The 2012 UKACC International Conference on Control  
(UKACC Control 2012)  
Cardiff, UK, 3-5 September 2012

PROGRAM AT A GLANCE

<table>
<thead>
<tr>
<th>Sunday 2 September 2012</th>
<th>14:00 - 20:00</th>
<th>Registration</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>18:00 - 20:00</td>
<td>Reception</td>
</tr>
<tr>
<td>Monday 3 September 2012</td>
<td>08:30 - 09:00</td>
<td>Registration</td>
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<td></td>
<td>09:00 - 09:10</td>
<td>Opening Remarks</td>
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<td>09:10 - 10:10</td>
<td>Plenary Speech I</td>
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<td>10:10 - 10:30</td>
<td>Break</td>
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<td>10:30 - 12:30</td>
<td>Parallel Paper Sessions 1</td>
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<td>12:30 - 14:00</td>
<td>Lunch</td>
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<td>14:00 - 15:40</td>
<td>Parallel Paper Sessions 2</td>
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<td>15:40 - 16:00</td>
<td>Break</td>
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<td>16:00 - 17:40</td>
<td>Parallel Paper Sessions 3</td>
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<td>18:30 - 20:30</td>
<td>Dinner</td>
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<tr>
<td>Tuesday 4 September 2012</td>
<td>08:30 - 09:00</td>
<td>Registration</td>
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<td>09:00 - 10:00</td>
<td>Plenary Speech II</td>
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<td>Parallel Paper Sessions 4</td>
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<td>16:00 - 17:40</td>
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<td>09:00 - 10:00</td>
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<td>10:30 - 12:30</td>
<td>Parallel Paper Sessions 7 (Industrial session and Mini-Symposia)</td>
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<td>16:00 - 17:40</td>
<td>Parallel Paper Sessions 9</td>
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<td>17:50 - 18:10</td>
<td>Closing Ceremony</td>
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Wednesday
5 September 2012
The 2012 UKACC International Conference on Control  
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Cardiff, UK, 3-5 September 2012

TECHNICAL PROGRAM

Monday, 3 September 2012

MonA0  9:10-10:10  Hall
Plenary Speech I:  Control for Performance Optimization  
Speaker: Sebastian Engell, Technische Universität Dortmund, Germany  
Chair: David Rees, University of Glamorgan

MonA1  10:30-12:30  Meeting Room 1

Competition and cooperation in control engineering (invited session)  
Chair: Wasif Naeem, Queens University Belfast  
Co-Chairs: Dajun Du, Queens University Belfast  
Kang Li, Queens University Belfast

➢ MonA1-1  10:30-10:50
Tensegrity-Based Formation Control of Unmanned Vehicles (125)  
Sookyen Lau  Queen's University Belfast  
Wasif Naeem  Queen's University Belfast

➢ MonA1-2  10:50-11:10
Xueqin Liu  Queen's University Belfast  
Kang Li  Queen's University Belfast  
Marion McAfee  Institute of Technology Sligo  
Jing Deng  Queen's University Belfast

➢ MonA1-3  11:10-11:30
A New Bandwidth Scheduling Method for Networked Learning Control (215)  
Lijun Xu  Queen's University Belfast  
Kang Li  Queen's University Belfast  
Minrui Fei  Shanghai University  
Dajun Du  Shanghai University
An Improved Conjugate Gradient Algorithm for Radial Basis Function (RBF) Networks Modelling (156)
Long Zhang
Kang Li
Wang Shujuan
Queen's University Belfast
Harbin Institute of Technology

Heuristically Optimized RBF Neural Model for the Control of Section Weights in Stretch Blow Moulding (158)
Jing Deng
Ziqi Yang
Kang Li
Gary Menary
Eileen Harkin-Jones
Queen's University Belfast

How to Reduce Congestion on TCP/AQM Networks with Simple Adaptive PID Controllers (78)
Teresa Alvarez
Anuar Salim
University of Valladolid

Nonlinear Control System Design I
Chair:    Roger Dixon, Loughborough University
Co-Chair:  Jie Zhang, Newcastle University

Robust Adaptive Actuator Failure Compensation Controller for Systems with Unknown Time-Varying State Delays (30)
Marzieh Kamali
Javad Askari
Farid Sheikholeslam
Ali Khaki Sedigh
Istah University of Technology
Istah University of Technology
Istah University of Technology
Khajeh Nasir Toosi University of Technology

Invariant Control of Non-Linear Elements in a Stacked High Redundancy Actuator (223)
Thomas Steffen
Loughborough University
Roger Dixon Loughborough University
Roger Goodall Loughborough University

MonA2-3 11:10-11:30
Control of Chaotic Systems with Uncertain Parameters And Stochastic Disturbance by LMPC (163)
Shuang Li University of Glamorgan
Guoping Liu University of Glamorgan

MonA2-4 11:30-11:50
Hybrid Geno-Fuzzy Controller For Seismic Vibration Control (255)
Monica Patrascu University Politehnica of Bucharest
Ioan Dumitrache Politehnica University of Bucharest

MonA2-5 11:50-12:10
Optimal Control Scheme for Nonlinear Systems with Saturating Actuator Using ε-Iterative Adaptive Dynamic Programming (15)
Xiaofeng Lin Guangxi University
Yuanjun Huang Guangxi University
Nuyun Cao Guangxi University
Yuzhang Lin Tsinghua University

MonA2-6 12:10-12:30
Active Control of Speed Fluctuations in Rotating Machines Using Feedback Linearization (224)
Mirjam Holm Clausthal University of Technology
Pablo Ballesteros Clausthal University of Technology
Stephan Beitler Clausthal University of Technology
Alex Tarasow Clausthal University of Technology
Christian Bohn Clausthal University of Technology

MonA3 10:30-12:30 Meeting Room 3
Design Methods of Control Systems I
Chair: Georgi Dimirovski, Dogus University
Co-Chair: Hidetoshi Oya, The University of Tokushima

MonA3-1 10:30-10:50
An Adaptive Sliding Mode Approach to Decentralized Control of Uncertain Systems (109)
Zheng Huang University of Hull
MonA3-2  10:50-11:10
A Novel Decoupling Control Method for Multivariable Systems with Disturbances (152)
Ruijuan Liu  Central South University
Guoping Liu  University of Glamorgan
Min Wu  Central South University

MonA3-3  11:10-11:30
Robust Decentralized Control Design Using Integral Sliding Mode Control (159)
Eshag Larbah  University of Hull
Ron J Patton  University of Hull

MonA3-4  11:30-11:50
Synthesis of Variable Gain Controllers Based on LQ Optimal Control for a Class of Uncertain Linear Systems (33)
Hidetoshi Oya  The University of Tokushima
Yuhei Uehara  The University of Tokushima

MonA3-5  11:50-12:10
Output Regulation for Switched Linear Systems with Different Coordinate Transformations (87)
Xiaoxiao Dong  Northeastern University
Xi Ming Sun  Dalian University of Technology
Jun Zhao  Northeastern University
Georgi Dimirovski  Dogus University

MonA3-6  12:10-12:30
Design of Switching Adaptive Laws for the State Tracking Problem (89)
Caiyun Wu  Northeastern University
Georgi Dimirovski  Dogus University
Jun Zhao  Northeastern University

MonA4  10:30-12:30  Meeting Room 4
Control Theory and Applications
Chair: Keith Godfrey, University of Warwick

MonA4-1  10:30-10:50
An Adaptive Observer-based Parameter Estimation Algorithm With Application to Road
Gradient and Vehicle's Mass Estimation (124)
Muhammad Mahyuddin University of Bristol
Jing Na ITER Organisation
Guido Herrmann University of Bristol
Xuemei Ren Beijing Institute of Technology
Phil Barber Jaguar and Land Rover Research

- MonA4-2 10:50-11:10
Experimental Study of a Capsubot for Two Dimensional Movements (274)
M. Nazmul Huda Staffordshire University
Hongnian Yu Staffordshire University
Michael Goodwin Staffordshire University

- MonA4-3 11:10-11:30
Wind Turbine Sensor Fault Tolerant Control via a Multiple-Model Approach (154)
Montadher Sami The University of Hull
Ron J Patton The University of Hull

- MonA4-4 11:30-11:50
Stability Control of a Railway Vehicle Using Absolute Stiffness and Inerters (160)
Alejandra Z. Matamoros-Sanchez Loughborough University
Roger M. Goodall Loughborough University
Argyrios Zolotas Loughborough University
Jason Zheng Jiang University of Cambridge
Malcolm C. Smith University of Cambridge

- MonA4-5 11:50-12:10
A Multiobjective Trajectory Optimisation Method for Planning Environmentally Efficient Trajectories (189)
Quintain McEnteggart Cranfield University
James Whidborne Cranfield University

MonB1 14:00-15:40 Meeting Room 1
Plantwide Control (invited session)
Chair: Yi Cao, Cranfield University
Co-Chair: Antonio C.B. Araujo, Federal University of Campina Grande

- MonB1-1 14:00-14:20
A Formulation for Globally Optimal Controlled Variable Selection (108)


Lingjian Ye
Zhejiang University

Yi Cao
Cranfield University

➢ MonB1-2 14:20-14:40
Branch and Bound Method for Globally Optimal Controlled Variable Selection (82)
Vinay Kariwala ABB Global Industries & Services Ltd
Lingjian Ye Zhejiang University
Yi Cao Cranfield University

➢ MonB1-3 14:40-15:00
Control Structure Selection for Optimal Operation of a Heat Exchanger Network (218)
Johannes Jäschke Norwegian University of Science and Technology
Sigurd Skogestad Norwegian University of Science and Technology

➢ MonB1-4 15:00-15:20
Plantwide Control of A Benchmark Bleach Plant (225)
Jie Zhang Newcastle University
Fernando Suárez Antelo Newcastle University

➢ MonB1-5 15:20-15:40
Eco-efficiency of Control Configurations Using Exergy (190)
Tajammal Munir The University of Auckland
Wei Yu The University of Auckland
Brent R. Young The University of Auckland

MonB2 14:00-15:40 Meeting Room 2
Nonlinear Control System Design II
Chair: Zhengdao Ding, University of Manchester
Co-Chair: Zahra Sangelaji, University of Greenwich

➢ MonB2-1 14:00-14:20
Low Eigenvalue Sensitivity Eigenstructure Assignment to Linear Parameter Varying Systems (177)
Fengming Shi University of Hull
Ron J. Patton University of Hull

➢ MonB2-2 14:20-14:40
Phase Modulation of Robust Variable Structure Control for Nonlinear Aircraft (110)
Yimeng Tang University of Hull
Ron Patton  
University of Hull

**MonB2-3**  
14:40-15:00  
Frequency-Domain Tuning of Fixed-Structure Control Systems (36)  
Pascal Gahinet  
MathWorks  
Pierre Apkarian  
ONERA/Universite Paul Sabatier

**MonB2-4**  
15:00-15:20  
Robust $H_\infty$ Control for a Class of Uncertain Nonlinear Switched Systems (44)  
Ben Niu  
Northeastern University  
Rui Wang  
Dalian University of Technology  
Georgi Dimirovski  
Dogus University  
Jun Zhao  
Northeastern University

**MonB2-5**  
15:20-15:40  
An Investigation on the Design and Performance Assessment of double-PID and LQR Controllers for the Inverted Pendulum (251)  
Wende Li  
Harbin Institute of Technology  
Kai Cheng  
Brunel University  
Hui Ding  
Harbin Institute of Technology

**MonB3**  
14:00-15:40  
Meeting Room 3  
Networked Control Systems and Applications I  
Chair: Wenshan Hu, Wuhan University  
Co-Chair: Burkhard Hensel, Dresden University of Technology

**MonB3-1**  
14:00-14:20  
An Adaptive PI Controller for Room Temperature Control with Level-Crossing Sampling (250)  
Burkhard Hensel  
Dresden University of Technology  
Volodymyr Vasyutynskyy  
Dresden University of Technology  
Joern Ploennigs  
Dresden University of Technology  
Klaus Kabitzsch  
Dresden University of Technology

**MonB3-2**  
14:20-14:40  
Fault Detection with MAC Delay Compensation in Wireless Sensor Actuator Networks (220)  
Xuewu Dai  
Southwest University  
Yang Yang  
Shanghai Institute of Microsystem and Information Technology  
Yu Zhang  
National Engineering Research Center for Broadband Networks and
Stability Analysis of Dynamic Quantized Feedback System With Packet Loss (54)
Mu Li Beijing Institute of Technology
Jian Sun Beijing Institute of Technology
Lihua Dou Beijing Institute of Technology

Design and Simulation of Fuzzy Controller Based (IPM) Converter Fed DC Motors (246)
Ahmed Abdallah BIT
Yuanqing Xia BIT
Bo Liu King Fahd University of Petroleum and Minerals

Design of Web-based Smart Home with 3D Virtual Reality Interface (280)
Wenshan Hu Wuhan University
Hong Zhou Wuhan University
Yiyan Lu Wuhan University
Chaoyang Lin Wuhan University
Xianfeng Chen Wuhan University
Zhen Chen Wuhan University

MonB4 14:00-15:40 Meeting Room 4
Control Theory
Chair: Keith Godfrey, University of Warwick

New Stability Criteria for Linear Systems with Time-Varying Interval Delay (39)
Jian Sun Beijing Institute of Technology
Jie Chen Beijing Institute of Technology
Guoping Liu University of Glamorgan

Stability of the Observer-Based Pole Placement for Discrete Time-Varying Non-Lexicographically-Fixed Systems (86)
Periodic Disturbance Rejection of a Class of Nonlinear System

Xiafei Tang  
Zhengtao Ding  

A Systematic Selection of An Alternative Parameterisation for Predictive Control

Bilal Khan  
John Anthony Rossiter  

Stability analysis and Control design of a Class of Event Based Control Systems

J. Jugo  
M. Eguiraun  

MonC1  16:00-17:40  Meeting Room 1
Batch Process Monitoring and Control (invited session)
Chair: Ognjen Marjanovic, University of Manchester  
Co-Chair: Hongwei Zhang, Sheffield Hallam University

Sensitivity of Optimal Operation of an Activated Sludge Process Model

Antonio Araujo  
Simone Gallani  
Michela Mulas  
Sigurd Skogestad  

Trajectory Tracking of Batch Product Quality Using Intermittent Measurements and Moving Window Estimation

Jian Wan  
Ognjen Marjanovic  
Barry Lennox  

Batch-to-batch Iterative Learning Control Using Linearised Models with Adaptive Model
Updating (199)
Jie Zhang  
Jega Jewaratnam  
J. Morris  
A. Hussain  

MonC1-4  
17:00-17:20  
An Investigation into Sub-Optimal Control on The Downstream Processing of A Large Scale Industrial Process (90)
Stephan Goldrick  
Barry Lennox  
Keith Smith  
David Lovett  
Gary Montague  

MonC1-5  
17:20-17:40  
Dean Butler  
Hongwei Zhang  

MonC2  16:00-17:40  Meeting Room 2
Unmanned Air Vehicles (invited session)  
Chair:  Wen-Hua Chen, Loughborough University  
Co-Chair:  Antonios Tsourdos, Cranfield University  

MonC2-1  
16:00-16:20  
Towards a Fully Autonomous Swarm of Unmanned Aerial Vehicles (203)
Jeremie Leonard  
Al Savvaris  
Antonios Tsourdos  

MonC2-2  
16:20-16:40  
Development of an Autopilot System for Rapid Prototyping of High Level Control Algorithms (133)
Matthew Coombes  
Owen McAree  
Wenhua Chen  
Peter Render
MonC2-3  16:40-17:00
Resource Allocation with Cooperative Path Planning for Multiple UAVs (228)
Hyo-Sang Shin  Cranfield University
Cedric Leboucher  Cranfield University
Antonios Tsourdos  Cranfield University

MonC2-4  17:00-17:20
Design and Control of Novel Tri-rotor UAV (57)
Mohamed Kara Mohamed  The University of Manchester
Alexander Lanzon  The University of Manchester

MonC2-5  17:00-17:20
Singular Perturbation Control of the Longitudinal Flight Dynamics of an UAV (171)
Sergio Esteban  University of Seville
Damian Rivas  University of Seville

MonC3  16:00-17:40  Meeting Room 3
Networked Control Systems and Applications II
Chair:  Jihong Wang, University of Warwick
Co-Chair:  Xiaoxuan Ma, Beijing University of Civil Engineering and Architecture

MonC3-1  16:00-16:20
Robust Stabilization of Networked Control Systems using the Markovian Jump System Approach (75)
Ashraf Khalil  University of Birmingham
Jihong Wang  University of Warwick

MonC3-2  16:20-16:40
Developments in Dependability Modeling of Networked Control Systems (195)
Manoj Kumar  Bhabha Atomic Research Centre
A. Verma  Stord/Haugesund university College
A. Srividya  Indian Institute of Technology Bombay
P.P. Marathe  Bhabha Atomic Research Centre

MonC3-3  16:40-17:00
A DNA Sequencing Based Approach to Fault Diagnosis in Automotive Electronic Networks (56)
R. Peter Jones  University of Warwick
Roozbeh Bonyadi  University of Warwick
MonC3-4  17:00-17:20
VSW-SOAP: A SOAP Message Transmission Mechanism Based On Variable Sliding Window (275)
Xiaoxuan Ma  Beijing University of Civil Engineering and Architecture
Zhixin Chen  Beijing University of Civil Engineering and Architecture

MonC3-5  17:20-17:40
Bézier Curve based Trajectory Planning for an Intelligent Wheelchair to Pass a Doorway (253)
Ling Chen  University of Essex
Sen Wang  University of Essex
Huosheng Hu  University of Essex
Klaus McDonald-Maier  University of Essex

MonC4  16:00-17:40  Meeting Room 4
Control Applications
Chair: Keith Godfrey, University of Warwick

MonC4-1  16:00-16:20
A decentralised control strategy for formation flight of unmanned aerial vehicles (116)
Aolei Yang  Queen's University Belfast
Wasif Naeem  Queen's University Belfast
George Irwin  Queen's University Belfast
Kang Li  Queen's University Belfast

MonC4-2  16:20-16:40
Experimental Verification of Constrained Iterative Learning Control Using Successive Projection (70)
Bing Chu  University of Southampton
Zhonglun Cai  University of Southampton
David Owens  University of Sheffield
Eric Rogers  University of Southampton
Chris Freeman  University of Southampton
Paul Lewin  University of Southampton
MonC4-3  16:40-17:00
Control Allocation for Fault Tolerant Control of a VTOL Octorotor  (139)
  Aryeh Marks  Cranfield University
  James Whidborne  Cranfield University
  Ikuo Yamamoto  University of Kitakyushu

MonC4-4  17:00-17:20
Attitude Control of VTOL-UAVs (205)
  Maryam Heidarian  PN Engineering College, NUST
  Attaullah Memon  PN Engineering College, NUST

MonC4-5  17:20-17:40
Experimental Validation of a Geometric Method for the Design of Stable and Broadband Vibration Controllers Using a Propeller Blade Test Rig (281)
  Ubaid Ubaid  University of Sheffield
  Steve Daley  University of Southampton
  Simon Pope  University of Sheffield
  Ilias Zazas  University of Southampton

MonP1  16:00-17:40  Entrance Hall
Poster Session 1
Chair:  Fan Zhang, University of Glamorgan
Co-Chair:  Kary Thanapalan, University of Glamorgan

MonP1-1
Research on Speed-Sensorless Induction Motor Control System Based on Amesim-Simulink Simulation (8)
  Xiaoyan Jia  Jilin University
  Xue Wang  Jilin University
  Xiaohua Xie  Jilin University
  Hong Chen  China First Automobile Works Group

MonP1-2
Adaptive Sliding Mode Control for Spacecraft Attitude Maneuvers with Reduced or Eliminated Reaching Phase (22)
  Binglong Cong  Beijing Institute of Technology
  Xiangdong Liu  Beijing Institute of Technology
  Zhen Chen  Beijing Institute of Technology
MonP1-3
Non-fragile Observer Design for Nonlinear Switched Time Delay Systems Using Delta Operator (27)
Ronghao Wang PLA University of Science and Technology
Jianchun Xing PLA University of Science and Technology
Ping Wang PLA University of Science and Technology
Qiliang Yang PLA University of Science and Technology

MonP1-4
Mean-Square Exponential Stabilization of Packet-Based Networked Systems with Time-Varying Transmission Delays, Packet Losses and Input Missing (53)
Bin Tang Guangdong University of Technology
Defeng He Guangdong University of Technology
Yun Zhang Guangdong University of Technology

MonP1-5
Overview on Computer Forensics Tools (103)
Raza Hasan Sir Syed University of Engineering & Technology
Salman Mahmood Sir Syed University of Engineering & Technology
Akshyadeep Raghav Staffordshire University

MonP1-6
Adaptive Mutation Based Particle Swarm Optimization Algorithm (120)
Jiyang Dai Nanchang Hangkong University
Jin Ying Nanchang Hangkong University

MonP1-7
Control for High Heat Chips’ Cooling Based on Power Consumption and Temperature Signals (135)
Jian Wang USTS
Chuan-yang Liu USTS

MonP1-8
Command Switching Strategy Based Safety Protection Control for Aeroengines (136)
Chao Chen Northeastern University
Xi Ming Sun Dalian University of Technology

MonP1-9
Inverse Optimal Robust Control of Singularly Impulsive Dynamical Systems (121)
Natasa Kablar Lola Institute
Survey on Impact of QMS ISO 9001:2000 in an Organization, Increases the Effectiveness of its Operations (278)

Salman Mahmood Sir Syed University of Engineering & Technology
Raza Hasan Sir Syed University of Engineering & Technology

Fault Detection and Isolation for Engine under Closed-Loop Control (55)

Adnan Hamad Liverpool John Moores University
Dingli Yu Liverpool John Moores University
J B Gomm Liverpool John Moores University
Mahavir S Sangha Test Technology & Emissions, Cummins Inc

Tuesday, 4 September 2012

TueA0 9:00-10:00 Hall
Plenary Speech II: Control Systems Engineering: a Business-Driven Approach
Speaker: Peter Fleming, University of Sheffield, UK
Stephen Hill, Rolls Royce, UK
Chair: Sarah Spurgeon, University of Kent, UK

TueA1 10:30-12:30 Meeting Room 1
Fault Detection and Condition Monitoring I
Chair: Mahmud Ahmed, Huddersfield University
Co-Chair: Roger Dixon, Loughborough University

 TueA1-1 10:30-10:50
A Parameter-free Method for Sensor Fault Detection and Isolation in Bilinear Systems (29)

Assia Hakem LAGIS laboratory
Komi Midzodzi pekpe LAGIS laboratory
vincent Cocquempot LAGIS laboratory

 TueA1-2 10:50-11:10
A New Reconfigurable Fault Tolerant Control Design Based on Laguerre Series (45)

Rahmatollah Heidari Isfahan University of Technology
Marzieh Kamali Isfahan University of Technology
Javad Askari Isfahan University of Technology
TueA1-3  11:10-11:30
Model of a Fusion Cryopumping System for Condition Monitoring (191)
Nick Wright  Loughborough University
Roger Dixon  Loughborough University
Roel Verhoeven  Culham Centre for Fusion Energy

TueA1-4  11:30-11:50
Thermal Modelling of an Alternator for Use in a Prediction System (196)
James Graham  Loughborough University
Roger Dixon  Loughborough University
Keith Gregory  Loughborough University
John Pearson  Loughborough University

TueA1-5  11:50-12:10
Fault Detection and Diagnosis using Principal Component Analysis of Vibration Data from a Reciprocating Compressor (277)
Mahmud Ahmed  Huddersfield University
M Baqqar  Huddersfield University
F Gu  Huddersfield University
A D Ball  Huddersfield University

TueA1-6  12:10-12:30
A Robust LPV Fault Detection Approach Using Parametric Eigenstructure Assignment (252)
Fengming Shi  University of Hull
Ron Patton  University of Hull

TueA2  10:30-12:30  Meeting Room 2
Nonlinear Control System Design III
Chair: Keith Burnham, Coventry University
Co-Chair: Hamerlain Faiza, CDTA

TueA2-1  10:30-10:50
Bilinear Approach Employed For Modelling of Continuous Stirred Tank Reactor Processes (202)
Tomasz Larkowski  Coventry University
Keith Burnham  Coventry University
Leszek Koszalka  Wroclaw University of Technology
TueA2-2  10:50-11:10
The Benefits of Nonlinear Cubic Viscous Damping on The Force Transmissibility of A Duffing-Type Vibration Isolator (73)
  Carmen Ho  University of Sheffield
  Zi-Qiang Lang  University of Sheffield
  Stephen Billings  University of Sheffield

TueA2-3  11:10-11:30
Stabilisation of Multi-Input Nonlinear Systems Using Associated Angular Approach (265)
  Zahra Sangelaji  University of Greenwich

TueA2-4  11:30-11:50
Optimal Output Regulation of Minimum Phase Nonlinear Systems (221)
  Attaullah Memon  NUST Pakistan

TueA2-5  11:50-12:10
Research on a Novel PID Based Controller for Non-Magnetic Hydraulic Navigation Simulator with Amesim Simulation (181)
  Kaibo Zhou  Shanghai Jiaotong University
  Xuyong Wang  Shanghai Jiaotong University
  Jianfeng Tao  Shanghai Jiaotong University
  Xiaofeng Guo  Shanghai Jiaotong University
  Chuanhui Xu  Shanghai Jiaotong University

TueA2-6  12:10-12:30
Trajectory Tracking Control of A Car-Like Mobile Robot in Presence of Sliding (99)
  Hamerlain Faiza  CDTA

TueA3  10:30-12:30  Meeting Room 3
Robotics and Automation I
Chair: Rubens Afonso, ITA
Co-Chair: Sam Wane, Staffordshire University

TueA3-1  10:30-10:50
Predictive Control with Trajectory Planning in the Presence of Obstacles (60)
  Rubens Afonso  ITA
  Roberto Galvao  ITA
  Karl Kienitz  ITA
TueA3-2  10:50-11:10  Multitask Trajectory Planning Based on Predictive Control (61)
Rubens Afonso  ITA
Roberto Galvao  ITA
Karl Kienitz  ITA

TueA3-3  11:10-11:30  Connected Navigation of Non-Communicating Mobile Agents (96)
Feza Kerestecioglu  Kadir Has University
Ahmet Cezayirli  Forevo Digital Design Ltd.

TueA3-4  11:30-11:50  Low Cost Obstacle Detection System for Wheeled Mobile Robot (18)
Ibrahim Nasir  Sebha University, Libya

TueA3-5  11:50-12:10  Fuzzy Expert Rule-Based Airborne Monitoring of Ground Vehicle Behaviour (170)
Hyondong Oh  Cranfield University
Seungkeun Kim  Chungnam National University
Hyo-Sang Shin  Cranfield University
Antonios Tsourdos  Cranfield University
Brian White  Cranfield University

TueA3-6  12:10-12:30  Processing of Bars-Converging Joint and Engineering Application (279)
Wanjing Luo  Tianjin University
Jiangping Mei  Tianjin University

TueA4  10:30-12:30  Meeting Room 4
Modelling and Simulation Tools for Control
Chair: Samuel Sharp, Chess Dynamics Ltd.
Co-Chair: Tarik Saneecharaun, IMI Norgren Co. Ltd.

TueA4-1  10:30-10:50  Modelling of a Pan and Tilt Servo System (198)
Samuel Sharp  Chess Dynamics Ltd.
Adam Wicks  Chess Dynamics Ltd.
Gordana Collier  Kingston University
Andrej Ordys

TueA4-2 10:50-11:10
Deployment of Full Vehicle Simulator for Electrical Control System Validation (208)
Georgios Tsampardoukas
Alexandros Mouzakitis
Jaguar Land Rover

TueA4-3 11:10-11:30
Modelling of Hybrid Plus Retrofit Hybrid System (276)
Xiao Guo
Jonathon Williams
Guoping Liu
University of Glamorgan
University of Glamorgan
University of Glamorgan

TueA4-4 11:30-11:50
Model-base Predictive Control for Vibration Suppression of a Flexible Manipulator (241)
Mehdi Abdolvand
Mohamad Hosain Fatehi
Islamic Azad University
Islamic Azad University

TueA4-5 11:50-12:10
Real time Virtual Simulation of Underactuated Pendulum-Driven Capsule System (259)
Keattikorn Samarnggoon
Hongnian Yu
Staffordshire University
Staffordshire University

TueA4-6 12:10-12:30
Modelling and Experimental Investigation of a Current to Pressure Converter (118)
Tarik Saneecharaun
Dave Thompson
Marc Robertson
Pete Olley
Andrew Day
IMI Norgren Co. Ltd
IMI Norgren Co. Ltd
IMI Norgren Co. Ltd
University of Bradford
University of Bradford

TueB1 14:00-15:40 Meeting Room 1
Fault Detection and Condition Monitoring II
Chair: Sarah Spurgeon, University of Kent
Co-Chair: Mabrouka Baqqar, The University of Huddersfield

TueB1-1 14:00-14:20
Research on Fault Diagnosis of TBM Main Bearing Based on Improved BP Neural Network (67)
Tianrui Zhang
Lei Geng
Xueting Fei
Tianbiao Yu
Wanshan Wang
Xianlei Chen
Northeastern University
Northeastern University
Northern Heavy Industries Group Co., Ltd
Northeastern University
Northeastern University
Northeastern University

➤ TueB1-2
14:20-14:40
A General Regression Neural Network Model for Gearbox Fault Detection using Motor Operating Parameters (248)
Mabrouka Baqqar
Tie Wang
Mahmud Ahmed
Fengshou Gu
Joan Lu
Andrew Ball
The University of Huddersfield
Taiyuan University of Technology
The University of Huddersfield
The University of Huddersfield
The University of Huddersfield
The University of Huddersfield

➤ TueB1-3
14:40-15:00
Data-Driven Fault Detection of Vertical Rail Vehicle Suspension Systems (74)
Xiukun Wei
Limin Jia
Hai Liu
Beijing Jiaotong University
Beijing Jiaotong University
Beijing Jiaotong University

➤ TueB1-4
15:00-15:20
Robust Adaptive Fault Estimation for a Commercial Aircraft Oscillatory Fault Scenario (111)
Xiaoyu Sun
Ron Patton
Philippe Goupil
University of Hull
University of Hull
Airbus Toulouse

➤ TueB1-5
15:20-15:40
A Variable Structure Observer for Unknown Input Estimation in Sampled Systems (7)
Luis Orihuela
Sarah Spurgeon
Xinggang Yan
Francisco Rubio
University of Seville
University of Kent
University of Kent
University of Seville

TueB2  14:00-15:40  Meeting Room 2
Control Applications in Transportation Systems I

22
Chair: James Whidborne, Cranfield University  
Co-Chair: Anthony Rossiter, University of Sheffield

- **TueB2-1** 14:00-14:20  
  Free Flight Concept Formulation Exploiting Neighbouring Optimal Control Concepts *(148)*  
  Saam Hasan  
  John Anthony Rossiter  
  University of Sheffield  
  University of Sheffield

- **TueB2-2** 14:20-14:40  
  Path Following for Small UAVs in The Presence of Wind Disturbance *(59)*  
  Cunjia Liu  
  Owen McAree  
  Wenhua Chen  
  Loughborough University  
  Loughborough University  
  Loughborough University

- **TueB2-3** 14:40-15:00  
  Design of an Optimized Charge-Blended Energy Management Strategy for a Plugin Hybrid Vehicle *(178)*  
  Ravi Shankar  
  James Marco  
  Francis Assadian  
  Cranfield University  
  Cranfield University  
  Cranfield University

- **TueB2-4** 15:00-15:20  
  Modelling Channel Flow over Riblets: Calculating the Energy Amplification *(106)*  
  Aditya Kasliwal  
  Stephen Duncan  
  Antonis Papachristodoulou  
  University of Oxford  
  University of Oxford  
  University of Oxford

- **TueB2-5** 15:20-15:40  
  Assessment of Fault Tolerance for Actively Controlled Railway Wheelset *(100)*  
  Mohammad Mirzapour  
  T X Mei  
  Imtiazz Hussain  
  University of Salford  
  University of Salford  
  Mehran University

**TueB3** 14:00-15:40  
**Meeting Room 3**

**Robotics and Automation II**

Chair: Graham Machin, NPL  
Co-Chair: Chenguang Yang, Plymouth University

- **TueB3-1** 14:00-14:20  
  Step Change Improvements in High-Temperature Thermocouple Thermometry *(41)*
An Integrated Backstepping and Sliding Mode Tracking Control Algorithm for Unmanned Underwater Vehicles (47)

Bing Sun  
Daqi Zhu  
Weichong Li  

Modelling of The Pendulum-Driven Cart System with Friction (266)

Wenjuan Ren  
Hongnian Yu  
Sam Wane  

A Theoretical Approach to The Passive Control of Spiral Vortex Breakdown (123)

Ubaid Qadri  
Matthew Juniper  

Stochastic Neural Network Control of Rigid Robot Manipulator with Passive Last Joint (174)

Jing Li  
Chenguang Yang  
Phil Culverhouse  
Hongbin Ma  

Wireless Event-driven Networked Predictive Control Over Internet (43)

Wenshan Hu  
Hong Zhou  
Qijun Deng
Bio-inspired Rate Control Scheme for IEEE 802.11e WLANs (231)

Xin-Wei Yao
Wanliang Wang
Shuang-Hua Yang
Jian-Wei Zheng
Yue-Feng Cen
Yanwei Zhao
Zhejiang University of Technology
Zhejiang University of Technology
Loughbough University
Zhejiang University of Technology
Zhejiang University of Technology

Global Controlled Consensus of Multi-Agent Systems with Different Agent Dynamics and Time-Varying Communication Delay (93)

Wei-Song Zhong
Guoping Liu
University of Glamorgan
University of Glamorgan

Global Bounded Controlled Consensus of Multi-Agents Systems with Non-Identical Nodes and Communication Time-Delay Topology (94)

Wei-Song Zhong
Guoping Liu
University of Glamorgan
University of Glamorgan

TueC1 16:00-17:40 Meeting Room 1

Fault Detection and Condition Monitoring III

Chair: T X Mei, University of Salford
Co-Chair: Cunjia Liu, Loughborough University

Real Time Estimation of the Wheel-Rail Contact Conditions using Multi-Kalman Filtering and Fuzzy Logic (68)

I Hussain
T X Mei
Mohammad Mirzapour
Mehran University
University of Salford
University of Salford

Fault Diagnosis of Diesel Engine Based on Energy Spectrum Analysis (65)

Hongxia Pan
Jifang Men
North University of China
North University of China
TueC1-3 16:40-17:00
Fault Diagnosis using Magnetic Image of PCB (92)
Zhuting Yao North University of China
Hongxia Pan North University of China

TueC1-4 17:00-17:20
Use of Confidence Limits in the Setting of On-Board Diagnostic Thresholds (214)
Paul King Jaguar Land Rover
Keith Burnham Coventry University

TueC2 16:00-17:40 Meeting Room 2
Control Applications in Transportation Systems II
Chair: Christopher Ward, Loughborough University
Co-Chair: Ahmed Mekki, LAGIS-Ecole Centrale de Lille

TueC2-1 16:00-16:20
Discrete Flight Path Angle Tracking Control of Hypersonic Flight Vehicles Via Multi-rate Sampling (128)
Bin Xu Northwestern Polytechnical University
Danwei Wang Nanyang Technological University
Chenguang Yang Plymouth University
Jing Li Xidian University
Shixing Wang Tsinghua University

TueC2-2 16:20-16:40
Graph Theory : Application to System Recovery (184)
Ahmed Mekki LAGIS-Ecole Centrale de Lille
Simon Collart Dutilleul LAGIS-Ecole Centrale de Lille

TueC2-3 16:40-17:00
Detection of Low Adhesion in the Railway Vehicle Wheel/Rail Interface: Assessment of Multi-Bodied Simulation Data (186)
Christopher Ward Loughborough University
Roger Goodall Loughborough University
Roger Dixon Loughborough University
Guy Charles University of Nottingham

TueC2-4 17:00-17:20
A Novel Collaboration Compensation Strategy of Railway Power Conditioner for a High-Speed Railway Traction Power Supply System (256)

Jiaxin Yuan
Chenmeng Zhang
Baichao Chen
chao Cai
Mengkui Yue
Cuihua Tian
Bo Chen
Jiabin Jia

Wuhan University
Wuhan University
Wuhan University
Wuhan University
Wuhan University
Wuhan University
Wuhan University
University of Leeds

➢ TueC2-5  17:20-17:40

Isochronal Synchronization in Complex Networks - The Lyapunov-Krasovskii Theorem and Stability in The Network Parameter Space (210)

Jose Mario Grzybowski
Elbert Macau
Takashi Yoneyama

ITA
INPE
ITA

TueC3  16:00-17:40  Meeting Room 3

Robotics and Automation III

Chair:  C. James Taylor, Lancaster University
Co-Chair:  Zijiang Yang, Ibaraki University

➢ TueC3-1  16:00-16:20

Synchronized Tracking Control of Multiple Euler-Lagrange Systems (14)

Zi-Jiang Yang
Pan Qin
Yoshiyuki Shibuya

Ibaraki University
Kyushu University
Ibaraki University

➢ TueC3-2  16:20-16:40

Robust hybrid fuzzy logic control of a novel twowheeled robotic vehicle with a movable payload under various operating conditions (235)

Abdullah Almeshal
Mohammad Tokhi
Khaled Goher

University of Sheffield
University of Sheffield
Sultan Qaboos University, Oman

➢ TueC3-3  16:40-17:00

A Novel Hybrid Spiral Dynamics Bacterial Chemotaxis Algorithm for Global Optimization with Application to Controller Design (175)
Nasir Ahmad Nor Kasruddin  
Mohammad Tokhi  
Nor Maniha Abd Ghani  
Mohd Ashraf Ahmad  
University of Sheffield  
University of Sheffield  
University of Sheffield  
Universiti Malaysia Pahang

➢ TueC3-4  
17:00-17:20
State-dependent control of a hydraulically-actuated nuclear decommissioning robot (48)  
David Robertson  
C. James Taylor  
Lancaster University  
Lancaster University

➢ TueC3-5  
17:20-17:40
Design and Control of Material Transport System for Automated Guided Vehicle (271)  
Xing Wu  
Peihuang Lou  
Cai Qixiang  
Chidong Zhou  
Ke Shen  
Chen Jin  
Nanjing University of Aeronautics and Astronautics  
Nanjing University of Aeronautics and Astronautics  
Nanjing University of Aeronautics and Astronautics  
Nanjing University of Aeronautics and Astronautics  
Nanjing University of Aeronautics and Astronautics  
Nanjing University of Aeronautics and Astronautics

TueC4  16:00-17:40  Meeting Room 4
Artificial Intelligence in Control
Chair: Martin Brown, University of Manchester  
Co-Chair: Pooneh Bagheri Zadeh, Staffordshire University

➢ TueC4-1  
16:00-16:20
A Novel Adaptive Approach for Home Care Ambient Intelligent Environments with an Emotion-Aware System (141)  
Sherief Mowafey  
Steve Gardner  
University of Glamorgan  
University of Glamorgan

➢ TueC4-2  
16:20-16:40
A Convergence Analysis of D-ILC Algorithm (261)  
Inam Ul Hasan Shaikh  
Martin Brown  
The University of Manchester  
The University of Manchester

➢ TueC4-3  
16:40-17:00
Stability Analysis and Control of Linear Periodic Time-Delay Systems with State-Space Models Based on Semi-Discretization (166)  
Chenhui Shao  
University of Michigan
Jie Sheng  USTC

TueC4-4  17:00-17:20
Image resolution Enhancement Using Multi-Wavelet and Cycle-Spinning (117)
Pooneh Bagheri Zadeh  Staffordshire University
Akbar Sheikh Akbari  Staffordshire University

TueC4-5  17:20-17:40
Configurations of Binary Distillation column for Optimal Control (155)
Abdelmadjid Khelassi  University M’Hamed Bougara of Boumerdes
Riad Bendib  University M’Hamed Bougara of Boumerdes
Abdelhai Benhalla  University M’Hamed Bougara of Boumerdes

TueP1  16:00-17:40  Entrance Hall
Poster Session 2
Chair: Jian Sun, Beijing Institute of Technology
Co-Chair: Cunjia Liu, Loughborough University

TueP1-1
Finding Risk Dominance Strategy in Imperfect Game, A Theory Perspective (219)
Seyyed Mohamamd Reza Farshchi  Department of Data Mining Advanced Research Center
Irene Kehvazadeh  Department of Data Mining Advanced Research Center

TueP1-2
Robust $H_{\infty}$ Control of Singular Systems over Networks with Data Packet Dropouts (21)
Yongbo Lai  JSIT
Guoping Lu  JSIT

TueP1-3
dSpace Based Direct-driven Permanent Magnet Synchronous Wind Power System Modeling and Simulation (232)
Yanxia Shen  Jiangnan University
Fan Li  Jiangnan University
Dinghui Wu  Jiangnan University
Tinglong Pan  Jiangnan University
Xiangxia Liu  Jiangnan University
TueP1-4
Study of MA protection based on Homomorphic Encryption and Composite Function Technology (234)
Jiehong Wu
Yin Hang
Zhang Po
Shi Xiangbin
Shenyang Aerospace University
Shenyang Aerospace University
Shenyang Aerospace University
Shenyang Aerospace University

TueP1-5
Adaptive Control Design of Uncertain Piecewise-Linear Systems (238)
Nanzhu Lin
Xin Wang
Yanan Zhang
Chunze Wang
Shu Diao
Jilin University
Changchun University of Technology
Changchun University of Technology
Jilin University
Jilin University

TueP1-6
Polynomial Accelerated Algorithm Base on Minimizing TV for Computerized Tomographic Image Reconstruction (240)
Kang Hui
Gao Hongxia
Hu Yueming
South China University of Technology
South China University of Technology
South China University of Technology

TueP1-7
CAN Based Unified Customizable Diagnostic Measure Research And Realization (244)
Yan Song
Tianran Wang
Aidong Xu
Kai Wang
Zhijia Yang
SIA
SIA
SIA
SIA
SIA

TueP1-8
Implementation of Network Control Systems for Improvement of Traditional Dyeing Processes (113)
Jidai Wang
Ai Qin Sun
Dong Yue Zhang
Yali Xue
SDUST
SDUST
SDUST
Tsinghua University
➢TueP1-9
Design and Implementation of Real-Time Control System Using RTAI and Matlab/RTW (13)
Baoran An
Harbin Institute of Technology
Guoping Liu
University of Glamorgan
Senchun Chai
Beijing Institute of Technology

➢TueP1-10
Video Transmission on JXTA (183)
Zhanyu Wang
Harbin Institute of Technology
Guoping Liu
Harbin Institute of Technology
Zhenfu Cui
Beijing Institute of Technology

➢TueP1-11
A Real-Time Optimization Control Strategy for Power Management in Fuel Cell/Battery Hybrid Power Sources (107)
Chunyan Li
Institute of Automation
Guoping Liu
University of Glamorgan
Geng Zheng
Institute of Automation

Wednesday, 5 September 2012

WedA0  9:00-10:00  Hall
Plenary Speech II:  Aircraft Tonal Active Noise Control Techniques and Their Re-use
Speaker:  Ian Stothers, Ultra Electronics Controls, UK
Chair:  Duc Pham, University of Birmingham, UK

WedA1  10:30-12:30  Meeting Room 1
Organiser:  The Institution of Mechanical Engineers (IMechE)
Chair:  Robert Sutton, Plymouth University
Co-Chair:  Sanjay Sharma, Plymouth University

➢ WedA1-1  10:30-10:50
MPC for AUVs: Modelling, Algorithm Design and Experimental Results
L V Steenson
University of Southampton
A B Phillips
University of Southampton
M E Furlong  National Oceanographic Centre  
S R Turnock  University of Southampton  
E Rogers  University of Southampton  

➢ WedA1-2  10:50-11:10
An Automatic COLREGs-compliant Obstacle Detection and Avoidance System for Unmanned Surface Vehicles
  S Campbell  Queen’s University Belfast  
  M Abu-Tair  Queen’s University Belfast  
  W Naeem  Queen’s University Belfast  

➢ WedA1-3  11:10-11:30
Control Algorithms for an Uninhabited Surface Vehicle
  Robert Sutton  Plymouth University  
  Sanjay K Sharma  Plymouth University  

➢ WedA1-4  11:30-11:50
ROV LATIS: Next Generation Smart Underwater Vehicle
  Edin Omerdic  University of Limerick  
  Daniel Toal  University of Limerick  
  Sean Nolan  University of Limerick  
  Hammad Ahmad  University of Limerick  

➢ WedA1-5  11:50-12:10
Development of an Autonomous Surface Vessel
  CheeKuang Tam  University College London  
  Richard Bucknall  University College London  

➢ WedA1-6  12:10-12:30
The Influence of Unmanned Surface Vehicle Application on Control Functionality
  Richard Daltry  Autonomous Surface Vehicles (ASV) Ltd.  

WedA2  10:30-12:30  Meeting Room 2
IET Mini-Symposium: Control Challenges/Success Stories in Practical Systems  
Organiser: The Institution of Engineering and Technology (IET)  
Chairs:  Dean X Hill, Abbott Diabetes Care  
  Steve Daley, University of Southampton  
Co-Chair: Paul McKenna, Glasgow Caledonian University
WedA2-1  10:30-10:50
Why Software Safety is an Essential Consideration in Medical Control Projects - Risk Management in IEC 62304
Nicola Lerigo-Smith  Frazer-Nash Consultancy Ltd
Alexandra Knight  Frazer-Nash Consultancy Ltd
David H Smith  Frazer-Nash Consultancy Ltd

WedA2-2  10:50-11:10
Artificial Pancreas Emerging Treatment Modality for Type 1 Diabetes
Roman Hovorka  University of Cambridge

WedA2-3  11:10-11:30
Non Linear Fuzzy Control Applied to a Realistic Missile
Iain Cade  MBDA (UK)

WedA2-4  11:30-11:50
From Theory to Practice: Graphical System Design with LabVIEW
Tammy Seward  National Instruments UK & Ireland

WedA3  10:30-12:30  Meeting Room 3
InstMC Mini-Symposium: Advances in Automotive Control
Organiser: The Institute of Measurement and Control (InstMC)
Chair: Keith Burnham, Coventry University

WedA3-1  10:30-11:00
Active Versus Passive Control: from Thought Experiment to Formula One Racing
Malcolm Smith  University of Cambridge

WedA3-2  11:00-11:18
Developments in Traffic and Vehicle Control Systems
Pawel Jaworski  MIRA Ltd
Tim Edwards  MIRA Ltd
Keith Burnham  Coventry University
Olivier Haas  Coventry University

WedA3-3  11:18-11:36
Concept to Real Time System's Simulation Using Physical Models
Will Suart  Jaguar Land Rover
WedA3-4  11:36-11:54
Applying the F-transform to Electric Vehicle Range Prediction
Iain Cunningham  Liberty Cars

WedA3-5  11:54-12:12
Synchronosity of Automotive Network Control Systems
Phil Barber  Jaguar Land Rover

WedA3-6  12:12-12:30
Legal, Safety and Practical Regenerative Braking Control Challenges
Selim Oleksowicz  Coventry University
Mariusz Ruta  Coventry University
Keith Burnham  Coventry University
Eddie Curry  MIRA Ltd
Hector Garces  MIRA Ltd

WedA4  10:30-12:30  Meeting Room 4
System Identification I
Chair:  Kiyoshi Wada, Kyusyu University
Co-Chair:  Pierre-Daniel Jameson, Cranfield University

WedA4-1  10:30-10:50
Experimental Verification of Best Linear Approximation of a Wiener System for Binary Excitations (97)
Hin Kwan Wong  University of Warwick
Johan Schoukens  Vrije Universiteit Brussel
Keith Godfrey  University of Warwick

WedA4-2  10:50-11:10
An Algorithm for Generating Real Describing Functions (147)
George Page  LJMU
Barry Gomm  LJMU
Steve Douglas  LJMU

WedA4-3  11:10-11:30
Estimation of Pulmonary Elastance Fuzzy Model By Data Combination of Two Respiration Phases (129)
Masanori Nakamichi  Fukui University of Technology
Shunshoku Kanae  Fukui University of Technology
Zi-Jiang Yang Ibaraki University
Kiyoshi Wada Kyusyu University

WedA4-4  11:30-11:50
Developing Real-Time System Identification for UAVs (143)
Pierre-Daniel Jameson Cranfield University
Alastair Cooke Cranfield University

WedA4-5  11:50-12:10
Determination of Dynamic Flexure Model Parameters for Ship Angular Deformation Measurement (167)
Wei Wu University of Southampton
Sheng Chen University of Southampton
Shiqiao Qin National University of Defense Technology

WedA4-6  12:10-12:30
Dynamical Analysis of a Duolever Suspension System (213)
Ciro Moreno City University
Maria Tomas-Rodriguez City University
Simos A Evangelou Imperial College

WedB1  14:00-15:40  Meeting Room 1
System Identification II
Chair: Joachim Horn, Helmut-Schmidt-University, Germany
Co-Chair:  A Hwas, University of Strathclyde

WedB1-1  14:00-14:20
A Distributed Newton Iteration Based Localization Scheme in Underground Tunnels (173)
Yuanqing Qin HUST
Chunjie Zhou HUST
Shuang-Hua Yang Loughborough University
Fang Wang Loughborough University

Wed B1-2  14:20-14:40
Modeling and Simulation of a Coupled Double-Loop-Cooling System for PEM-Fuel Cell Stack Cooling (28)
Martin Schultze Helmut-Schmidt-University
Joachim Horn Helmut-Schmidt-University
Counter-examples Design to Global Convergence of Maximum Likelihood Estimators (49)
Yiqun Zou Central South University
Xiafei Tang University of Manchester
Zhengtao Ding University of Manchester

Identification of Structural Parameters Using Damped Transfer Matrix and State Vector (263)
Nandakumar P Indian Institute of Technology
Shankar K Indian Institute of Technology

Model-based Fault Detection and Isolation for Wind Turbine (146)
Reza Katebi University of Strathclyde
A Hwas University of Strathclyde

WedB2 14:00-15:40 Meeting Room 2
Industrial Process Applications of Control I
Chair: John Anthony Rossiter, University of Sheffield
Co-Chair: Shurong Li, China University of Petroleum (East China)

Robust MPC algorithms using alternative parameterisations (51)
Bilal Khan University of Sheffield
John Anthony Rossiter University of Sheffield

Dynamic Optimization of Polymer Flooding with Free Terminal Time based on Maximum Principle (26)
Shurong Li China University of Petroleum (East China)
Yang Lei China University of Petroleum (East China)
Xiaodong Zhang China University of Petroleum (East China)
Qiang Zhang China University of Petroleum (East China)
Shaowen Peng China University of Petroleum (East China)
Optimal Control for Mixing Enhancement in Boundary Layers at Membrane Walls (249)
Hua Ouyang University of New South Wales
Yuanqing Xia BIT

WedB2-4 15:00-15:20
Adaptive Feed-Forward and Feedback Control for Oxygen Ratio in Fuel Cell Stacks (62)
Omar Ragb Liverpool John Moores University
D L YU Liverpool John Moores University
JB Gomm Liverpool John Moores University

WedB2-5 15:20-15:40
A Relaxation-based Approach for the Orthogonal Procrustes Problem with Data Uncertainties (201)
Shakil Ahmed Imperial College London
Imad Jaimoukha Imperial College London

WedB3 14:00-15:40 Meeting Room 3
Energy Efficiency and Environmental Systems+Estimation and Filtering
Chair: James Lam, University of Hong Kong
Co-Chair: Kary Thanapalan, University of Glamorgan

WedB3-1 14:00-14:20
Fuzzy Logic Control for Solar Powered Hydrogen Production, Storage and Utilisation System (257)
Fan Zhang University of Glamorgan
Kary Thanapalan University of Glamorgan
Andy Procter University of Glamorgan
Jon Maddy University of Glamorgan
Alan Guwy University of Glamorgan

WedB3-2 14:20-14:40
Predictive Control Strategy for a Supercritical Power Plant and Study of Influences of Coal Mills Control on its Dynamic Responses (31)
Omar Mohamed University of Birmingham
Bushra Al-Duri University of Birmingham
Jihong Wang University of Warwick

WedB3-3 14:40-15:00
Energy Management Effects of Integrating Regenerative Braking into a Renewable Hydrogen
Vehicle (193)

Kary Thanapalan  
Fan Zhang  
Giuliano Premier  
Jon Maddy  
Alan Guwy  

University of Glamorgan

➢ WedB3-4  15:00-15:20

Recursive Filtering for a Class of Nonlinear Systems with Missing Measurements (32)

Jun Hu  Harbin Institute of Technology
Zidong Wang  Brunel University
Bo Shen  University of Duisburg-Essen
Chenxiao Cai  Nanjing University of Science and Technology
James Lam  University of Hong Kong

➢ WedB3-5  15:20-15:40

Renewable Hydrogen Hybrid Electric Vehicles and Optimal Energy Recovery Systems (194)

Kary Thanapalan  University of Glamorgan
Fan Zhang  University of Glamorgan
Giuliano Premier  University of Glamorgan
Alan Guwy  University of Glamorgan
Jon Maddy  University of Glamorgan

WedB4  14:00-15:40  Meeting Room 4

Control for Energy and Sustainability I (special session)

Chair: Eric Kerrigan, Imperial College London
Co-Chair: Richard Vinter, Imperial College London

➢ WedB4-1  14:00-14:35

Stochastic Control and Smart Grid Technology

Richard Vinter  Imperial College London

➢ WedB4-2  14:35-15:10

Control, Energy and Sustainability: Ideas for Power Networks, Engine Control and Rail Vehicle Dynamics

Malcolm Smith  University of Cambridge
Glenn Vinnicombe  University of Cambridge
Keith Glover  University of Cambridge
WedB4-3  15:10-15:40
Low Order Robust Control in Electric Power System: Current Trends and Future Challenges
Bikash Pal  Imperial College London

WedC1  16:00-17:40  Meeting Room 1

Algorithms and Architectures of Control Systems II
Chair:  Kang Li, Queen's University Belfast
Co-Chair:  A. Verma, Stord/Haugesund university College

➢ WedC1-1  16:00-16:20
Singularly Impulsive Dynamical Systems with Time Delay: Mathematical Model and Stability (122)
Natasa Kablar  Lola Institute
Vlada Kvgic  Lola Institute

➢ WedC1-2  16:20-16:40
Fault Detection and Isolation for PEMFC Systems under Closed-loop Control (95)
Mahanijah Md Kamal  Liverpool John Moores University
Dingli Yu  Liverpool John Moores University

➢ WedC1-3  16:40-17:00
Determination of the Domain of Attraction And Regions of Guaranteed Cost for Robust Model Predictive Controllers Based on Linear Matrix Inequalities (81)
Fernanda Quelho Rossi  ITA
Ronaldo Waschburger  ITA
Roberto Galvao  ITA

➢ WedC1-4  17:00-17:20
A Control Method to Eliminate Polarization-Induced Phase Distortion in Dual Mach-Zehnder Fiber Interferometer (46)
Yang An  Tianjin University, China
Hao Feng  Tianjin University, China
Yan Zhou  Tianjin University
Shijiu Jin  Tianjin University
Zhoumo Zeng  Tianjin University

➢ WedC1-5  17:20-17:40
Designing and Finite Element Analysis of Customized Titanium Plate for Mandible (164)
WedC2 16:00-17:40 Meeting Room 2

Industrial Process Applications of Control II

Chair: Hongnian Yu, Staffordshire University
Co-Chair: Thouraya Merazi-Meksen, University of Science & Technology

- **WedC2-1**  16:00-16:20
  A RFID mutual authentication protocol based on AES algorithm (267)
  Tuan Pham  Staffordshire University
  Mohammad Hasan  Staffordshire University
  Hongnian Yu  Staffordshire University

- **WedC2-2**  16:20-16:40
  Automatic Detection of Circular Defects During Ultrasonic Inspection (260)
  Thouraya Merazi-Meksen  University of Science & Technology H. Boumediene
  Malika Boudraa  University of Science & Technology H. Boumediene
  Bachir Boudraa  University of Science & Technology H. Boumediene

- **WedC2-3**  16:40-17:00
  System Identification and Robust Anti-windup Control for a Helium Liquifier (142)
  Jing Na  ITER Organisation
  Guang Li  University of Exeter
  Ryuji Maekawa  ITER Organization
  Luigi Serio  ITER Organization

- **WedC2-4**  17:00-17:20
  Trajectory Tracking of Exothermic Batch Reactor using NIR Spectroscopy (169)
  Olufemi Osunnuyi  University of Manchester
  Ognjen Marjanovic  University of Manchester
  Jian Wan  University of Manchester
  Barry Lennox  University of Manchester

- **WedC2-5**  17:20-17:40
  Decentralized Nonlinear Control of 300MWe Circulating Fluidized Boiler Power Unit (188)
Educational Developments in Control

Chair: John Rossiter, University of Sheffield
Co-Chair: Richard Mitchell, University of Reading

➢ WedC3-1 16:00-16:20
Developing Virtual Laboratories for Introductory Control (10)
John Rossiter University of Sheffield
Yashar Baradaranshokouhi University of Sheffield

➢ WedC3-2 16:20-16:40
Using MATLAB GUIs to Improve the Learning of Frequency Response Methods (40)
Richard Mitchell University of Reading

➢ WedC3-3 16:40-17:00
Teaching Control Using NI Starter Kit Robot (20)
Payman Shakouri Kingston University
Gordana Collier Kingston University
Andrzej Ordys Kingston University

➢ WedC3-4 17:00-17:20
Survey and Evaluation of Simulators Suitable for Teaching for Computer Architecture and Organization Supporting Undergraduate Students at Sir Syed University of Engineering & Technology (102)
Raza Hasan Sir Syed University of Engineering & Technology
Salman Mahmood Sir Syed University of Engineering & Technology

WedC4 16:00-17:40 Meeting Room 4
Control for Energy and Sustainability II (special session)
Chair: Eric Kerrigan, Imperial College London
Co-Chair: Richard Vinter, Imperial College London

- **WedC4-1**  16:00-16:20
  Passivity Based Control of Microrobots
  Kameswarie Nunna  Imperial College London
  Alessandro Astolfi  Imperial College London

- **WedC4-2**  16:20-16:40
  I_asso MPC
  Marco Gallieri  University of Cambridge
  Jan Maciejowski  University of Cambridge

- **WedC4-3**  16:40-17:00
  Real-Time Stochastic Optimisation for Non-Convex MPC
  Alison Eele  University of Cambridge
  Jan Maciejowski  University of Cambridge

- **WedC4-4**  17:00-17:40
  Panel discussion on Control for Energy and Sustainability
  Eric Kerrigan  Imperial College London
  Malcolm Smith  University of Cambridge
  Richard Vinter  Imperial College London
  Ian Postlethwaite

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**WedP1**  16:00-17:40  Entrance Hall
**Poster Session 3**
Chair: Kary Thanapalan, University of Glamorgan
Co-Chair: Fan Zhang, University of Glamorgan

- **WedP1-1**
  Backstepping based adaptive sliding mode control for spacecraft attitude maneuvers (145)
  Binglong Cong  Beijing Institute of Technology
  Xiangdong Liu  Beijing Institute of Technology
  Zhen Chen  Beijing Institute of Technology

- **WedP1-2**
  Necessary and Sufficient Conditions for Consensus of Multi-Agent Systems with Nonlinear Dynamics and Variable Topology (149)
Lijing Dong BIT
Senchun Chai BIT
Baihai Zhang BIT

➢ WedP1-3
Distributed Practical Consensus in Multi-agent Networks with Communication Constrains (63)
Lulu LI City University of Hong Kong
Daniel Ho City University of Hong Kong
Jianquan Lu Southeast University

➢ WedP1-4
Smooth Second-Order Sliding Mode Control Design of PEM Fuel Cell System (204)
Syed Saqib Hussain Rizvi Mohammad Ali Jinnah University
A. I. Bhatti Mohammad Ali Jinnah University
Saira Rehman Mohammad Ali Jinnah University
Qadeer Ahmad Mohammad Ali Jinnah University
Sohail Iqbal Mohammad Ali Jinnah University
Zahid Butt Mohammad Ali Jinnah University

➢ WedP1-5
Rapid Alignment Method of INS with Large Initial Azimuth Uncertainty under Complex Dynamic Disturbances (247)
Xin Liu Beijing Institute of Technology
Bo Wang Beijing Institute of Technology
Zhihong Deng Beijing Institute of Technology
Shunting Wang Beijing Institute of Technology

➢ WedP1-6
Study on The Method of Multi-agent Generation Algorithm within Special Artificial Society Scene (254)
Zongchen Fan NUDT
Wei Duan NUDT
Bin Chen NUDT
Yuanzheng Ge NUDT
Xiaogang Qiu NUDT

➢ WedP1-7
Robust Predictor for Uncertain Dead-Time Systems (262)
Majededdin Najafi IUT
Farid Sheikholeslam IUT
Saeed Hosseinnia Islamic Azad University

➢ WedP1-8
An Improved On-Line Neuro-Identification Scheme (264)
José A. R. Vargas Universidade de Brasília
Kevin H. M. Gularte Universidade de Brasilia
Elder M. Hemerly Technological Institute of Aeronautics

➢ WedP1-9
Output Consensus of Linear Multi-agent Systems (233)
Xin-Rong Yang Harbin Institute of Technology
Guoping Liu University of Glamorgan

➢ WedP1-10
Consensusability of Discrete-Time Linear Networked Multi-Agent Systems (258)
Chong Tan Harbin Institute of Technology
Guoping Liu University of Glamorgan