States

Shinji Hara, The University of Tokyo, Japan

2. (15:50) Parameter dependent H_infinity controller design by finite dimensional LMI optimization: application to trade-off dependent control

Dinh Marc, GREYC, France, Metropolitan

Gerard Scorletti, GREYC, France, Metropolitan

Vincent Fromion, INRA, France, Metropolitan

Eric Magarotto, GREYC, France, Metropolitan

3. (16:10) A Chain-Scattering Approach to LMI Multiobjective Control

Rémi Drai, Ecole des Mines de Paris, France

Martine Olivi, INRIA, France

Jean-Paul Marmorat, Ecole des Mines de Paris, France

4. (16:30) Robust H2/H-infinity Dynamic Output-feedback Control Synthesis for Systems with Polytope-Bounded Uncertainty

Reinaldo Palhares, Federal University of Minas Gerais, Brazil

Eduardo Goncalves, Federal Center of Technological Education of Minas Gerais, Brazil

Ricardo Takahashi, Federal University of Minas Gerais, Brazil

5. (16:50) An Iterative Method for Multi-objective Dynamic Output Feedback Synthesis

Salah Salhi, Laboratoire d'Analyse et commandes des systèmes, LACS-ENIT, Tunisia

Denis Arzelier, Laboratoire d'Analyse et Architecture des Systèmes(LAAS) Toulouse-France, France

ROBUST CONTROLLER SYNTHESIS WITH LMI'S

Wednesday 06-Jul-2005 15:30-17:30, Club C

Chair: ***Gary Balas, University of Minnesota, United States***

Co-Chair: ***Tetsuya Iwasaki, University of Virginia, United States***

6. (17:10) A Convex Method for the Parametric Insensitive H2 Control Problem

Mohamed Yagoubi, Ecole des Mines de Nantes (IRCCyN), France

Philippe Chevrel, Ecole des Mines de Nantes (IRCCyN), France

CONTROL OF LINEAR SYSTEMS III

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 2.2

Chair: ***Alfredo Pironti, Universita' di Napoli II, Italy***

Co-Chair: ***Markku Nihtilä, University of Kuopio, Finland***

1. (15:30) Control Design for Distributed-parameter Systems via Parametrization

Markku Nihtilä, University of Kuopio, Finland

Jouko Tervo, University of Kuopio, Finland

Petri Kokkonen, University of Kuopio, Finland

2. (15:50) Data-based LQ synthesis - A modification for error reduction

Jenq-Tzong Chan, National Cheng Kung University, Taiwan

3. (16:10) Design and experimental testing of a multivariable shape controller for the JET tokamak

Giuseppe Ambrosino, Università degli Studi di Napoli Federico II, Italy

Marco Ariola, Università degli Studi di Napoli Federico II, Italy

Alfredo Pironti, Università degli Studi di Napoli Federico II, Italy

Filippo Sartori, Euratom/UKAEA Fusion Association, United Kingdom

4. (16:30) Design of PID Controllers for Decoupled Multi-variable Systems

Pontus Nordfeldt, Lund University, Sweden

Tore Hägglund, Lund University, Sweden

5. (16:50) MIMO PID Controllers Synthesis using Orthogonal Functions

Badii Ayadi, LECAP - Ecole Polytechnique de Tunisie, Tunisia

Naceur Benhadj Braiek, LECAP - Ecole Polytechnique de Tunisie, Tunisia

CONTROL OF LINEAR SYSTEMS III

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 2.2

Chair: ***Alfredo Pironti, Universita' di Napoli II, Italy***

Co-Chair: ***Markku Nihtilä, University of Kuopio, Finland***

6. (17:10) Finite-time output feedback control of discrete-time systems

Francesco Amato, Università degli Studi Magna Graecia di Catanzaro, Italy

Marco Ariola, Università degli Studi di Napoli Federico II, Italy

Marco Carbone, Università degli Studi di Reggio Calabria Mediterranea, Italy

Carlo Cosentino, Università degli Studi di Napoli Federico II, Italy

ANALYSIS AND DESIGN OF HYBRID SYSTEMS III

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 4.1

Organizer: ***Janan Zaytoon, University of Reims, France***

Co-Organizer ***Herve Gueguen, SUPELEC - IETR, France***

Chair: ***Janan Zaytoon, CReSTIC, University of Reims), France***

Co-Chair: ***Herve Gueguen, SUPELEC - IETR, France***

1. (15:30) A Graph of State Classes for Fuzzy Time Petri Nets

Janette Cardoso, IRIT-UT1, France

Cousy Sebastien, LAAS Toulouse, France

Juanole Guy, LAAS Toulouse, France

2. (15:50) Flow Control for Continuous Petri Net Models of HDS : Stability Issues

Dimitri Lefebvre, University le Havre, France

Philippe Thomas, UTBM, France

Edouard Leclercq, University le Havre, France

Fabrice Druaux, University le Havre, France

3. (16:10) Uncertainty in Hybrid Systems and The Fire Management System Design

Emilia Villani, Instituto Tecnológico de Aeronáutica, Brazil

Percy Igei Kaneshiro, University of São Paulo, Brazil

Paulo Eigi Miyagi, University of São Paulo, Brazil

4. (16:30) Perturbation Analysis and Feedback Control of Communication Networks Using Stochastic Hybrid Models

Christos G. Cassandras, Boston University, United States

Haining Yu, Boston University, United States

5. (16:50) Physical Switching Systems: Hybrid Incidence Matrices for Structured Modelling and Analysis

Claire Valentin, UCB Lyon, France

Miguel Magos, UCB Lyon, France

Bernhard Maschke, UCB Lyon, France

ANALYSIS AND DESIGN OF HYBRID SYSTEMS III

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 4.1

Organizer: ***Janan Zaytoon, University of Reims, France***

Co-Organizer ***Herve Gueguen, SUPELEC - IETR, France***

Chair: ***Janan Zaytoon, CReSTIC, University of Reims), France***

Co-Chair: ***Herve Gueguen, SUPELEC - IETR, France***

6. (17:10) A Hybrid Mechatronic Tilting Robot: Modeling, Trajectories, and Control

Marion Sobotka, Technische Universitaet Muenchen, Germany

Martin Buss, Technische Universitaet Muenchen, Germany

METHODS FOR ERRORS-IN-VARIABLES

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 4.2

Chair: ***Torsten Soderstrom, Uppsala University, Sweden***

Co-Chair: ***Kaushik Mahata, The University of Newcastle, Australia***

1. (15:30) Direct Identification of Continuous-time Errors-in-variables Models

Kaushik Mahata, University of Newcastle, Australia

Hugues Garnier, Universite Henri Poincare, Nancy, France

2. (15:50) Identification of Noisy Input-Output System Using Bias-Compensated Least-Squares Method

Masato Ikenoue, Ariake National College of Technoligy, Japan

Shunshoku Kanae, Kyushu University, Japan

Zi-Jiang Yang, Kyushu University, Japan

Kiyoshi Wada, Kyushu University, Japan

3. (16:10) Identification of dynamic errors-in-variables systems with periodic data

Mei Hong, Uppsala University, Sweden

Torsten Söderström, Uppsala University, Sweden

4. (16:30) Identification of linear systems with errors in variables using separable nonlinear least-squares

Mats Ekman, Uppsala University, Sweden

5. (16:50) On the Optimal Estimation of Errors in Variables Models for Robust Control

Juan C. Aguero, The University of Newcastle, Australia

Graham C. Goodwin, The University of Newcastle, Australia

Mario E. Salgado, Universidad Tecnica Federico Santa Maria, Chile

6. (17:10) Optimal errors-in-variables filtering in the MIMO case

Roberto Diversi, University of Bologna, Italy

Roberto Guidorzi, University of Bologna, Italy

Umberto Soverini, University of Bologna, Italy

OPTIMAL CONTROL AND ESTIMATION IN LINEAR SYSTEMS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 1.1

Chair: ***Robert Bitmead, University of California, San Diego, United States***

Co-Chair: ***Orest Iftime, Delft Center for Systems and Control, Netherlands***

1. (15:30) A Closed-Form Optimal Control for Linear Systems with Multiple State Delays

Michael Basin, Autonomous University of Nuevo Leon, Mexico

Jesus Guadalupe Rodriguez-Gonzalez, Autonomous University of Nuevo Leon, Mexico

2. (15:50) Application of Moving Pareto Frontier Technique for Exploration of Dynamic Controlled Systems

Natalya Brusnikina, MSU, CCAS, Russian Federation

Alexander Lotov, MSU, CCAS, Russian Federation

3. (16:10) Optimal Control for Switched Distributed Parameter Systems with application to the Guidance of a Moving Actuator

Orest Iftime, Delft Center for Systems and Control, TU Delft and Faculty of Economics, University of Groningen, Netherlands

Michael Demetriou, Worcester Polytechnic Institute, Dept of Mechanical Engineering, United States

4. (16:30) Optimal Decentralized Control of Dynamical Systems under Uncertainties

Oleg Ridchenko, Byelorussian State University, Belarus

Natalia M. Dmitruk, Institute of Mathematics, NASB, Belarus

5. (16:50) State Estimation in Coordinated Control with a Non-Standard Information Architecture

Jun Yan, University of California, San Diego, United States

Keunmo Kang, University of California, San Diego, United States

Robert Bitmead, University of California, San Diego, United States

OPTIMAL CONTROL AND ESTIMATION IN LINEAR SYSTEMS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 1.1

Chair: ***Robert Bitmead, University of California, San Diego, United States***

Co-Chair: ***Orest Iftime, Delft Center for Systems and Control, Netherlands***

6. (17:10) State Estimation of Linear Systems with State Equality Constraints

Sangho Ko, University of California, San Diego, United States

Robert R. Bitmead, University of California, San Diego, United States

CONTROL METHODS FOR COMMUNICATION NETWORKS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 2.3

Organizer: ***Saverio Mascolo, Politecnico di Bari, Italy***

Chair: ***Saverio Mascolo, Politecnico di Bari, Italy***

Co-Chair: ***Kevin Moore, Johns Hopkins University Applied Physics Laboratory, United States***

1. (15:30) A Congestion Control Algorithm for the Planetary Internet

Luigi Grieco, Politecnico di Bari, Italy

Saverio Mascolo, Politecnico di Bari, Italy

2. (15:50) Unbiased bandwidth estimation in communication protocols

Krister Jacobsson, Department of Signal, Sensors and Systems - KTH, Sweden

Håkan Hjalmarsson, Department of Signal, Sensors and Systems - KTH, Sweden

Karl-Henrik Johansson, Department of Signal, Sensors and Systems - KTH, Sweden

3. (16:10) Power control in WCDMA networks: a queue-based approach

Luigi Chisci, Universita' di Firenze, Italy

Romano Fantacci, Universita' di Firenze, Italy

Lorenzo Mucchi, Universita' di Firenze, Italy

Tommaso Pecorella, CNIT, Universita' di Firenze, Italy

4. (16:30) A Gain Scheduling Approach to Active Queue Management

Sabato Manfredi, University of Naples, Italy

Mario di Bernardo, University of Naples, Italy

5. (16:50) AQM Generalized Nyquist Stability in Multiple Bottleneck

Laura Giarre', Dias-Univerista di Palermo, Italy

Dario Bauso, Dinfo-Universita di Palermo, Italy

D. Di Bernardo, Universita di palermo, Italy

G. Neglia, DIE-Universita di Palermo, Italy

CONTROL METHODS FOR COMMUNICATION NETWORKS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 2.3

Organizer: ***Saverio Mascolo, Politecnico di Bari, Italy***

Chair: ***Saverio Mascolo, Politecnico di Bari, Italy***

Co-Chair: ***Kevin Moore, Johns Hopkins University Applied Physics Laboratory, United States***

6. (17:10) Modelling and control of IP transport in cellular radio links

Niels Möller, Royal Institute of Technology, Sweden

Carlo Fischione, University of L'Aquila, Italy

Karl Henrik Johansson, Royal Institute of Technology, Sweden

Fortunato Santucci, University of L'Aquila, Italy

F. Graziosi, University of L'Aquila, Italy

LEARNING AND INTELLIGENT CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.1

Chair: ***Yoichi Hirashima, Okayama University, Japan***

Co-Chair: ***Tomohisa Hayakawa, University of Tokyo, Japan***

1. (15:30) A Proposal of Weighted Q-Learning for Continuous State and Action Spaces

Yuhu Cheng, Institute of Automation, Chinese Academy of Sciences, China

Jianqiang Yi, Institute of Automation, Chinese Academy of Sciences, China

Dongbin Zhao, Institute of Automation, Chinese Academy of Sciences, China

2. (15:50) A New Method for Marshaling Plan Using a Reinforcement Learning Considering Desired Layout of Containers in Terminals

Yoichi Hirashima, Okayama University, Japan

Osamu Furuya, Okayama University, Japan

Kazuhiro Takeda, Mitsubishi Heavy Industries, Japan

Mingcong Deng, Okayama University, Japan

Akira Inoue, Okayama University, Japan

3. (16:10) A New Characterization of Stable Neural Network Control for Discrete-Time Uncertain Systems

Tomohisa Hayakawa, Japan Science and Technology Agency, Japan

Wassim M. Haddad, Georgia Institute of Technology, United States

Naira Hovakimyan, Virginia Polytechnic Institute and State University, United States

4. (16:30) Adaptive sliding-mode control with Gaussian network

Lei Ma, Universität Würzburg, Germany

Klaus Schilling, Universität Würzburg, Germany

Christian Schmid, Ruhr-Universität Bochum, Germany

5. (16:50) Robust Neural Identification of Robotic Manipulators Using Discrete Time Adaptive Sliding Mode Learning

Andon Venelinov Topalov, Technical University Sofia, branched at Plovdiv, Bulgaria

Okyay Kaynak, Bogazici University, Turkey

LEARNING AND INTELLIGENT CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.1

Chair: ***Yoichi Hirashima, Okayama University, Japan***

Co-Chair: ***Tomohisa Hayakawa, University of Tokyo, Japan***

6. (17:10) Adaptive Tracking Control of Fuzzy Time-Delay Systems using Variable Structure Control Approach

Xinjiang Wei, Northeastern University, China

Yuanwei Jing, Northeastern University, China

INTELLIGENT MODELLING AND IDENTIFICATION II

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.2

Chair: ***Ben Betlem, University of Twente, Netherlands***

Co-Chair: ***António Ruano, University of Algarve, Portugal***

1. (15:30) Selection of the structure of radial basis functions networks

Che Wai Chan, The University of Hong Kong, Hong Kong

K. Y. Choy, The University of Hong Kong, Hong Kong

2. (15:50) A Probability Neural Network for Continuous and Categorical Data

Hongnian Yu, Staffordshire University, United Kingdom

Shuang Cang, University of Wales, Aberystwyth, United Kingdom

3. (16:10) A Saturation based Interpolation Method for Fuzzy Systems

Jose Luis Navarro, Universidad Politecnica de Valencia, Spain

Carlos Ariño, Universidad Politecnica de Valencia, Spain

Antonio Sala, Universidad Politecnica de Valencia, Spain

Jose Luis Diez, Universidad Politecnica de Valencia, Spain

4. (16:30) Backwards Neural Networks Optimisation

Kenneth Gock, Memcor Australia Pty Ltd, Australia

Jayantha Katupitiya, University of New South Wales, Australia

5. (16:50) Constructing Interpretable Fuzzy Model Based on Reduction Methodology

Xing Zongyi, Nanjing University of Science and Technology, China

Hu Weilia, Nanjing University of Science and Technology, China

Jia Liminb, Beijing Jiaotong University, China

6. (17:10) Dynamic Process Modeling using Fuzzy Submodels

Ben Betlem, University of Twente, Netherlands

Pascal van Lith, University of Twente, Netherlands

Brian Roffel, University of Twente, Netherlands

MECHATRONIC SENSING AND ACTUATION

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.3

Chair: ***Claudio Melchiorri, University of Bologna, Italy***

Co-Chair: ***Haydn Thompson, University of Sheffield, United Kingdom***

1. (15:30) 3D Shape Measuring Instruments Using High Stiffness Vibration Touch Sensor

Takanori Miyoshi, Toyohashi University of Technology, Japan

Yoji Masui, Toyohashi University of Technology, Japan

Kazuhiko Enokishima, Toyohashi University of Technology, Japan

Kazuhiko Terashima, Toyohashi University of Technology, Japan

2. (15:50) Adaptive Visual Servoing for Constrained Robots under Jacobian, Joint Dynamic and Contact Viscous Friction Uncertainties

Emmanuel Dean Leon, CINVESTAV, Mexico

Vicente Parra Vega, CINVESTAV, Mexico

Luis García Valdovinos, CINVESTAV, Mexico

Arturo Espinosa Romero, Fmat, UADY., Mexico

3. (16:10) Control Strategy for Measurement Performance Enhancement of a Micromachined Accelerometer

Jonathan Soen, CEA-LETI (Laboratory of Electronics and Information Technologies), France

Alina Voda, LAG (Automatic Control Laboratory of Grenoble), France

Cyril Condemine, CEA-LETI (Laboratory of Electronics and Information Technologies), France

4. (16:30) Damp by wire: magnetorheological dampers vs friction dampers

Charles Stammers, University of Bath, United Kingdom

Emanuele Guglielmino, University of Bath, United Kingdom

Kevin A Edge, University of Bath, United Kingdom

Tudor Sireteanu, Romanian Academy of Sciences, Romania

Danut Stancioiu, Romanian Academy of Sciences, Romania

MECHATRONIC SENSING AND ACTUATION

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.3

Chair: ***Claudio Melchiorri, University of Bologna, Italy***

Co-Chair: ***Haydn Thompson, University of Sheffield, United Kingdom***

5. (16:50) Nonlinear Output Feedback Control of A 5DOF AMB System

Kang-Zhi Liu, Chiba University, Japan

Rong He, Chiba University, Japan

Osami Saito, Chiba University, Japan

6. (17:10) Robust Position Control of Linear Piezoelectric Motor Drive Systems

Xin Qian, Nanyang Technological University, Singapore

Youyi Wang, Nanyang Technological University, Singapore

MODELING AND CONTROL OF WASTEWATER TREATMENT PLANTS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 4.3

Chair: ***Alex Jens, ifak Magdeburg, Germany***

Co-Chair: ***Su Ki Ooi, University of Melbourne, Australia***

1. (15:30) Risk Assessment for Safe Restart of Anaerobic Digestion Processes

Hamid Demmou, LAAS/CNRS Toulouse, France

Belynda Brahimi, LAAS/CNRS Toulouse, France

Arnaud Helias, LBE/ INRA Narbonne, France

Jean Philippe Steyer, LBE/ INRA Narbonne, France

2. (15:50) Activated Sludge Image Analysis Data Classification: an LS-SVM Approach

Geert Gins, Katholieke Universiteit Leuven, Belgium

Ilse Smets, Katholieke Universiteit Leuven, Belgium

Rika Jenné, Katholieke Universiteit Leuven, Belgium

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

3. (16:10) Predictive on-off Cost Minimizing Control of a Municipal Waste Water Treatment Plant

Ulrich Schmitz, University of Applied Science Cologne, Germany

Robert Haber, University of Applied Science Cologne, Germany

Frank Lang, University of Applied Science Cologne, Germany

4. (16:30) A Framework for Modelling, Simulation and Control of Integrated Urban Waste water Systems

Reza Katebi, University of Strathclyde, United Kingdom

Francisco P Graells, University of Strathclyde, Spain

5. (16:50) Interval Analysis and Nonlinear Control of Wastewater Plants with Parameter Uncertainty

Harald Aschemann, University of Ulm, Germany

Andreas Rauh, University of Ulm, Germany

Marco Kletting, University of Ulm, Germany

Eberhard P. Hofer, University of Ulm, Germany

Marc Gennat, University of Wuppertal, Germany

Bernd Tibken, University of Wuppertal, Germany

MODELING AND CONTROL OF WASTEWATER TREATMENT PLANTS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 4.3

Chair: ***Alex Jens, ifak Magdeburg, Germany***

Co-Chair: ***Su Ki Ooi, University of Melbourne, Australia***

6. (17:10) On-line Construction and Rule Base Simplification by Replacement in Fuzzy Systems Applied to a Wastewater Treatment Plant

Jose Victor, Polytechnic Institute of Leiria, Portugal

Antonio Dourado, University of Coimbra, Portugal

Plamen Angelov, Lancaster University, United Kingdom

GEOMETRIC NETWORK MODELING AND CONTROL OF COMPLEX PHYSICAL SYSTEMS

Wednesday 06-Jul-2005 15:10-18:00, Meeting Room 2.1

Organizer: ***Arjan van der Schaft, University of Twente, Netherlands***

Co-Organizer ***Stefano Stramigioli, University of Twente, Netherlands***

Co-Organizer ***Kurt Schlacher, University of Linz, Austria***

Chair: ***Arjan van der Schaft, University of Twente, Netherlands***

Co-Chair: ***Stefano Stramigioli, University of Twente, Netherlands***

1. (15:10) Introduction to GeoPleX

Stefano Stramigioli, University of Twente, Netherlands

2. (15:30) Port-Based Control of a Compass-Gait Bipedal Robot

Vincent Duindam, University of Twente, Netherlands

Stefano Stramigioli, University of Twente, Netherlands

3. (15:50) Passivity-based Control with Simultaneous Energy-shaping and Damping Injection: The Induction Motor Case Study

Gerardo Espinosa-Perez, DEPFI-UNAM, Mexico

Romeo Ortega, LSS-SUPELEC, France

4. (16:10) From conservation laws to port-Hamiltonian representations of distributed-parameter systems

Arjan van der Schaft, University of Twente, Netherlands

Bernhard Maschke, Universite Claude Bernard Lyon, France

5. (16:30) Control by interconnection for distributed port Hamiltonian systems

Alessandro Macchelli, University of Bologna, Italy

Arjan van der Schaft, University of Twente, Netherlands

Claudio Melchiorri, University of Bologna, Italy

GEOMETRIC NETWORK MODELING AND CONTROL OF COMPLEX PHYSICAL SYSTEMS

Wednesday 06-Jul-2005 15:10-18:00, Meeting Room 2.1

Organizer: ***Arjan van der Schaft, University of Twente, Netherlands***

Co-Organizer ***Stefano Stramigioli, University of Twente, Netherlands***

Co-Organizer ***Kurt Schlacher, University of Linz, Austria***

Chair: ***Arjan van der Schaft, University of Twente, Netherlands***

Co-Chair: ***Stefano Stramigioli, University of Twente, Netherlands***

6. (16:50) Discrete Port-Hamiltonian Systems

Viswanath Talasila, Imperial College, London, United Kingdom

Jesus Clemente-Gallardo, Instituto de Biocomputacion y Fisica de los Sistemas Complejos, Spain

Arjan van der Schaft, Universiteit Twente, Netherlands

7. (17:10) Physical System Modelling and New Control Paradigms

Following the Invited Session "Geometric Network Modeling and Control of Complex Physical Systems" a panel discussion is organized with the theme "Physical System Modeling and New Control Paradigms".

Moderator of this discussion is Kurt Schlacher. The following persons have agreed to be panel members

Allgöwer, Frank (Chair of the IFAC TC on Non-Linear Control Systems)

Goodall, Roger (Chair of the IFAC TC on Mechatronic Systems)

Stramigioli, Stefano (coordinator GeoPleX)

Maschke, Bernhard

Ortega, Romeo

van der Schaft, Arjan

Duindam, Vincent

MICRO-ELECTRO-MECHANICAL SYSTEMS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.4

Chair: ***Dong-il Cho, Seoul National University, Korea***

Co-Chair: ***Jim Nevins, MIT/IL, United States***

1. (15:30) Friction Modelling of a Linear High-Precision Actuator

Jan Zimmermann, Technische Universität Ilmenau, Germany

Oliver Sawodny, Technische Universität Ilmenau, Germany

Tino Hausotte, Technische Universität Ilmenau, Germany

Gerd Jaeger, Technische Universität Ilmenau, Germany

2. (15:50) Electroactive Smart Materials: New Challenges for Control

B. Ross Barmish, University of Wisconsin, United States

Yuri M. Shkel, Uinversity of Wisconsin, United States

3. (16:10) Design considerations for electromechanical actuation in precision motion systems

Maurice Schneiders, Eindhoven, University of Technology, Netherlands

Juraj Makarovic, Eindhoven, University of Technology, Netherlands

Rene' van de Molengraft, Eindhoven, University of Technology, Netherlands

Maarten Steinbuch, Eindhoven, University of Technology, Netherlands

4. (16:30) An Electromechanical Sigma-delta Modulator for MEMS Gyroscope

Byung Su Chang, Seoul national university, Korea

Jang Gyu Lee, Seoul national university, Korea

Taesam Kang, Konkuk university, Korea

Woon-Tahk Sung, Seoul national university, Korea

MICRO-ELECTRO-MECHANICAL SYSTEMS

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.4

Chair: ***Dong-il Cho, Seoul National University, Korea***

Co-Chair: ***Jim Nevins, MIT/IL, United States***

5. (16:50) MEMS-fabricated Accelerometers with Feedback Compensation

Dong-il Cho, Seoul National University, Korea

Yonghwa Park, Seoul National University, Korea

Sangjun Park, Seoul National University, Korea

Byung-doo Choi, Seoul National University, Korea

Hyoungho Ko, Seoul National University, Korea

Taeyong Song, Seoul National University, Korea

Geunwon Lim, Seoul National University, Korea

6. (17:10) MEMS-fabricated Gyroscopes with Feedback Compensation

Dong-il Cho, Seoul National University, Korea

Yonghwa Park, Seoul National University, Korea

Sangjun Park, Seoul National University, Korea

Byungdoo Choi, Seoul National University, Korea

Hyoungho Ko, Seoul National University, Korea

Taeyong Song, Seoul National University, Korea

Geunwon Lim, Seoul National University), Korea

AIRCRAFT TURBOFAN ENGINE CONTROL

Wednesday 06-Jul-2005 15:30-17:30, Meeting Room 3.5

Organizer: ***Florian Vary, Snecma Moteurs, France***

Co-Organizer ***Didier Henrion, LAAS Toulouse, France***

Chair: ***Florian Vary, Snecma Moteurs, France***

Co-Chair: ***Didier Henrion, LAAS Toulouse, France***

1. (15:30) Programming and computing tools for jet engine control design

Florian Vary, Snecma Moteurs, France

Luc Reberga, CNRS LAAS, France

2. (16:10) LPV modeling of a turbofan engine

Luc Reberga, LAAS-CNRS, France

Didier Henrion, LAAS-CNRS, France

Jacques Bernussou, LAAS-CNRS, France

Florian Vary, Snecma Moteurs, France

3. (16:30) A Dynamic Decoupling Method for Controlling High Performance Turbofan Engines

Robert Miklosovic, Cleveland State University, United States

Zhiqiang Gao, Cleveland State University, United States

4. (16:50) Fault Tolerant Multivariable Control of a Military Turbofan Engine

Dan Ring, Volvo Aero Corporation AB, Sweden

Anna-Karin Christiansson, University of Trollhättan/Uddevalla, Sweden

Melker Härefors, Volvo Aero Corporation AB, Sweden

5. (17:10) Implementation and testing of sampled-data H-infinity control of jet engines

Anna-Karin Christiansson, University of Trollhattan/Uddevalla, Sweden

Dan Ring, Volvo Aero Corporation, Sweden

Melker Härefors, Volvo Aero Corporation, Sweden

ROCKWELL AUTOMATION AND ADVANCED TECHNOLOGY

Wednesday 06-Jul-2005 12:00-13:00, Chamber Hall

Organizer: ***Kenwood H. Hall, Rockwell Automation, United States***

Co-Organizer: ***Vladimir Marik, Rockwell Automation AT Lab Prague, Czech Republic***

Chair: ***Kenwood H. Hall, Rockwell Automation, United States***

Introduction

The scope of products and solutions of Rockwell Automation as the largest US-based automation manufacturer for discrete manufacturing will be presented. The Advanced Technology organization of Rockwell Automation will be introduced. The technology trends and company long-term visions will be presented.