

## Technical Program

<b>CCA/CACSD '02</b>		Alsh 1
<b>Wednesday, September 18, 2002</b>		
Lomond		
<b>CCA Plenary Lecture 1</b> <b>08:30-09:30</b>		
<b>To Tune, To Switch, or To Switch and Tune? Adapting to Constantly Changing Environments</b>		
<b>Kumpati Narendra</b> Centre for System Science, Yale Univ.		
Chair: Grumble, M.J.	University of Strathclyde	
Co-Chair: Camacho, E.	Universidad de Sevilla	
Lomond		
<b>CCA-WM1</b> <b>Power Systems</b>		
Chair: TBD		
Co-Chair: TBD		
10:00	CCA-1	
<i>Application of Control Lyapunov Functions to Static Var Compensator</i>		
Ghandhari, Mehrdad	Royal Inst. of Tech.	
10:20	CCA-7	
<i>A Controller based on Resonant Filters for a Series Active Filter used to Compensate Current Harmonics and Voltage Unbalance</i>		
Escobar, G.	Northeastern Univ.	
Stankovic, A. M.	Northeastern Univ.	
Cardenas, V.	Univ. de San Luis Potosí	
Mattavelli, P.	Univ. of Udine	
10:40	CCA-13	
<i>Repetitive Control of Power Conversion System from a Distributed Generator to the Utility Grid</i>		
Liang, J.	Imperial College	
Green, T. C.	Imperial College	
Weiss, G.	Imperial College	
Zhong, Q.-C.	Imperial College	
11:00	CCA-19	
<i>Systematic Tuning of Nonlinear Power System Controllers</i>		
Hiskens, Ian A.	Univ. of Illinois	
11:20	Paper Not Available	
<i>Global Control of Complex Systems</i>		
Hill, David J.	City Univ. of Hong Kong	
11:40	CCA-25	
<i>Impedance Matching Controllers to Extinguish Electromechanical Waves in Power Networks</i>		
Lesieutre, Bernard C.	Cornell Univ.	
Scholtz, Ernst	Massachusetts Inst. of Tech.	
Vergheze, George C.	Massachusetts Inst. of Tech.	
Alsh 2		
<b>CCA-WM2</b> <b>Neuro-Fuzzy Control</b>		
Chair: Zhu, Q. M.		Univ. of West England
Co-Chair: Zhang, Y. M.		Univ. of Kentucky
10:00	CCA-31	
<i>Fuzzy Classification of Plasma Reflection for Keyhole Sensing and Control</i>		
Losch, Breton E.	Univ. of Kentucky	
Zhang, YuMing	Univ. of Kentucky	
10:20	CCA-37	
<i>Neural Networks and Optimization Problems</i>		
Gaiduk, A. R.	Taganrog Radio Eng. Univ.	
Vershinin, Y. A.	Coventry Univ.	
West, M. J.	Coventry Univ.	
10:40	CCA-42	
<i>Comparative Study of Alternative Fuzzy Logic Control Strategies of Permanent Magnet Brushless AC Drive</i>		
Zhu, Z. Q.	Univ. of Sheffield	
Shen, J. X.	Univ. of Sheffield	
Howe, D.	Univ. of Sheffield	
11:00	CCA-48	
<i>Optimal Control of Batch Processes Incorporating Model Prediction Confidence Bounds based on Multiple Neural Networks</i>		
Xiong, Zhihua	Univ. of Newcastle	
Zhang, Jie	Univ. of Newcastle	
11:20	CCA-54	
<i>Towards Neural Adaptive Hovering Control of Helicopters</i>		
Guo, Lingzhong	Univ. of the West of England	
Melhuish, Chris	Univ. of the West of England	
Zhu, Quanmin	Univ. of the West of England	
11:40	CCA-59	
<i>Neurofuzzy Model based <math>I_s</math> Predictive Control of Nonlinear CSTR System</i>		
Wu, Q.	Huazhong Univ. of Sci. & Tech.	
Wang, Y. J.	Huazhong Univ. of Sci. & Tech.	
Zhu, Q. M.	Univ. of Western England	
Warwick, K.	Univ. of Reading	
Alsh 2		
<b>CCA-WM3</b> <b>Observer Design</b>		
Chair: Yaz, E.		Marquette Univ.
Co-Chair: Mattei, M.		Universita' Di Reggio Calabria
10:00	CCA-65	
<i>Robust Exponential Stabilization for a class of Nonlinear Dynamical Systems with Unmatched Uncertainties</i>		
Yu, Kai	Harbin Inst. of Tech.	
Zhao, Chang-An	Harbin Inst. of Tech.	
Duan, Guang-Ren	Harbin Inst. of Tech.	
10:20	CCA-69	
<i>Replacement of a Lift Sensor by a Model based Lift Observer</i>		
Zimmer, G.	Siemens Power Generation	

10:40 CCA-74  
*Design of Full Order Unknown Input Observers with  $H_\infty$  Performance*  
Amato, Francesco Univ. di Reggio Calabria  
Mattei, Massimiliano Univ. di Reggio Calabria

11:00 CCA-76  
*Nonlinear Observer Performance in Chaotic Synchronization with Application to Secure Communication*  
Amirazodi, Javid Univ. of Arkansas  
Yaz, Edwin E. Marquette Univ.  
Azemi, Asad Penn State Univ.  
Yaz, Yvonne I. Carthage College

11:20 CCA-82  
*Variable Structure Observer Design in Matrix Second-Order Formulation for Linear and Nonlinear Vibrating Systems using Velocity Measurements*  
Cao, Tri-Tan Van Flinders Univ.  
He, Fangpo Flinders Univ.  
Sammut, Karl Flinders Univ.  
Chen, Lei Flinders Univ.

11:40 CCA-88  
*State Observer for a Class of Nonlinear Systems and its Application*  
Chen, Xinkai Kinki Univ.  
Zhai, Guisheng Wakayama Univ.

Biosdale 1

#### CCA-WM4

##### Motor Control

Chair: Stocks, M. Lulea Univ. of Tech.  
Co-Chair: Tapia, G. Univ. of The Basque Country

10:00 CCA-94  
*Propulsion and Levitation Control in a Linear Electrodynamical Motor*  
Campo, Alexandre CEFET-SP  
Pait, Felipe Univ. of São Paulo

10:20 CCA-100  
*Robust PI Control for Servo DC Motor*  
Dobra, Petru Tech. Univ. of Cluj

10:40 CCA-102  
*Control and Trajectory Tracking by Flatness of a Time-Variant Stator Flux Motor*  
Rotella, F. LGP-ENIT  
Ayadi, M. LGP-ENIT  
Carrillo, F. J. LGP-ENIT

11:00 CCA-108  
*Open Loop Stabilization of the Rotor Angular Speed in the Induction Machine*  
Stocks, Mikael Luleå Univ. of Tech.  
Medvedev, Alexander Luleå Univ. of Tech.

11:20 CCA-114  
*Sensorless Speed Control of Induction Motors with Minimum Loss*  
Seleme, Jr., Seleme I. UDESC  
do Prado Jr., Alcindo UDESC  
S. Marques, Luiz Carlos UDESC

Biosdale 2

#### CCA-WM5

##### Aircraft Control

Chair: Juang, J.-G. Natl. Taiwan Ocean Univ.  
Co-Chair: Bates, D. G. Univ. of Leicester

10:00 CCA-120  
*A Switching Scheme for Full-Envelope Control of a V/STOL Aircraft using LQ Bumpless Transfer*  
Turner, M. C. Univ. of Leicester  
Aouf, N. McGill Univ.  
Bates, D. G. Univ. of Leicester  
Postlethwaite, I. Univ. of Leicester  
Boulet, B. McGill Univ.

10:20 CCA-126  
*A Frequency Domain Identification-Control Approach for a Flexible Aircraft*  
Demourant, Fabrice ONERA-CERT  
Ferrerres, Gilles ONERA-CERT

10:40 CCA-132  
*Integrated Propulsion-Based Flight Control System Design for a Civil Transport Aircraft*  
Härefors, M. Volvo Aero Corp.  
Bates, D. G. Univ. of Leicester

11:00 CCA-138  
*On the Robustness Properties of  $H_\infty$  Integrated Flight and Propulsion Controllers for a Large Transport Aircraft*  
Gatley, S. L. Univ. of Leicester  
Härefors, M. Volvo Aero Corp.  
Bates, D. G. Univ. of Leicester

11:20 CCA-144  
*Aircraft Landing Control based on Fuzzy Modeling Networks*  
Juang, Jih-Gau Natl. Taiwan Ocean Univ.  
Chio, Jern-Zuin Natl. Taiwan Ocean Univ.

11:40 CCA-150  
*Application of Time Delay Neural Network to Automatic Landing Control*  
Juang, Jih-Gau Natl. Taiwan Ocean Univ.  
Chang, Hao-Hsiang Natl. Taiwan Ocean Univ.

Carron 1

#### CACSD-WM6

##### Recent Advances in Multi-Objective Control Systems Design

Chair: Whidborne, J. F. King's College  
Co-Chair: Liu, G. P. Univ. of Nottingham

10:00 CACSD-1  
*Multiobjective Design using Various Control Techniques*  
Liu, G. P. Univ. of Nottingham  
Whidborne, J. F. King's College  
Duan, G. R. Queen's Univ. of Belfast

10:20 CACSD-7  
*A Multi-Objective Optimisation-Based Software Environment for Control Systems Design*  
Joos, Hans-Dieter German Aerospace Center  
Bals, Johann German Aerospace Center  
Looye, Gertjan German Aerospace Center  
Schnepper, Klaus German Aerospace Center  
Varga, Andras German Aerospace Center

10:40 CACSD-15  
*Multiobjective Design of a Fuzzy Controller for a Nonlinear Missile Autopilot*

Hughes, Evan J. Cranfield Univ.  
Tsourdos, Antonios Cranfield Univ.  
White, Brian A. Cranfield Univ.

11:00 CACSD-21  
*Multi-Objective Design for an Integrated Flight Control System: A Combination with Model Reduction Approach*  
Liu, Hugh H.T. Univ. of Toronto

11:20 CACSD-27  
*Multiobjective Design of Low Complexity Digital Controllers*  
Whidborne, James F. King's College  
Yang, Jian-Bo UMIST

11:40 CACSD-33  
*Designing Model Predictive Controllers with Prioritised Constraints and Objectives*  
Kerrigan, Eric C. Univ. of Cambridge  
Maciejowski, Jan M. Univ. of Cambridge

Carron 2

### CACSD-WM7 Numerical Software and Applications

Chair: Sima, V. Natl. Inst. for R&D in Informatics  
Co-Chair: Varga, A. DLR

10:00 CACSD-39  
*SLICOT and Control Systems Numerical Software Packages*  
Van Huffel, Sabine Katholieke Univ. Leuven  
Sima, Vasile Natl. Inst. for R & D in Informatics

10:20 CACSD-45  
*SLICOT System Identification Software and Applications*  
Sima, Vasile Natl. Inst. for R&D in Informatics  
Sima, Diana Maria Katholieke Univ. Leuven  
Van Huffel, Sabine Katholieke Univ. Leuven

10:40 CACSD-51  
*Numerical Software in SLICOT for Low Order Controller Design*  
Varga, A. Inst. of Robotics & Mechatronics

11:00 CACSD-57  
*Robust  $\mu$ -Design of a Disk Drive Servo System*  
Petkov, P. Hr. Tech. Univ. of Sofia  
Gu, D.-W. Univ. of Leicester  
Konstantinov, M. M. Univ. of Arch. & Civil Eng.

11:20 CACSD-63  
*Experimental  $H_{\infty}$  Control to Improve an Industrial Off-Line Tracking Control Scheme on an Automotive Suspension Test Rig*  
De Cuyper, J. LMS Intl.  
Vaes, D. Katholieke Univ. Leuven  
Dehandschutter, W. LMS Intl.  
Swevers, J. Katholieke Univ. Leuven  
Verhaegen, M. Tech. Univ. Delft  
Sas, P. Katholieke Univ. Leuven

11:40  
*SLICOT Demonstration*

Lomond

### CCA Plenary Lecture 2 13:00-14:00

#### Opportunities in Automotive Powertrain Control Applications

**Jeff Cook and Jing Sun**  
Ford Motor Company  
**Jessy Grizzle**  
Univ. of Michigan

Chair: Atherton, D.P. Univ. of Sussex  
Co-Chair: Saeki M. Hiroshima University

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### CCA-WA1 Control of Mechanical Systems

Chair: Johansen, T. A. Norwegian Univ. of Sci. & Tech.  
Co-Chair: Gustafsson, T. Luleå Univ. of Tech.

14:00 CCA-156  
*Modeling and Flat Control Law for a Fine Pointing System based on Semi Active Magnetic Bearings*

Mahout, Vincent LAAS/CNRS  
Prats, Xavier LAAS/CNRS  
Mignot, Jean CNES

14:20 CCA-162  
*Modeling and Observer-Based Nonlinear Control of a Magnetic Levitation System*

Munaro, Celso José Federal Univ. of Espirito Santo  
Filho, Moacir Rosado Federal Univ. of Espirito Santo  
Borges, Raquel Machado Federal Univ. of Espirito Santo  
Munareto, Saul da Silva Federal Univ. of Espirito Santo  
da Costa, Wagner Teixeira Federal Univ. of Espirito Santo

14:40 CCA-168  
*A New Anti-Vibration Algorithm for Active Magnetic Bearings Application*  
Tamisier, Vincent Supélec  
Font, Stéphane Supélec  
Carrere, François Soc. de Mécanique Magnétique

15:00 CCA-174  
*Wave Synchronizing Crane Control during Water Entry in Offshore Moonpool Operations*

Sagatun, Svein I. Norsk Hydro Exploration & Prod.  
Johansen, Tor A. Norwegian Univ. of Sci. & Tech.  
Fossen, Thor I. Norwegian Univ. of Sci. & Tech.  
Nielsen, Finn G. Norsk Hydro Exploration & Prod.

15:20 CCA-180  
*Automatic Control of Unmanned Cranes at the Pasir Panjang Terminal*  
Gustafsson, Thomas Luleå Univ. of Tech.  
Heidenback, Claes ABB Ind./Crane Systems

Alsh 1

### CCA-WA2 Robotics I

Chair: de Jager, B. Eindhoven Univ. of Tech.  
Co-Chair: Wang, Z. Univ. of Durham

14:00 CCA-186  
*Experimentally Supported Control Design for a Direct Drive Robot*  
Kostic, Dragan Eindhoven Univ. of Tech.  
de Jager, Bram Eindhoven Univ. of Tech.  
Steinbuch, Maarten Eindhoven Univ. of Tech.

14:20 CCA-192

*A  $H_8$ -Weighting Scheme for PID-Like Motion Control*  
Schönhoff, Ulrich Darmstadt Univ. of Tech.  
Nordmann, Rainer Darmstadt Univ. of Tech.

14:40 CCA-198

*Indirect Fuzzy Adaptive Model-Following Control for Robot Manipulators*  
Goléa, Nouredine Oum El-Bouaghi Univ.

15:00 CCA-203

*Predictive Control of Robotic Manipulators*  
Valle, F. Univ. of Valladolid  
Tadeo, F. Univ. of Valladolid  
Alvarez, T. Univ. of Valladolid

15:20 CCA-209

*PID Stabilization of a Position-Controlled Manipulator with Wrist Sensor*  
Roy, Anindo Univ. of Arkansas at Little Rock  
Iqbal, Kamran Univ. of Arkansas at Little Rock

Alsh 2

### CCA-WA3

#### Aerospace System Applications

Chair: Gorinevsky, D. Honeywell Labs.  
Co-Chair: Nwadiogbu, E. Honeywell Labs.

14:00 CCA-215

*Model-Based Diagnostics for an Aircraft Auxiliary Power Unit*  
Gorinevsky, Dimitry Honeywell AES Lab.  
Dittmar, Kevin Honeywell Eng. Sys. & Serv.  
Mylaraswamy, Dinkar Honeywell ACS Lab.  
Nwadiogbu, Emmanuel Honeywell Eng. Sys. & Serv.

14:20 CCA-221

*The use of Novelty Detection Techniques for Monitoring High-Integrity Plant*  
King, S. P. Rolls-Royce  
King, D. M. Rolls-Royce  
Anuzis, P. Rolls-Royce  
Astley, K. Rolls-Royce  
Tarassenko, L. Oxford Univ.  
Hayton, P. Oxford Univ.  
Utete, S. Oxford Univ.

14:40 CCA-227

*Condition-Based, Diagnostic Gas Path Reasoning for Gas Turbine Engines*  
Krok, Michael J. GE Global Research Center  
Ashby, Malcom J. GE Aircraft Engines

15:00 CCA-235

*A Nonlinear UIO Scheme for the FDI on a Small Commercial Aircraft*  
Amato, Francesco Univ. di Reggio Calabria  
Mattei, Massimiliano Univ. di Reggio Calabria  
Iervolino, Raffaele Univ. di Napoli Federico II  
Paviglianiti, Gaetano Univ. di Reggio Calabria

15:20 CCA-241

*A Control Scheme for Resource Management in Satellite Systems*  
Priscoli, Francesco Delli Univ. of Rome "La Sapienza"  
Pietrabissa, Antonio Univ. of Rome "La Sapienza"

Biosdale 1

### CCA-WA4

#### PID Tuning

Chair: Bravington, C. Omron  
Co-Chair: Moradi, M. Univ. of Strathclyde

14:00 CCA-247

*Robust MIMO PID Tuning Method*  
Moradi, M. H. Univ. of Strathclyde  
Katebi, M. R. Univ. of Strathclyde  
Johnson, M. A. Univ. of Strathclyde

14:20 CCA-253

*PID Controller Tuning via Quasi Pole Assignment Method*  
Shimizu, Kiyotaka Keio Univ.  
Honjo, Kota Keio Univ.

14:40 CCA-260

*Design and Experimental Evaluation of an Evolutionary Neural-Net based PID Controller*  
Suzuki, Michiyo Hiroshima Univ.  
Katayama, Masaru Hiroshima Univ.  
Yamamoto, Toru Hiroshima Univ.

15:00 CCA-266

*A Design of PID Control System using GA and GMDH Network*  
Sakaguchi, Akihiro Sasebo Natl. College of Tech.  
Yamamoto, Toru Hiroshima Univ.

15:20 CCA-272

*Multivariable PID Controller Design using Online Generalized Predictive Control Optimisation*  
Uduehi, D. Univ. of Strathclyde  
Ordys, A. Univ. of Strathclyde  
Grimble, M. J. Univ. of Strathclyde

Biosdale 2

### CCA-WA5

#### Missile and Satellite Control

Chair: Veres S.M. Uni. of Southampton  
Co-Chair: Fradkov, A. Russian Academy of Sci.

14:00 CCA-278

*Controller Synthesis and Real-Time Simulation of the Net Recovery Phase of a Remotely Piloted Vehicle*  
Singh, Satendra Indian Air Force  
Narayana, B. V. L. Indian Inst. of Tech.  
Mishra, Atit Indian Inst. of Tech.  
Banavar, Ravi N. Indian Inst. of Tech.  
Srinivasan, K. V. Bangalore

14:20 CCA-284

*Attitude Control of a Small Conventional Launcher*  
Amato, F. Univ. di Reggio Calabria  
Ambrosino, G. Univ. di Napoli  
Filippone, E. Centro Ital. Ricerche Aero.  
Iervolino, R. Univ. Degli Studi Di Napoli Federico II

14:40 CCA-290

*Combined Adaptive Autopilot for an UAV Flight Control*  
Andrievsky, Boris R. Russian Academy of Sci.  
Fradkov, Alexander Russian Academy of Sci.

15:00 CCA-292

*Drag-Free Motion Control of Satellite for High-Precision Gravity Field Mapping*  
Ziegler, Bent Tech. Univ. of Denmark  
Blanke, Mogens Tech. Univ. of Denmark

15:20	CCA-298		
<i>Ellipsoid Methods for Formation Flying Control of Two Nano-Satellites</i>			
Veres, S. M.	Univ. of Southampton		
Rokitianski, D. Ya	Univ. of Southampton		
Gabriel, S. B.	Univ. of Southampton		
Rogers, E.	Univ. of Southampton		
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<b>CACSD-WA6</b>	Carron 1		
<b>Nonlinear Control Designs</b>			
Chair: Giron-Sierra, J.	Univ. Complutense de Madrid		
Co-Chair: Katebi, M. R.	Univ. of Strathclyde		
14:00	CACSD-69		
<i>Multiobjective Automotive Drive by Wire Controller Design</i>			
Zavala, Jose C.	Univ. of Sheffield		
Stewart, Paul	Univ. of Sheffield		
Fleming, Peter J.	Univ. of Sheffield		
14:20	CACSD-74		
<i>Controllability Analysis of Multiobjective Control Systems</i>			
Stewart, Paul	Univ. of Sheffield		
Jewell, G. W.	Univ. of Sheffield		
Clark, R. E.	Univ. of Sheffield		
Fleming, Peter J.	Univ. of Sheffield		
14:40	CACSD-80		
<i>Measurement of the Road Gradient using an Inclinometer Mounted on a Moving Vehicle</i>			
Mangan, S.	Univ. of Liverpool		
Wang, J.	Univ. of Liverpool		
Wu, Q. H.	Univ. of Liverpool		
15:00	CCA-304		
<i>The Control of Specific Actuators for Fast Ferry Vertical Motion Damping</i>			
Giron-Sierra, Jose M.	Univ. Complutense de Madrid		
Katebi, Reza	Strathclyde Univ.		
de la Cruz, Jesus M.	Univ. Complutense de Madrid		
Esteban, Segundo	Univ. Complutense de Madrid		
15:20	Paper Not Available		
<i>Adaptive Parity Relations for Fault Detection in Nonlinear Uncertain Systems</i>			
Shumsky, Alexey Ye	Russian Academy of Sci.		
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<b>CACSD-WA7</b>	Carron 2		
<b>Control System Design</b>			
Chair: Dutton, K.	Sheffield Hallam University		
Co-Chair: Kapinski, J.	Carnegie Mellon University		
14:00	CACSD-86		
<i>On the Simultaneous Stabilization by Static Output Feedback Problem</i>			
Sales, D. M.	Army Polytechnic School		
Corrêa, G. O.	Natl. Lab. for Scientific Computing		
14:20	CACSD-92		
<i>Approximate Explicit Model Predictive Control Incorporating Heuristics</i>			
Grancharova, Alexandra	Norwegian Univ. of Sci. & Tech.		
Johansen, Tor A.	Norwegian Univ. of Sci. & Tech.		
14:40	CACSD-98		
<i>Verifying Switched-Mode Computer Controlled Systems</i>			
Kapinski, James	Carnegie Mellon Univ.		
Krogh, Bruce H.	Carnegie Mellon Univ.		
15:00	CACSD-104		
<i>Simulation and Real-Time Control: From Simulink to Industrial Applications</i>			
Grega, Wojciech	Univ. of Mining & Metallurgy		
Kolek, Krzysztof	Univ. of Mining & Metallurgy		
15:20	CACSD-110		
<i>Multi-Loop Control System Design Tools</i>			
Readman, Mark C.	U.M.I.S.T.		
Edmunds, John M.	U.M.I.S.T.		
Schooling, Steve	Univ. College London		
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<b>CCA-WE1</b>	Lomond		
<b>Noise and Vibrations</b>			
Chair: Sano, A.	Keio Univ.		
Co-Chair: Kangning, W.	Natl. Univ. of Singapore		
16:00	CCA-310		
<i>Mechatronic Experiment on Remote Vibration Signature Analysis via the Internet</i>			
Tan, K. K.	Natl. Univ. of Singapore		
Wang, K. N.	Natl. Univ. of Singapore		
Tang, K. Z.	Natl. Univ. of Singapore		
16:20	CCA-316		
<i>Active Control of Mechanical Vibrations using Dynamic Variable Structure Control</i>			
Llanes-Santiago, Orestes	I.S.P.J.A.E.		
Rios-Bolivar, Miguel	Univ. de Los Andes		
16:40	CCA-321		
<i>Nonlinear Active Vibration Absorber Design for Flexible Structures</i>			
Chen, Lei	Flinders Univ.		
He, Fangpo	Flinders Univ.		
Sammut, Karl	Flinders Univ.		
Cao, Tan	Flinders Univ.		
17:00	CCA-327		
<i>Active Control of Vibrations using Generalised PI Control: An Application to a Non-Linear Mechanical System</i>			
Marquez, R.	Univ. de Los Andes		
Rios-Bolivar, M.	Univ. de Los Andes		
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<b>CCA-WE2</b>	Alsh 1		
<b>Robotics II</b>			
Chair: Tokhi, M. O.	Univ. of Sheffield		
Co-Chair: Feng, Z.	Univ. of Southampton		
16:00	CCA-333		
<i>A Lyapunov-Based Design of Robust Control for a Robot using Neural Networks</i>			
Barambones, O.	Univ. del País Vasco		
16:20	CCA-339		
<i>The Simulation and Concept of a Pipe Crawling Robot for Earthquake Rescue</i>			
Wang, Zhelong	Univ. of Durham		
Appleton, Ernest	Univ. of Durham		
16:40	CCA-345		
<i>Practical Stabilization of Wheeled Mobile Robots based on Control Lyapunov Function</i>			
Xinzhe, Pei	Harbin Inst. of Tech.		
Zhiyuan, Liu	Harbin Inst. of Tech.		
Run, Pei	Harbin Inst. of Tech.		
Hong, Chen	Jilin Univ.		

17:00 CCA-350  
*H<sub>s</sub> Autopilot Design for an Autonomous Underwater Vehicle*  
Feng, Zhengping Univ. of Southampton  
Allen, Robert Univ. of Southampton

17:20 CCA-355  
*Design and Development of Single Side Driven Wheelchairs by using Internal Model Control*  
Suzuki, Ryoichi Kanazawa Inst. of Tech.  
Tani, Masashi Kanazawa Inst. of Tech.  
Kobayashi, Nobuaki Kanazawa Inst. of Tech.

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### CCA-WE3

#### Steel Processing

Chair: Hearn, G. Alstom  
Co-Chair: van Ditzhuijzen, G. Corus Group

16:00 CCA-361  
*Identification and Model Predictive Control of a Slab Reheating Furnace*  
van Ditzhuijzen, Gustaaf Corus Research, Dev. & Tech.  
Staalman, Dirk Corus Research, Dev. & Tech.  
Koon, Arnold Corus Strip Products

16:20 CCA-367  
*Quantitative Feedback Theory for Rolling Mills*  
Hearn, G. Univ. of Strathclyde  
Grimble, M. J. Univ. of Strathclyde

16:40 CCA-373  
*Application of Efficient Nonlinear Predictive Control to a Hot Strip Finishing Mill*  
Bulut, B. Univ. of Strathclyde  
Ordys, A. W. Univ. of Strathclyde  
Grimble, M. J. Univ. of Strathclyde

17:00 CCA-379  
*Control of Mass Flow in a Hot Strip Mill using Model Predictive Control*  
Schuurmans, J. Corus Research, Dev. & Tech.  
Jones, T. Corus Research, Dev. & Tech.

17:20 CCA-385  
*Multivariable Circle Criterion: Stable Fuzzy Control of a Milling Process*  
Schmitt-Braess, G. Univ. Erlangen-Nürnberg  
Haber Guerra, R. E. Inst. de Automática Ind.  
Haber, R. H. Univ. de Oriente  
Alique, A. Inst. de Automática Ind.

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### CCA-WE4

#### Chemical Processes

Chair: Tadeo, F. Univ. of Valladolid  
Co-Chair: Zhang, J. Univ. of Newcastle

16:00 CCA-391  
*Robust Constrained Regulator Problem for Linear Uncertain Continuous-Time Systems: Application to a pH-Process*  
Mesquine, Fouad Cadi Ayyad Univ.  
Benlamkadem, Abdellatif Cadi Ayyad Univ.  
Tadeo, Fernando Univ. de Valladolid

16:20 CCA-397  
*Neural Networks Based Model Predictive Control of an Industrial Polypropylene Process*  
Wei, Jianli Tsinghua Univ.  
Xu, Yongmao Tsinghua Univ.  
Zhang, Jie Univ. of Newcastle

16:40 CCA-403  
*Tuning of Predictive Controller using Performance Assessment Measures: Application to pH Control*  
Alvarez, T. Univ. of Valladolid  
Tadeo, F. Univ. of Valladolid  
Grimble, M. J. Univ. of Strathclyde

17:00 CCA-409  
*A Steady State Model for Propylene Polymerization in an Industrial Loop Reactor and its Application in Melt Index Prediction*  
Jiang, Jingbo Tsinghua Univ.  
Xu, Yongmao Tsinghua Univ.  
Zhang, Jie Univ. of Newcastle

17:20 CCA-415  
*Industrial Application of Non-Equilibrium Model: Simulation and Analysis of Ethylene Fractionator*  
Meng, Zhang Tsinghua Univ.  
Yongmao, Xu Tsinghua Univ.  
Xinggao, Liu Tsinghua Univ.  
Jie, Zhang Univ. of Newcastle

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### CCA-WE5

#### Automobile Control

Chair: Saeki, M. Hiroshima Univ.  
Co-Chair: Giovanni, L. Univ. of Strathclyde

16:00 CCA-421  
*Path Following Control of Articulated Vehicle by Backward Driving*  
Saeki, Masami Hiroshima Univ.

16:20 CCA-427  
*A Comparative Study of Different Solutions to the Path-Tracking Problem for an Articulated Vehicle*  
Bolzem, Paolo Politecnico di Milano  
Locatelli, Arturo Politecnico di Milano

16:40 CCA-435  
*Robust Steer-by-Wire Control based on the Model Regulator*  
Güvenç, Bilin Aksun Istanbul Tech. Univ.  
Güvenç, Levent Istanbul Tech. Univ.

17:00 CCA-441  
*Nonlinear Vehicle Stability Control Using Disturbance Observer*  
Hahn, Jin-Oh Korea Air Force Academy  
Hur, Jae-Woong Seoul Natl. Univ.  
Yi, Kyongsu Hanyang Univ.  
Kang, Soojoon Korea Air Force Academy  
Lee, Kyo Il Seoul Natl. Univ.

17:20 CCA-447  
*Robust Pole Location for an Active Suspension Quarter-Car Model through Parameter Dependent Control*  
Leite, Valter J. S. CEFET-MG  
Peres, Pedro L. D. Univ. of Campinas

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### CACSD-WE6

#### Intelligent Systems

Chair: Kobayashi, Y. Tepco Systems Corp.  
Co-Chair: Joergl, H.P. Vienna University of Technology

16:00 CACSD-115  
*A Library of Adaptive Neural Networks for Control Purposes*  
Campa, Giampiero West Virginia Univ.  
Fravolini, Mario Luca Perugia Univ.  
Napolitano, Marcello West Virginia Univ.

16:20 CACSD-121  
*Estimation of the Three-Dimensional Power Distribution in Boiling Water Reactors using Neural Networks and Fuzzy Theory*  
Kobayashi, Y. Tepco Systems Corp.  
Aiyoshi, E. Keio Univ.

16:40 CACSD-127  
*An Integrated Control System for Optimizing the Energy Consumption and User Comfort in Buildings*  
Pargfrieder, J. Vienna Univ. of Tech.  
Jörgl, H. P. Vienna Univ. of Tech.

17:00 CACSD-133  
*A Control Design for Reference Signal with the N-th Power of Time*  
Kosaka, Manabu Kin-ki Univ.  
Uda, Hiroshi Kin-ki Univ.  
Shibata, Hiroshi Osaka Prefecture Univ.

17:20 Paper Not Available  
*Development of Computer Controlled Non-Intrusive Pressure Monitoring System for Diagnosis of Hydraulically Operated Equipment*  
Cui, Yuliang Shandong Univ. of Sci. & Tech.

Carron 2

#### CACSD-WE7

##### PID and Robust Control

Chair: TBD  
Co-Chair: Perez Castelo, F.J. Univ. de La Coruña

16:00 CACSD-139  
*A Control Frequency Selection Procedure for Frequency Domain Autotuning Methods on PID Controllers*  
Pérez Castelo, Francisco Javier Univ. de La Coruña  
García, Ramón Ferreiro Univ. de La Coruña

16:20 CACSD-145  
*Linear Controller Design by Goal Programming*  
Lordelo, A. D. S. Univ. of Campinas  
Ferreira, P. A. V. Univ. of Campinas

16:40 CACSD-151  
*Design of Robust Model-Based Tracking Controllers via Parametric Programming*  
Sakizlis, V. Imperial College  
Kakalis, N. M.P. Imperial College  
Dua, V. Imperial College  
Perkins, J. D. Imperial College  
Pistikopoulos, E. N. Imperial College

17:00 CACSD-157  
*An Optimisation Algorithm for Designing Fixed-Structure Controllers using the QFT Method*  
Nandakumar, R. City Univ.  
Halikias, G. D. City Univ.  
Zolotas, A. C. Imperial College

17:20 CACSD-163  
*Performance/Robustness Limits for CAD of Time-Delay Control Systems*  
Keviczky, L. Hungarian Academy of Sci.  
Bányász, Cs. Hungarian Academy of Sci.

Lomond

#### CACSD Plenary Lecture 1 17:40-18:30

##### Neural Motion and Evolutionary Decision in Robotic Competition Applied for Molecular Machine System Design

A.C. Da Silva  
Darmstadt Univ. of Technology

Chair: Gray, J. Univ. of Salford  
Co-Chair: Munro, N. UMIST

#### CCA/CACSD '02 Thursday, September 19, 2002

Lomond

#### CACSD Plenary Lecture 2 08:30-09:30

##### Recent Experiences in the Industrial Exploitation of Principal Component based Fault Detection Methods

Barry Lennox and Dave Sandoz  
Univ. of Manchester

Chair: Munro, N. UMIST  
Co-Chair: Varga, A. DLR

Lomond

#### CCA-ThM1 Active Control Methods

Chair: Veres, S. M. Univ. of Southampton  
Co-Chair: Sano, A. Keio Univ.

10:00 CCA-453  
*Direct Fully Adaptive Active Noise Control Algorithms without Identification of Secondary Path Dynamics*  
Ohta, Yuhsuke Keio Univ.  
Kohno, Toshikazu Honda Co.  
Ohmori, Hiromitsu Keio Univ.  
Sano, Akira Keio Univ.

10:20 CCA-459  
*Convergence Conditions for Multi-Channel Free-Field Sound Cancelling Systems*  
Wright, Selwyn Univ. of Huddersfield  
Atmoko, Hidajat Univ. of Huddersfield  
Vuksanovic, Branislav Univ. of Derby

10:40 CCA-465  
*Model Verification for Active Control of Microvibrations*  
Aglietti, G. S. Univ. of Southampton  
Langley, R. S. Univ. of Cambridge  
Rogers, E. Univ. of Southampton  
Gabriel, S. B. Univ. of Southampton

11:00 CCA-471  
*GA-Based Neuro-Fuzzy Controller of Flexible-Link Manipulator*  
Siddique, M. N. H. Univ. of Sheffield  
Tokhi, M.O. Univ. of Sheffield

11:20	CCA-477		
<i>An Integrated System for Active Vibro-Acoustic Control and Damage Detection on a Typical Aeronautical Structure</i>			
Viscardi, Massimo	Univ. of Naples "Federico II"		
Lecce, Leonardo	Univ. of Naples "Federico II"		
11:40	CCA-483		
<i>Stability Analysis of Secondary Path Estimation during FSF-Based Feedback Control</i>			
Meurers, T.	Univ. of Southampton		
Veres, S. M.	Univ. of Southampton		
Alsh 1			
<b>CCA-ThM2</b>			
<b>Manipulator Control</b>			
Chair: Mann, G. K.I.	Memorial Univ. of Newfoundland		
Co-Chair: Fusco, G.	Univ. degli Studi di Cassino		
10:00	CCA-489		
<i>Controllability Properties of a Planar 3R Underactuated Manipulator</i>			
Mahindrakar, Arun D.	Indian Inst. of Tech.		
Banavar, Ravi N.	Indian Inst. of Tech.		
10:20	CCA-495		
<i>Model-Free Intelligent Control of a 6-DOF Stewart-Gough based Parallel Manipulator</i>			
Mann, George K. I.	Memorial Univ. of Newfoundland		
Surgenor, Brian W.	Queen's Univ.		
10:40	CCA-501		
<i>End-Point Control of a Flexible-Link Manipulator using <math>H_\infty</math> Nonlinear Control via a State-Dependent Riccati Equation</i>			
Shawky, A.	Univ. of Strathclyde		
Ordys, A.	Univ. of Strathclyde		
Grimble, M. J.	Univ. of Strathclyde		
11:00	CCA-507		
<i>Tip Trajectory Tracking for a One-Link Flexible Manipulator using Causal Inversion</i>			
Wang, Xuezheng	Iowa State Univ.		
Chen, Degang	Iowa State Univ.		
11:20	CCA-513		
<i>Experiments of On-Line Path Following under Joint Limits for an Industrial Robot Manipulator</i>			
Antonelli, Gianluca	Univ. degli Studi di Cassino		
Chiaverini, Stefano	Univ. degli Studi di Cassino		
Fusco, Giuseppe	Univ. degli Studi di Cassino		
Alsh 2			
<b>CCA-ThM3</b>			
<b>Communication Systems</b>			
Chair: Moradi, M.	Univ. of Strathclyde		
Co-Chair: Wilson, D. I.	Karlstad Univ.		
10:00	CCA-519		
<i>End to End Congestion Control of Packet Switched Networks</i>			
Jagannathan, S.	The Univ. of Missouri-Rolla		
10:20	CCA-525		
<i>Real-Time Capability Analysis for Switch Industrial Ethernet Traffic Priority-Based</i>			
Chen, Jiming	Zhejiang Univ.		
Wang, Zhi	Zhejiang Univ.		
Sun, Youxian	Zhejiang Univ.		
10:40	CCA-530		
<i>Control-Theoretic Bandwidth-on-Demand Protocol for Satellite Networks</i>			
Priscoli, Francesco Delli	Univ. of Rome "La Sapienza"		
Pietrabissa, Antonio	Univ. of Rome "La Sapienza"		
11:00	CCA-536		
<i>Characteristic of Multi-Class Multi-Queue System</i>			
Wang, Zhi	Zhejiang Univ.		
Song, Ye-qiong	LORIANENSEM		
Yu, Hai-bin	Shenyang Inst. of Automation		
Chen, Ji-ming	Zhejiang Univ.		
Sun, You-xian	Zhejiang Univ.		
11:20	CCA-542		
<i>Admission Controller Design for High-Speed Networks: A Hybrid System Approach</i>			
Jagannathan, S.	The Univ. of Missouri-Rolla		
Biosdale 1			
<b>CCA-ThM4</b>			
<b>Distributed Parameter Systems</b>			
Chair: Burns, John A.	Virginia Tech.		
Co-Chair: King, B. B.	Virginia Tech.		
10:00	CCA-548		
<i>Boundary Layer Control for the Viscous Burgers' Equation</i>			
Burns, John A.	Virginia Polytechnic Inst.		
Zietsman, Lizette	Virginia Polytechnic Inst.		
Myatt, James H.	Wright-Patterson AFB		
10:20	Paper Not Available		
<i>Robust Reduced Order Compensators for Distributed Parameter Systems via LQG Balancing</i>			
King, Belinda	Virginia Tech.		
10:40	Paper Not Available		
<i>Multiobjective Control Design for High Performance Smart Material Transducers</i>			
Smith, Ralph C.	North Carolina State Univ.		
11:00	Paper Not Available		
<i>Implications on Non-Normality on the Problem of Controlling Shear Flows</i>			
Bamieh, Bassam	Univ. of California Santa Barbara		
11:20	CCA-554		
<i>Output Regulation for Delay Systems: Tracking and Disturbance Rejection for an Oscillator with Delayed Damping</i>			
Gilliam, David S.	Texas Tech Univ.		
Shubov, Victor I.	Texas Tech Univ.		
Byrnes, Christopher I.	Washington Univ.		
Vugrin, Eric D.	Virginia Polytechnic Inst. & State Univ.		
Biosdale 2			
<b>CCA-ThM5</b>			
<b>PID Control</b>			
Chair: Sato, K.	Saga Univ.		
Co-Chair: Atherton, D. P.	Univ. of Sussex		
10:00	CCA-559		
<i>Reduced Order Proportional Integral Compensator for Disturbance Suppression in Oil Well Drill-Strings</i>			
Al-Harathi, Mosleh	Univ. of Arkansas		
Yaz, Edwin E.	Marquette Univ.		

10:20 CCA-565  
*Unified Approach to Decentralized Control*  
Macháček, Jiri Univ. of Pardubice

10:40 CCA-571  
*A Model-Driven PID Control System and its Case Studies*  
Shigemasa, Takashi Toshiba Corp.  
Yukitomo, Masanori Toshiba Corp.  
Kuwata, Ryuichi Toshiba Corp.

11:00 CCA-577  
*Conditional Integration on PID for Types 1 and 2 Control Systems*  
Ferreiro García, Ramón Univ. de La Coruña  
Pérez Castelo, Francisco Javier Univ. de La Coruña

11:20 CCA-582  
*Tracking Control to Moving Object of Liquid Container Transfer with Vibration Damping*  
Noda, Y. Toyohashi Univ. of Tech.  
Yano, K. Toyohashi Univ. of Tech.  
Terashima, K. Toyohashi Univ. of Tech.

11:40 CCA-588  
*Adaptive PI Control Method for Positioning Control using Linear Slider - Feedforward Control Approach -*  
Sato, Kazuya Saga Univ.  
Honda, Hideki Yaskawa Electric Corp.  
Hayakawa, Aki Saga Univ.  
Watanabe, Keigo Saga Univ.

Carron 1

### CACSD-ThM6

#### Optimal Control

Chair: Vershinin, Y. Univ. of Coventry  
Co-Chair: Lampe, B. Univ. of Rostock

10:00 CACSD-169  
*Neighboring Optimization for Constrained Control Problems in Real Time*  
Korytowski, Adam St. Staszic Tech. Univ.  
Szymkat, Maciej St. Staszic Tech. Univ.  
Turnau, Andrzej St. Staszic Tech. Univ.

10:20 CACSD-175  
*Extended Variable Parameterization Method for Optimal Control*  
Szymkat, Maciej St. Staszic Tech. Univ.  
Korytowski, Adam St. Staszic Tech. Univ.  
Turnau, Andrzej St. Staszic Tech. Univ.

10:40 CACSD-181  
*Implementation of Optimal Closed-Loop Control Strategy*  
Balashevich, N. V. Natl. Academy of Sci.

11:00 CACSD-187  
*Algorithm for Computer Aided Optimal Control System Design*  
Gaiduk, A. R. Taganrog Radio Eng. Univ.  
Vershinin, Y. A. Coventry Univ.  
Jawaid, A. Coventry Univ.

11:20 CACSD-193  
*Characterization of Minimal and Basis Siphons with Predicate Logic and Binary Programming*  
Cordone, Roberto Politecnico di Milano  
Ferrarini, Luca Politecnico di Milano  
Piroddi, Luigi Politecnico di Milano

11:40 CACSD-199  
*Optimal Digital Controllers for Double Integrator: Comparison of Four Methods*  
Polyakov, K. Yu. State Univ. of Ocean Tech.  
Rosenwasser, E. N. State Univ. of Ocean Tech.  
Lampe, B. P. Univ. of Rostock

Carron 2

### CACSD-ThM7

#### Control Problems and Solutions in Industry

Chair: Booth, D. R. IEE  
Co-Chair: Dalitz, R. BAe Systems

10:00  
*Traditional Linear Control*  
Buchanan, A. ISC Ltd.  
Trainor, S. Allied Distillers  
Brodie, K. Caledonian Paper

10:30  
*Obsolescence in Control Systems*  
Morrison, A. British Energy  
Moug, T. Canongate Technology  
Trainor, S. Allied Distillers  
Brown, N. Real Time Eng.

11:00  
*Manufacturing*  
Brodie, K. Caledonian Paper  
Archibald, C. IBM  
Hodge, S. IBM

11:30  
*Round Table Discussion*

12:00  
*Close of Session*

Lomond

### CACSD Plenary Lecture 3 13:00-14:00

#### Industrial Application of Predictive Control

**Paul Austin**  
INVENSIS

Chair: Varga, A. DLR  
Co-Chair: Gray, J. Univ. of Salford

Lomond

### CCA-ThA1

#### Adaptive and Optimal Control

Chair: Wu, Q. H. Univ. of Liverpool  
Co-Chair: Ordys, A. W. Univ. of Strathclyde

14:00 CCA-594  
*Adaptive Control of Coupled Drives Apparatus based on Polynomial Theory*  
Kubalcik, Marek Tomas Bata Univ.  
Bobál, Vladimír Tomas Bata Univ.

14:20 CCA-600  
*Indirect Adaptive Control of Two Wheeled Vehicle by Quantized Input and Output*  
Konaka, Eiji Nagoya Univ.  
Suzuki, Tatsuya Nagoya Univ.  
Okuma, Shigeru Nagoya Univ.

14:40 CCA-606  
*An Extension of Discrete-Time Model Reference Adaptive Control by using Coprime Factorization Approach*  
Yanou, Akira Kinki Univ.  
Inoue, Akira Okayama Univ.  
Hirashima, Yoichi Okayama Univ.

15:00 CCA-611  
*Decentralised Nonlinear Adaptive Output-Feedback Controller based on High Gain State and Perturbation Observer*  
Jiang, L. Univ. of Liverpool  
Wu, Q. H. Univ. of Liverpool

15:20 CCA-617  
*Optimal Regulator for Third Degree Polynomial Systems*  
Basin, Michael V. Auto. Univ. of Nuevo Leon  
Alcorta Garcia, Maria Aracelia Auto. Univ. of Nuevo Leon

Alsh 1

### CCA-ThA2 Control of Disk Drives

Chair: Zhou, Y. Philips Optical Storage  
Co-Chair: Filardi, G. Lab. d'Automatique de Grenoble

14:00 CCA-623  
*Modelling, Identification and Performance Analysis of a DVD Player*  
Filardi, Giampaolo STMicroelectronics  
Besançon-Voda, Alina Lab. d'Auto. de Grenoble  
Sename, Olivier Lab. d'Auto. de Grenoble  
Schroeder, Heinz-Jörg STMicroelectronics

14:20 CCA-629  
*Modelling the Focus Error Characteristic of a DVD Player*  
Hnilicka, Bohumil Lab. d'Auto. de Grenoble  
Besançon-Voda, Alina Lab. d'Auto. de Grenoble  
Schröder, Heinz-Jörg STMicroelectronics  
Filardi, Giampaolo STMicroelectronics

14:40 CCA-631  
*Estimator-Based Sliding Mode Control of an Optical Disc Drive under Shock and Vibration*  
Zhou, Yu Philips Optical Storage  
Steinbuch, Maarten Eindhoven Univ. of Tech.  
Kostic, Dragan Eindhoven Univ. of Tech.

15:00 CCA-637  
*Deterministic Method for Obtaining Nominal and Uncertainty Models of CD Drives*  
Vidal, E. Aalborg Univ.  
Stoustrup, J. Aalborg Univ.  
Andersen, P. Aalborg Univ.  
Pedersen, T. S. Aalborg Univ.  
Mikkelsen, H. F. Bang & Olufsen a/s

15:20 CCA-643  
*Decoupling Control of Pickup Head Motion in Near-Field Optical Disk Drives*  
Liu, T. S. Natl. Chiao Tung Univ.  
Liu, P. C. Natl. Chiao Tung Univ.

Alsh 2

### CCA-ThA3 Predictive Control I

Chair: Pietrabissa, A. Univ. of Rome  
Co-Chair: Jagannathan, S. Univ. of Missouri-Rolla

14:00 CCA-645  
*Application of Multivariable GPC to a Four Tank Process with Unstable Transmission Zeros*  
García-Gabín, Winston Univ. de Los Andes  
Camacho, Eduardo F. Univ. de Sevilla

14:20 CCA-651  
*Efficient Implementation of Min-Max Model Predictive Control with Bounded Uncertainties*  
Álamo, T. Univ. of Sevilla  
Ramírez, D. R. Univ. of Sevilla  
Camacho, E. F. Univ. of Sevilla

14:40 CCA-657  
*Robust MPC of Constrained Discrete-Time Nonlinear Systems based on Uncertain Evolution Sets: Application to a CSTR Model*  
Marruedo, D. Limón Univ. de Sevilla  
Bravo, J. M. Univ. de Sevilla  
Álamo, T. Univ. de Sevilla  
Camacho, E. F. Univ. de Sevilla

15:00 CCA-663  
*Restricted Structure Adaptive Predictive Control of Nonlinear Systems*  
Grimble, M J. Univ. of Strathclyde  
Martin, P. Univ. of Strathclyde

15:20 CACS-D-205  
*Intelligent User-Support System for Modeling and Simulation*  
Ševcenko, Michal Czech Tech. Univ. in Prague  
Mann, Herman Czech Tech. Univ. in Prague

Biosdale 1

### CCA-ThA4 Control System Design and Performance

Chair: Reynolds, L. Thames Water  
Co-Chair: Thornhill, N. Univ. College London

14:00 CCA-669  
*Impedance Control of a Compression Cardiac Assist Device*  
Davies, Gareth Univ. of Leeds  
Levesley, Martin C. Univ. of Leeds  
Walker, Peter G. Univ. of Leeds  
Brown, Michael D. WS Atkins Consultants Ltd.  
Watterson, Kevin Univ. of Leeds

14:20 CCA-675  
*A Note on Feedback Linearizing Control for Open-Channel Hydraulic Systems*  
Georges, Didier Inst. Natl. Polytech. de Grenoble  
Dulhoste, Jean-François Univ. de Los Andes  
Besançon, Gildas Inst. Natl. Polytech. de Grenoble

14:40 CCA-681  
*Evaluation Control Performance: Methods and Applications*  
Jämsä-Jounela, S-L. Helsinki Univ. of Tech.  
Poikonen, R. Helsinki Univ. of Tech.  
Georgiev, Z. Helsinki Univ. of Tech.  
Zuehlke, U. Univ. of Iceland  
Halmevaara, K. Helsinki Univ. of Tech.

15:00 CCA-687  
*Analysis of Plant-Wide Disturbances using Conditional Entropy*  
Dobson, J. Paul Univ. College London  
Thornhill, Nina F. Univ. College London

15:20 CCA-689  
*Improved On-Line Process Fault Diagnosis using Stacked Neural Networks*  
Zhang, Jie Univ. of Newcastle

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**CCA-ThA5**  
**Control of Engines**

Chair: Bruzelius, F. Chalmers Univ. of Tech.  
Co-Chair: Munro, N. UMIST

14:00 CCA-695  
*A Simply Structured Multivariable Control System for the Rolls-Royce Spey Engine*  
Nobakhti, A. UMIST  
Munro, N. UMIST

14:20 CCA-701  
*Estimating Exhaust Manifold Pressure in a Turbocharged Diesel Engine*  
Fredriksson, Jonas Chalmers Univ. of Tech.  
Egardt, Bo Chalmers Univ. of Tech.

14:40 CCA-707  
*Model based Design in the Development of Thermodynamic Systems and their Electronic Control Units*  
Orehek, Martin Inst. for Real-Time Comp. Sys.  
Robl, Christian Vodafone Pilotentwicklung GmbH

15:00 CCA-713  
*LPV-Based Gain Scheduling Technique Applied to a Turbo Fan Engine Model*  
Bruzelius, F. Chalmers Univ. of Tech.  
Breitholtz, C. Chalmers Univ. of Tech.  
Pettersson, S. Chalmers Univ. of Tech.

15:20 CCA-719  
*Improved SI Engine Modelling Techniques with Application to Fault Detection*  
Vinsonneau, J. A. F. Coventry Univ.  
Shields, D. N. Coventry Univ.  
King, P. J. Jaguars Cars Ltd.  
Burnham, K. J. Coventry Univ.

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**CACSD-ThA6**  
**Modelling**

Chair: Mann, H. Czech Tech. Univ.  
Co-Chair: Kerrigan, E. Univ. of Cambridge

14:00 CACSD-207  
*An Experimental Setup for Modelling, Simulation and Fast Prototyping of Mechanical Arms*  
Bona, B. Politecnico di Torino  
Indri, M. Politecnico di Torino  
Saldone, N. Politecnico di Torino

14:20 CACSD-213  
*New Models of Energy-Storing Electromechanical Transducers*  
Mann, Herman Czech Tech. Univ.

14:40 CACSD-218  
*Modeling of Waterproof Plugs in the Cavern Gas Storage*  
Šindelár, Radek Czech Tech. Univ.  
Vicek, Zdenek Czech Tech. Univ.

15:00 CACSD-224  
*CORAL Off-Line: An Object-Orientated Tool for Optimal Control of Sewer Networks*  
Figueras, J. Univ. Politècnica de Catalunya  
Cembrano, G. Inst. de Robòtica e Info. Ind.  
Puig, V. Univ. Politècnica de Catalunya  
Quevedo, J. Univ. Politècnica de Catalunya  
Salamero, M. Clavaguera de Barcelona S.A.  
Martí, J. Clavaguera de Barcelona S.A.

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**CACSD-ThA7**  
**Funding the Future of Control - Presentations and Round Table Discussions**

Chair: Grimble, M. J. Univ. of Strathclyde  
Co-Chair: Ordys, A. W. Univ. of Strathclyde

14:00  
*To Be Announced*

14:40  
*Control within the EPSRC Programme*  
Jones, Vicky EPSRC

15:20  
*To Be Announced*

16:00  
*Close of Session*

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**CCA-ThE1**  
**Visual Servo Mechanisms**

Chair: Fu, L.-F. Natl. Taiwan Univ.  
Co-Chair: Chang, W.-C. Natl. Taipei Univ. of Tech.

16:00 CCA-725  
*Zoom-Based Head Tracker in Complex Environment*  
Kuo, Teng-Kai Natl. Taiwan Univ.  
Fu, Li-Chen Natl. Taiwan Univ.  
Jean, Jong-Hann St. John's & St. Mary's Inst. of Tech.  
Chen, Pei-Ying Natl. Taiwan Univ.  
Chan, Yu-Ming Natl. Taiwan Univ.

16:20 CCA-731  
*A Self-Calibrated Speaker Tracking System using both Audio and Video Data*  
Hu, J. Natl. Chiao Tung Univ.  
Su, T. M. Natl. Chiao Tung Univ.  
Cheng, C. C. Natl. Chiao Tung Univ.  
Liu, W. H. Natl. Chiao Tung Univ.  
Wu, T. I. Natl. Chiao Tung Univ.

16:40 CCA-736  
*Design and Implementation of a Real-Time Pan-tilt Visual Tracking System*  
Chen, Kung-Ye Natl. Cheng Kung Univ.  
Cheng, Ming-Yang Natl. Cheng Kung Univ.  
Tsai, Mi-Ching Natl. Cheng Kung Univ.

17:00 CCA-742  
*Robotic Eye/Arm Coordination via Visual Servoing*  
 James Tsay, T. I. Natl. Cheng Kung Univ.  
 Lee, M. K. Natl. Cheng Kung Univ.  
 Wang, G. L. Natl. Cheng Kung Univ.  
 Hsu, M. S. Natl. Cheng Kung Univ.  
 Lai, C. H. Natl. Cheng Kung Univ.

17:20 CCA-748  
*Integrated Vision and Force Control of a 3-DOF Planar Robot*  
 Chang, Wen-Chung Natl. Taipei Univ. of Tech.  
 Wu, Cheng-Chang Natl. Dong Hwa Univ.

17:40 CCA-754  
*A Vision based Air Hockey System with Fuzzy Control*  
 Wang, Wen-June Natl. Central Univ.  
 Tsai, I-Da Natl. Central Univ.  
 Chen, Zhi-Da Natl. Central Univ.  
 Wang, Guo-Hua Natl. Central Univ.

Alsh 1

### CCA-ThE2 Power Wheelchair Control

Chair: TBD  
 Co-Chair: TBD

16:00 CCA-760  
*Who's Intelligent? Wheelchair, Driver or Both?*  
 Nisbet, Paul D. Univ. of Edinburgh

16:20 CCA-766  
*Experiences in Assisted Mobility: The SIAMO Project*  
 Mazo, M. Univ. de Alcalá  
 García, J. C. Univ. de Alcalá  
 Rodríguez, F. J. Univ. de Alcalá  
 Ureña, J. Univ. de Alcalá  
 Lázaro, J. L. Univ. de Alcalá  
 Espinosa, F. Univ. de Alcalá

16:40 CCA-772  
*WAD Project where Attractor Dynamics Aids Wheelchair Navigation*  
 Mallet, Pierre CNRS  
 Schöner, Gregor Univ. Bochum

17:00 CCA-778  
*TetraNauta: A Intelligent Wheelchair for users with Very Severe Mobility Restrictions*  
 Vincente Diaz, S. Univ. of Seville  
 Amaya Rodríguez, C. Univ. of Seville  
 Díaz del Río, F. Univ. of Seville  
 Civit Balcells, A. Univ. of Seville  
 Cagigas Muñiz, D. Univ. of Seville

17:20 CCA-784  
*VAHM: A user Adapted Intelligent Wheelchair*  
 Pruski, Alain Univ. of Metz  
 Ennaji, Mourad Univ. of Metz  
 Morère, Yann Univ. of Metz

17:40 CCA-790  
*SIRIUS: Improving the Maneuverability of Powered Wheelchairs*  
 Civit-Balcells, A. Univ. of Seville  
 Díaz del Río, F. Univ. de Sevilla  
 Jimenez, G. Univ. de Sevilla  
 Sevillano, J. L. Univ. de Sevilla  
 Amaya, C. Univ. de Sevilla  
 Vicente, S. Univ. de Sevilla

Alsh 2

### CCA-ThE3 Complex System Applications

Chair: TBD  
 Co-Chair: TBD

16:00 CCA-796  
*Computer-Aided Distribution Network Designing System*  
 Taniguchi, Yoshio Hitachi Microsoftware Sys., Inc.  
 Onoyama, Takashi Hitachi Software Eng. Co., Ltd.  
 Tsuruta, Setsuo Hitachi, Ltd.

16:20 CCA-802  
*Intelligent Evolutional Algorithm for Distribution Network Optimization*  
 Onoyama, Takashi Hitachi Software Eng., Co., Ltd.  
 Maekawa, Takuya Hitachi Software Eng., Co., Ltd.  
 Kubota, Sen Hitachi Software Eng., Co., Ltd.  
 Taniguchi, Yoshio Hitach Microsoftware Sys., Inc.  
 Tsuruta, Setsuo Hitachi, Ltd.

16:40 CCA-808  
*Final Shape Prediction by using ROT, DC, Coil Yard Consistent Simulator in Hot Rolling Plant*  
 Ogai, Harutoshi Nippon Steel Corp.  
 Ito, Masahiro Nippon Steel Corp.  
 Hirayama, Ryu Nippon Steel Corp.

17:00 CCA-814  
*A Parallel Tabu Search based Approach to Optimal Network Reconfigurations for Service Restoration in Distribution Systems*  
 Mori, Hiroyuki Meiji Univ.  
 Ogita, Yoshihiro Toshiba Corp. Power Sys. & Serv. Co.

17:20 CCA-820  
*A Model-Following Adaptive Controller using Radial Basis Function Networks*  
 Ibayashi, Tomohiro Meiji Univ.  
 Hoya, Tetsuya RIKEN  
 Ono, Osamu Meiji Univ.  
 Ishida, Yoshihisa Meiji Univ.

17:40 CCA-825  
*Application and Evaluation of DNA Computing Simulation by List based Processing*  
 Ono, Osamu Meiji Univ.  
 Yamamoto, Kohji Meiji Univ.  
 Yamamoto, Tsuneto Meiji Univ.  
 Mochiduki, Issei Meiji Univ.

Biosdale 1

### CCA-ThE4 Supervision and Monitoring of Processes

Chair: Keviczky, L. Hungarian Academy of Sci.  
 Co-Chair: Howell, J. Univ. of Glasgow

16:00 CCA-830  
*Data-Based Adviser to Operators of Complex Processes*  
 Ettler, Pavel COMPUREG Plzen  
 Nedoma, Petr Inst. of Info. Theory & Automation

16:20 CCA-832  
*Fault Classification using Time Variable ART2-A Networks*  
 Benítez-Pérez, H. IIMAS, UNAM  
 García-Nocetti, Fabian IIMAS, UNAM

16:40	CCA-838		
<i>PI Loop Status Monitoring</i>			
Xia, Chunming		Univ. of Glasgow	
Howell, John		Univ. of Glasgow	
17:00	CCA-844		
<i>Fault Localization based on Loop Status Monitoring</i>			
Xia, Chunming		Univ. of Glasgow	
Howell, John		Univ. of Glasgow	
17:20	CCA-850		
<i>An Application of Software Design Methods to Manufacturing Systems Supervision and Control</i>			
Bonfè, Marcello		Univ. di Ferrara	
Donati, Claudio		Tetra Pak Carton Ambient S.p.A.	
Fantuzzi, Cesare		Univ. di Modena e Reggio Emilia	
17:40	CCA-856		
<i>Design of Remote Environmental Monitoring Systems</i>			
Lee, Jin-Shyan		Natl. Chiao-Tung Univ.	
Hsu, Pau-Lo		Natl. Chiao-Tung Univ.	

Biosdale 2

### CCA-ThE5 Controller Design I

Chair: Sarma, S. Indian Inst. of Tech. Guwahati  
Co-Chair: Tapia, G. Univ. of The Basque Country

16:00	CCA-862		
<i>Integrated Control/Structure Design for Planar Tensegrity Models</i>			
de Jager, Bram		Technische Univ. Eindhoven	
Skelton, Robert E.		Univ. of California at San Diego	
Masic, Milenko		Univ. of California at San Diego	

16:20	CCA-868		
<i>Evolutionary Computation in Designing a Robust PD Sway Controller for a Mobile Crane</i>			
Kawada, Kazuo		Hiroshima Univ.	
Sogo, Hiroyuki		Takamatsu Natl. College of Tech.	
Yamamoto, Toru		Hiroshima Univ.	
Mada, Yasuhiro		Hiroshima Univ.	

16:40	CCA-874		
<i>Controller Design for Linear Unstable Systems with Position and Rate Actuator Saturation</i>			
Tarbouriech, Sophie		LAAS-CNRS	
Garcia, Germain		LAAS-CNRS	
Langouët, Patrice		LAAS-CNRS	

17:00	CCA-880		
<i>A New Simple and Robust Control Strategy for Wind Farm Reactive Power Regulation</i>			
Tapia, Gerardo		Univ. of the Basque Country	
Tapia, Arantxa		Univ. of the Basque Country	
Sáenz, José Ramón		Univ. of the Basque Country	

17:20	CCA-886		
<i>On the Design of Sampled-Data Model-Reference Control Systems</i>			
Blachuta, Marian		Silesian Tech. Univ.	
Grygiel, Rafal		Silesian Tech. Univ.	

17:40	CCA-892		
<i>Digital Controller Implementation by Block Digital Filtering</i>			
Sarma, Santanu		Indian Inst. of Tech.	
Majhi, S.		Indian Inst. of Tech.	
Gogoi, A. K.		Indian Inst. of Tech.	

### CACSD-ThE6

#### LFT-Based Uncertainty Modelling ... for Aircraft

Chair: Bates, D. G. Univ. of Leicester  
Co-Chair: Hayes, M. J. Univ. of Limerick

16:00	CACSD-230		
<i>LFT Representation of a Longitudinal Perturbed Aircraft Model by Flatness Approach</i>			
Cazaurang, Franck		Univ. of Bordeaux I	
Lavigne, Loïc		Univ. of Bordeaux I	
Bergeon, Benoît		Univ. of Bordeaux I	

16:20	CACSD-236		
<i>Low Order LFT Modelling and Generation from the Non-Linear Equations of Motion for a Fighter Aircraft</i>			
Dijkgraaf, Jean-Paul		Delft Univ. of Technology	
Bennani, Samir		Delft Univ. of Technology	

16:40	CACSD-242		
<i>LFT-Based Uncertainty Modelling and <math>\mu</math>-Analysis of the HIRM+ RIDE Flight Control Law</i>			
Kureemun, Ridwan		Univ. of Leicester	
Bates, Declan G.		Univ. of Leicester	

17:00	CACSD-248		
<i>Presentation of the Linear Fractional Representation Toolbox (LFRT)</i>			
Magni, Jean-François		ONERA-CERT, DCSD	

17:20	CACSD-254		
<i>On the Computation of the Maximal Structured Singular Value for Aeronautical Applications</i>			
Halton, Mark K.		Univ. of Limerick	
Hayes, Martin J.		Univ. of Limerick	

17:40	CACSD-260		
<i>Numeric LFT Generation for Robust Aircraft Flutter Analysis</i>			
Bennani, Samir		Delft Univ. of Tech.	
Beuker, Bert		Delft Univ. of Tech.	
Willem van Staveren, Jan		Delft Univ. of Tech.	
Dijkgraaf, Jean-Paul		Delft Univ. of Tech.	

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### CACSD-ThE7

#### Numerical Methods and Algorithms

Chair: Šebek, M. Czech Tech. Univ.  
Co-Chair: Biannic, J.-M. ONERA-CERT / DCSD

16:00	CACSD-266		
<i>DFT Calculation of the Generalized and Drazin Inverse of a Polynomial Matrix</i>			
Karampetakis, N. P.		Aristotle Univ. of Thessaloniki	
Vologiannidis, S.		Aristotle Univ. of Thessaloniki	

16:20	CACSD-272		
<i>SeDuMi INTERFACE 1.02: A Tool for Solving LMI Problems with SeDuMi</i>			
Labit, Yann		LAAS-CNRS	
Peaucelle, Dimitri		LAAS-CNRS	
Henrion, Didier		LAAS-CNRS	

16:40	CACSD-278		
<i>On Computing the <math>l_1</math> Norm of a Polynomial Matrix Fraction</i>			
Hurák, Zdenek		Czech Tech. Univ.	
Hromčík, Martin		Czech Tech. Univ.	
Šebek, Michael		Czech Tech. Univ.	

17:00 CACSD-284  
*MathML in Polynomial Toolbox for Matlab*  
 Hornych, Robert Czech Tech. Univ.  
 Hurák, Zdenek Czech Tech. Univ.  
 Šebek, Michael Czech Tech. Univ.

17:20 CACSD-287  
*Numerically Efficient Method for Static Output Feedback Problems*  
 Biannic, Jean-Marc ONERA-CERT

17:40 CACSD-291  
*Complex Polynomials in Communications:  
 Motivation, Algorithms, Software*  
 Hromčík, Martin Czech Tech. Univ.  
 Šebek, Michael Czech Tech. Univ.  
 Ježek, Jan Inst. of Info. Theory & Automation

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**CCA/CACSD '02  
 Friday, September 20, 2002**

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Lomond

**CCA Plenary Lecture 3  
 08:30-09:30**

**Systems Science :The Convergence of  
 Communication, Computation and Control**

**Sanjoy Mitter**  
 Massachusetts Institute of Technology

Chair: Shaw, L. Polytechnic University  
 Co-Chair: Simani, S. University of Ferrara

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**CCA-FM1  
 Integrated Control Applications**

Chair: Izadi-Zamanabadi, R. Aalborg Univ.  
 Co-Chair: Katebi, M. R. Univ. of Strathclyde

10:00 CCA-897  
*Integrated Control in a Power Production System –  
 A Case Story on Multi-Level Advanced Control*  
 Moelbak, Tommy Elsam A/S

10:20 CCA-903  
*A Generic Sensor Model for Wastewater Treatment Plant Control*  
 Wade, Matthew John Univ. of Strathclyde  
 Katebi, Reza Univ. of Strathclyde

10:40 CCA-909  
*Control of an Autonomous Vehicle for Registration  
 of Weed and Crops in Precision Agriculture*  
 Nielsen, K. M. Aalborg Univ.  
 Andersen, P. Aalborg Univ.  
 Pedersen, T. S. Aalborg Univ.  
 Bak, T. Aalborg Univ.  
 Nielson, J. D. Aalborg Univ.

11:00 CCA-915  
*Towards High Performance in Industrial Refrigeration Systems*  
 Thybo, Claus Danfos A/S  
 Izadi-Zamanabadi, Roozbeh Aalborg Univ.  
 Niemann, Henrik Tech. Univ. of Denmark

11:20 CCA-921  
*Fault Tolerance and Reliability in Integrated  
 Ship Control – The ATOMOS Concept*

Nielsen, Jens Dalsgaard Aalborg Univ.  
 Izadi-Zamanabadi, Roozbeh Aalborg Univ.  
 Schiøler, Henrik Aalborg Univ.  
 Oral Presentation Only

11:40  
*New Requirements for Onboard Instrumentation –  
 Solas CH. V Reg. 15 VS. Atomos: The Missing Link?*  
 Petersen, E.S. Hjortekaersvej 99

Aish 1

**CCA-FM2  
 Dissipative Control Methods**

Chair: Sugimoto, K. Nora Inst. of Sci. &Tech.  
 Co-Chair: Song, Y. Brunel Univ.

10:00 CCA-927  
*Control of the Output Stochastic Distributions  
 via Lyapunov Function Analysis*  
 Wang, Hong UMIST  
 Zhang, Jianhua UMIST

10:20 CCA-932  
*Pole Shifting with Modal Dissipative Control*  
 Fujinaka, Toru Osaka Prefecture Univ.  
 Chen, Gan Osaka Prefecture Univ.  
 Shibata, Hiroshi Osaka Prefecture Univ.  
 Omatu, Sigeru Osaka Prefecture Univ.

10:40 CCA-938  
*Nonlinear Disturbance Attenuation Controller for  
 Turbo-Generators in Power Systems via Recursive Design*  
 Sun, Y. Z. Tsinghua Univ.  
 Cao, M. Tsinghua Univ.  
 Mei, S. W. Tsinghua Univ.  
 Shen, T. Sophia Univ.  
 Song, Y. H. Brunel Univ.

11:00 CCA-944  
*Modelling and Control of Magnetic Suspension Systems*  
 Yu, H. Univ. of Bradford  
 Yang, T. C. Sussex Univ.  
 Rigas, D. Univ. of Bradford  
 Jayawant, B. V. Sussex Univ.

11:20 CCA-950  
*Design and Analysis of Discrete-Time Q-Dissipative  
 Control Systems: Stability Margin Perspective*  
 Sugimoto, Kenji Nara Inst. of Sci. & Tech.  
 Satoh, Atsushi Nara Inst. of Sci. & Tech.

11:40 CCA-954  
*Stabilization of Time-Varying Pseudo-Hamiltonian Systems*  
 Cheng, Daizhan Chinese Academy of Sci.

Aish 2

**CCA-FM3  
 Modelling**

Chair: Chowdhury, F. N. Univ. of Louisiana  
 Co-Chair: Zhang, J. Univ. of Newcastle

10:00 CCA-960  
*A Discrete Microstructure Model based Modeling  
 and Control Method for Financial Markets*  
 Peng, H. Central South Univ.  
 Ozaki, T. Inst. of Statistical Mathematics  
 Haggan-Ozaki, V. Sophia Univ.

10:20	CCA-966			10:20	CCA-1016
<i>Improving Long Range Prediction for Nonlinear Process Modelling through Combining Multiple Neural Networks</i>				<i>Convex Optimization for Control Analysis – Application to the Steam Generator Water Level</i>	
Ahmad, Zainal	Univ. of Newcastle			Hbaïeb, Slim	Supélec
Zhang, Jie	Univ. of Newcastle			Font, Stéphane	Supélec
10:40	CCA-972			Bendotti, Pascale	Electricité De France
<i>Robust Estimation for an Uncertain Linear Model of an Activated Sludge Process</i>				Falinower, Clément-Marc	Electricité De France
Gómez-Quintero, Claudia-Sophya	LAAS-CNRS			11:40	CCA-1022
Queinnec, Isabelle	LAAS-CNRS			<i>How to Improve Control System Performance using FF Function Blocks</i>	
11:00	CCA-978			Chen, Jiming	Zhejiang Univ.
<i>A Case Study of Highway Traffic Flow Model – Model Validation and Simulation</i>				Wang, Zhi	Zhejiang Univ.
Yang, Jiann-Shiou	Univ. of Minnesota			Sun, YouXian	Zhejiang Univ.
11:20	CCA-984				Biosdale 2
<i>A Neural Network Approach for Freeway Traffic Flow Prediction</i>				<b>CCA-FM5</b>	
Messai, Nadhir	UTBM-SeT			<b>Controller Design II</b>	
Thomas, Philippe	UTBM-SeT			Chair: Atherton, D. P.	Univ. of Sussex
Lefebvre, Dimitri	GREAH - Univ. du Havre			Co-Chair:	
El Moudni, Abdellah	UTBM-SeT			10:00	CCA-1027
11:40	CCA-990			<i>An Efficient NeuroFuzzy Speed Controller for Large Industrial DC Motor Drives</i>	
<i>Obtaining Neural Networks based State Space Models using Time-Lagged Neurons</i>				Ismail, Abdulla	United Arab Emirates Univ.
Chowdhury, Fahmida N.	Univ. of Louisiana at Lafayette			Sharaf, A. M.	United Arab Emirates Univ.
Rao, Nageswara K.	Univ. of Louisiana at Lafayette			10:20	CCA-1032
Siddhanti, Venugopal	Univ. of Louisiana at Lafayette			<i>Fuzzy Control of a Neutralization Process</i>	
				Fuente, M. J.	Univ. of Valladolid
				Robles, C.	Univ. of Valladolid
				Casado, O.	Univ. of Valladolid
				Tadeo, F.	Univ. of Valladolid
	Biosdale 1			10:40	CCA-1038
<b>CCA-FM4</b>				<i>A Robust Adaptive Fuzzy Control Applied to Disturbed Uncertain MIMO Systems</i>	
<b>Process Control</b>				Essounbouli, N.	UFR Sci. Exactes et Naturales
Chair: Bosgra, O. K.	Delft Univ. of Tech.			Hamzaoui, A.	UFR Sci. Exactes et Naturales
Co-Chair: Duncan, S.	Univ. of Oxford			Benmahammed, K.	Univ. Ferhat Abbas Setif
10:00	CCA-992			Zaytoon, J.	UFR Sci. Exactes et Naturales
<i>Adaptive Predictive Expert (ADEX) Control: Application to Waste Water Treatment Plants</i>				11:00	CCA-1044
Riesco, J.	ADEX			<i>Analysis of Uncertain Transfer Functions in Factored Form</i>	
Calvo, J.	Alfatec			Tan, Nusret	Inonu Univ.
Martin-Sánchez, J. M.	ETSI de Minas			Atherton, Derek P.	Univ. of Sussex
10:20	CCA-998			11:20	CCA-1050
<i>Noise Suppression in Buffer-State Iterative Learning Control, Applied to a High Precision Wafer Stage</i>				<i>Design a Controller for a Steam Generator of a Power Plant using Robust Control and Genetic Algorithm</i>	
Dijkstra, B. G.	Delft Univ. of Tech.			Le Mauff, Frédéric	Supélec
Bosgra, O. H.	Delft Univ. of Tech.			Duc, Gilles	Supélec
10:40	CCA-1004			11:40	CCA-1056
<i>Control of Average Temperature in a Spray Deposition Process</i>				<i>Calibratable Model-Based Controllers</i>	
Pathirana, Pubudu	Univ. of Oxford			Christen, Urs	Ford Forschungszentrum Aachen
Duncan, Stephen	Univ. of Oxford				Carron 1
Jones, Paul	Univ. of Oxford			<b>CCA-FM6</b>	
11:00	CCA-1010			<b>Ship and Hovercraft Control</b>	
<i>Internal Interconnections in TMP Processes</i>				Chair: Ohtsuka, T.	Osaka Univ.
Rosenqvist, F.	Chalmers Univ. of Tech.			Co-Chair: Aranda, J.	UNED
Berg, D.	Chalmers Univ. of Tech.			10:00	CCA-1058
Karlström, A.	Chalmers Univ. of Tech.			<i>An Optimal Control of Marine Propulsion System Considering Ship Dynamics</i>	
Eriksson, K.	Chalmers Univ. of Tech.			Kashima, Tadashi	Kobe City College of Tech.
Breitholtz, C.	Chalmers Univ. of Tech.			Takata, Jun	Sumitomo Heavy Ind., Ltd.

10:20 CCA-1064  
*Marine Course-Changing Manoeuvre: A Comparative Study of Control Algorithms*  
 Velasco, Francisco J. Univ. de Cantabria  
 Rueda, Teresa M. Univ. de Cantabria  
 López, Eloy Univ. del Pais Vasco  
 Moyano, Emiliano Univ. de Cantabria

10:40 CCA-1070  
*Experimental and Robustness Analysis of a Multivariable Control for Vertical Dynamic of a High Speed Craft*  
 Aranda, J. U.N.E.D.  
 Revilla, J. U.N.E.D.  
 Diaz, J. M. U.N.E.D.  
 Ruipérez, P. U.N.E.D.

11:00 CCA-1076  
*Nonlinear Receding Horizon Control of an RC Hovercraft*  
 Seguchi, Hiroaki Osaka Univ.  
 Ohtsuka, Toshiyuki Osaka Univ.

11:20 CCA-1082  
*Experimenting a Fuzzy Controller on a Fast Ferry*  
 López, R. Univ. Complutense de Madrid  
 Santos, M. Univ. Complutense de Madrid  
 Polo, O. Univ. Complutense de Madrid  
 Esteban, S. Univ. Complutense de Madrid

11:40 CCA-1088  
*Nonlinear Moving Horizon State Estimation for a Hovercraft with Continuation/GMRES Method*  
 Soneda, Yusuke Osaka Univ.  
 Ohtsuka, Toshiyuki Osaka Univ.

**CCA-FM7  
 Stability and System Theory**

Chair: Veres, S. M. Univ. of Southampton  
 Co-Chair:

10:00 CCA-1094  
*A Nyquist Criterion for Time-Varying Periodic Systems, with Application to a Hydraulic Test Bench*  
 Pommier, Valérie ENSICA  
 Sabatier, Jocelyn Univ. Bordeaux  
 Garcia Iturricha, Aitor Univ. Bordeaux  
 Oustaloup, Alain Univ. Bordeaux

10:20 CCA-1100  
*A Generalized Circle Criterion and Its Fields of Application*  
 Schmitt-Braess, G. Univ. Erlangen-Nürnberg

10:40 CCA-1106  
*Analysis of Regions of Stability for Linear Systems with Saturating Inputs through an Anti-Windup Scheme*  
 Gomes da Silva, Jr., J. M. UFRGS  
 Tarbouriech, S. LAAS-CNRS  
 Reginatto, R. UFRGS

11:00 CCA-1112  
*Robust  $H_\infty$  Stabilization for Interval Plants*  
 Ji, Baowei Univ. of Florida  
 Latchman, Haniph A. Univ. of Florida  
 Crisalle, Oscar D. Univ. of Florida

11:20 CACS-297  
*An Information Theoretic Interpretation for  $H_\infty$  Entropy*  
 Zhang, Hui Zhejiang Univ.  
 Sun, Youxian Zhejiang Univ.

11:40 CCA-1118  
*Implementation of Polynomial Algebra via Spectra*  
 Zezula, P. Czech Tech. Univ. in Prague  
 Ježek, J. Czech Academy of Sci.  
 Šebek, M. Czech Tech. Univ. in Prague

Lomond

**CCA Plenary Lecture 4  
 13:00-14:00**

**Smart Control for Tomorrows Processes**

**Benson Roger**  
 ABB Automation (UK) Ltd

Chair: Keviczky, L. Hungarian Academy of Sci.  
 Co-Chair: TBD

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**CCA-FA1  
 Miscellaneous Applications**

Chair: Valasek, J. Texas A&M Univ.  
 Co-Chair: Wilkie, J. Univ. of Strathclyde

14:00 CCA-1120  
*Development of an Internet Home Control System*  
 Tan, K. K. Natl. Univ. of Singapore  
 Soh, C. Y. Natl. Univ. of Singapore  
 Wang, K. N. Natl. Univ. of Singapore

14:20 CCA-1126  
*Dynamics of Atomic Force Microscopes: Experiments and Simulations*  
 El Rifai, Osamah M. Massachusetts Inst. of Tech.  
 Youcef-Toumi, Kamal Massachusetts Inst. of Tech.

14:40 CCA-1132  
*Multi-Mode Piezoelectric Shunt Damping with a Highly Resonant Impedance*  
 Moheimani, S.O.R. Univ. of Newcastle  
 Behrens, S. Univ. of Newcastle

15:00 CCA-1138  
*Vision based Controller for Autonomous Aerial Refueling*  
 Kimmitt, Jennifer Texas A&M Univ.  
 Valasek, John Texas A&M Univ.  
 Junkins, John L. Texas A&M Univ.

15:20 CCA-1144  
*On Transient Behavior Analysis of Random Early Detection Gateway using a Control Theoretic Approach*  
 Kisimoto, Motohisa Osaka Univ.  
 Ohsaki, Hiroyuki Osaka Univ.  
 Murata, Masayuki Osaka Univ.

15:40 CCA-1147  
*Nonlinear Identification of Thermoacoustic Instabilities with Limit Cycles in a Rijke Tube*  
 Agostino, F. Politecnico di Milano  
 Baldini, G. CESI  
 Bittanti, S. Politecnico di Milano  
 De Marco, A. Politecnico di Milano  
 Poncia, G. United Tech. Research Center  
 Prandoni, W. CESI  
 Scarpellini, M. Politecnico di Milano

		Alsh 1			
<b>CCA-FA2</b>					
<b>Trajectory Planning and Manufacture</b>					
Chair: Sawada, Y.			Kyoto Inst. of Tech.		
Co-Chair: Morselli, R.		D.I.I. Univ. of Modena & Reggio Emilia			
14:00				CCA-1153	
<i>Deadlock-Free Scheduling Method using Petri Net Model Analysis and GA Search</i>					
Gang, Xu			Shanghai Jiaotong Univ.		
Wu, Zhiming			Shanghai Jiaotong Univ.		
14:20				CCA-1159	
<i>Robust Near Time-Optimal Trajectory Planning by Intermediate Targets Assignment</i>					
Turnau, Andrzej			St. Staszic Tech. Univ.		
Szymkat, Maciej			St. Staszic Tech. Univ.		
Korytowski, Adam			St. Staszic Tech. Univ.		
14:40				CCA-1165	
<i>Third Order Trajectory Generator Satisfying Velocity, Acceleration and Jerk Constraints</i>					
Zanasi, R.			Univ. of Modena & Reggio Emilia		
Morselli, R.			Univ. of Modena & Reggio Emilia		
15:00				CCA-1171	
<i>Collision Detection for a Flexible Cantilever-Beam Subject to Random Disturbance based on Innovation Process</i>					
Sawada, Yuichi			Kyoto Inst. of Tech.		
15:20				CCA-1177	
<i>Positioning Trajectory Generator with Nonlinear Constraints</i>					
Morselli, R.			Univ. of Modena & Reggio Emilia		
Zanasi, R.			Univ. of Modena & Reggio Emilia		
		Alsh 2			
<b>CCA-FA3</b>					
<b>Modelling and Simulation</b>					
Chair: Keviczky, L.			Hungarian Academy of Sci.		
Co-Chair: Rabbath, C. A.			McGill Univ.		
14:00				CCA-1183	
<i>Direct Control in Bond Graph by State Estimated Feedback for MIMO LTI Systems</i>					
Gilberto, González-A.			Univ. of Nuevo Leon		
Galindo, R.			Univ. of Nuevo Leon		
14:20				CCA-1189	
<i>Integration and Synchronization of Discrete Formalisms and Continuous Models in Modelica</i>					
Debarade, André			Univ. of Dortmund		
Pereira Remelhe, Manuel A.			Univ. of Dortmund		
Engell, Sebastian			Univ. of Dortmund		
14:40				CCA-1195	
<i>Energy based Model of a Common Rail Injector</i>					
Morselli, Riccardo			Univ. of Modena & Reggio Emilia		
Corti, Enrico			Univ. of Bologna		
Rizzoni, Giorgio			The Ohio State Univ.		
15:00				CCA-1201	
<i>Improved Distributed Simulations of Electric Systems via an Optimal Digital Control Technique</i>					
Lechevin, N.			Univ. of Quebec at Trois-Rivieres		
Rabbath, C. A.			Defence R&D Canada		
15:20				CCA-1207	
<i>UML-Based Modeling and Multi-Threaded Simulation for Hybrid Dynamic Systems</i>					
Lee, Jin-Shyan					Natl. Chiao-Tung Univ.
Hsu, Pau-Lo					Natl. Chiao-Tung Univ.
					Biosdale 1
<b>CCA-FA4</b>					
<b>Predictive Control II</b>					
Chair: Camacho, E. F.					Univ. of Sevilla
Co-Chair: Rodriguez, T. M.R.					Univ. de Cantabria
14:00				CCA-1213	
<i>A Generalized Predictive Control Benchmark Index for MIMO Systems</i>					
Uduehi, D.					Univ. of Strathclyde
Ordys, A.					Univ. of Strathclyde
Grimble, M. J.					Univ. of Strathclyde
14:20				CCA-1219	
<i>Application of a Predictive Sliding Mode Controller to a Heat Exchanger</i>					
de la Parte, Mercedes Pérez					Univ. de Sevilla
Camacho, Eduardo F.					Univ. de Sevilla
14:40				CCA-1225	
<i>Application of Predictive Control to a Toy Helicopter</i>					
Balderud, Jonas					Karlstad Univ.
Wilson, David I.					Karlstad Univ.
15:00				CCA-1230	
<i>Application of MPC with Multiple Objective for a Solar Refrigeration Plant</i>					
Zambrano, Darine					Univ. de Los Andes
Camacho, Eduardo F.					Univ. de Sevilla
15:20				CCA-1236	
<i>Robustification of GPC Controlled System by Convex Optimisation of the Youla Parameter</i>					
Rodriguez, Pedro					Supélec
Dumur, Didier					Supélec
15:40				CCA-1242	
<i>Comparison of Different Predictive Controllers with Multi-Objective Optimization. Application to an Olive Oil Mill</i>					
Núñez-Reyes, A.					Univ. de Sevilla
Scheffer-Dutra, C. B.					Univ. Federal de Santa Catarina
Bordons, C					Univ. de Sevilla
					Biosdale 2
<b>CCA-FA5</b>					
<b>Controller Design III</b>					
Chair: Barbot, J. P.					ENSEA
Co-Chair: Kamwa, I.					Hydro-Quebec/Laval Univ.
14:00				CCA-1248	
<i>Using Measures of Controllability and Observability for Input and Output Selection</i>					
Heniche, Annissa					Hydro-Québec
Kamwa, Innocent					Hydro-Québec
14:20				CCA-1252	
<i>Nonlinear Control of Power Factor Precompensators: An Experimental Study</i>					
Karagiannis, D.					Imperial College
Mendes, E.					SUPÉLEC
Ortega, R.					SUPÉLEC
Astolfi, A.					Imperial College

14:40 <i>Multi-Cell Chopper Direct Control Law Preserving Optimal Limit Cycles</i> Bethoux, Olivier Barbot, Jean-Pierre	CCA-1258  ECS ENSEA ECS ENSEA	15:40 <i>A Finite Time Observer for Flux Estimation in the Induction Machine</i> Floquet, Thierry Barbot, Jean-Pierre Perruquetti, Wilfrid	CCA-1303  UPRESA CNRS Equipe Commande des Systèmes UPRESA CNRS
15:00 <i>Evolutionary <math>\mu</math>-Synthesis for Systems with Parametric Uncertainties</i> Dlapa, Marek Prokop, Roman	CCA-1264  Tomas Bata Univ. Tomas Bata Univ.		Carron 2
15:20 <i>Robust Residual Generation for Dynamic Processes using De-Coupling Technique</i> Diversi, Roberto Simani, Silvio Soverini, Umberto	CCA-1270  Univ. of Bologna Univ. of Ferrara Univ. of Bologna		
15:40 <i>Application of Simple Self-Tuning Controllers in Decentralized Control</i> Chalupa, Petr Bobál, Vladimír Dostál, Petr	CCA-1276  Tomas Bata Univ. in Zlín Tomas Bata Univ. in Zlín Tomas Bata Univ. in Zlín		
Carron 1			
<b>CCA-FA6</b>			
<b>Systems Theory and Filtering</b>			
Chair: Kalata, P. Drexel Univ.		Univ. of Louisiana	
Co-Chair: Chowdhury, F. N.			
14:00 <i>Tracking of Maneuvering Target by using Switching Structure and Heavy-Tailed Distribution with Particle Filter Method</i> Ikoma, Norikazu Higuchi, Tomoyuki Maeda, Hiroshi	CCA-1282  Kyushu Inst. of Tech. The Inst. of Statistical Mathematics Kyushu Inst. of Tech.		
14:20 <i>Optimal Fusion Estimation Covariance of Multisensor Data Fusion on Tracking Problem</i> Jin, Xue-Bo Sun, You-Xian	CCA-1288  Zhejiang Univ. Zhejiang Univ.		
14:40 <i><math>H_{\infty}</math> Filtering in Linear Systems, A Variation of Parameters Approach</i> Rawicz, P. L. Kalata, P. R. Murphy, K. M.	CCA-1290  Drexel Univ. Drexel Univ. Drexel Univ.		
15:00 <i>Synthesis and Analysis of Fluorescence Decay Data using a Systems Theory Approach</i> Chowdhury, Fahmida N.	CCA-1296  Univ. of Louisiana at Lafayette		
15:20 <i>Robust Control for a Class of Uncertain Nonlinear Systems without Matching Conditions</i> Zhang, Xiaoyu Jin, Hongzhang Li, Guobin Ji, Ming	CCA-1298  Harbin Eng. Univ. Harbin Eng. Univ. Harbin Eng. Univ. Harbin Eng. Univ.		
		14:00 <i>Local Prediction of Chaotic Time Series based on Gaussian Processes</i> Lau, K. W. Wu, Q. H.	CCA-1309  The Univ. of Liverpool The Univ. of Liverpool
		14:20 <i>Output Stabilisation in Multiple Model Approach to Modelling</i> Chadli, Mohammed Maquin, Didier Ragot, José	CCA-1315  CNRS CNRS CNRS
		14:40 <i>Low Order Dynamic Robust Control for Linear SISO Systems</i> Galindo, R.	CCA-1321  Univ. of Nuevo Leon
		15:00 <i>Robust Stability of Multilinear Affine Polynomials</i> Tan, Nusret Atherton, Derek P.	CCA-1327  Inonu Univ. Univ. of Sussex
		15:20 <i>Stabilizing Control Design of Fully Linearizable Systems via Estimated States</i> Munaro, Celso José Filho, Moacir Rosado Borges, Raquel Machado Munareto, Saul da Silva da Costa, Wagner Teixeira	CCA-1333  Federal Univ. of Espirito Santo Federal Univ. of Espirito Santo Federal Univ. of Espirito Santo Federal Univ. of Espirito Santo Federal Univ. of Espirito Santo
		15:40 <i>Chatter Detection based on Adaptive Estimation of the Fourth Cumulant of the Modelling Error</i> Ladevèze, D. Charbonnaud, P. Rotella, F.	CCA-1339  Ecole Natl. d'Ingénieurs de Tarbes Ecole Natl. d'Ingénieurs de Tarbes Ecole Natl. d'Ingénieurs de Tarbes