

FINAL PROGRAM

2026 International Conference on Modelling, Identification and Control (ICMIC 2026)

Bristol, UK

August 7-10, 2026

Organised by

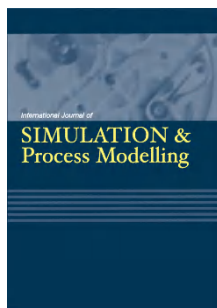
University of the West of England, Bristol

Sponsors and Supporters

Sponsors



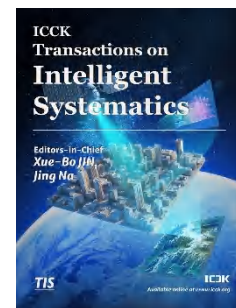
Supporters



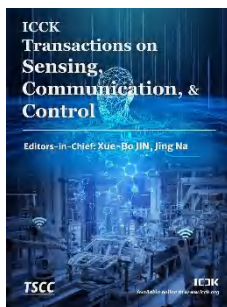
International Journal of
Simulation & Process Modelling



International Journal of Applied
Mathematics in Control
Engineering



ICCK Transactions on Intelligent
Systematics



ICCK Transactions on Sensing,
Communication & Control



Advanced Mechatronics



Machines

Contents

Program at Glance	- 1 -
Welcome Address from General Chairs.....	- 5 -
Conference Committees.....	- 8 -
Venue and Accommodation	- 12 -
Transportation Guidance.....	- 14 -
Plenary Talks.....	- 16 -

Program at Glance

ICMIC 2026

UWE, Bristol, UK

2026.8.7 - 8.10

Friday, 7 August 2026, School of Engineering, UWE	
9:00–16:00	Onsite Registration
	Part of Best Paper Candidate Presentation (Room 3Z015), Chairs: Qiang Chen
13:30–13:50	Talk 1: Deep Learning-Based Predictor Design and Implementation of Knee Joint Angle from Surface EMG
13:50–14:10	Talk 2: MLFE: Multi-Level Feature Fusion and Enhancement for Remote Sensing Image Captioning
14:10–14:30	Talk 3: A Flow-Parameter Matching Optimization Method for the Power Turbine of Dual-Spool Turboshift Engines
14:30–14:50	Talk 4: A Time-Series Lightweight Forecasting Method Based on Hardware-Aware and Adaptive Optimization
15:00–15:30	Coffee Break (Ground floor)
15:30–15:50	Talk 5: Non-Linear Control for a Prosthetic Solenoid Actuator
15:50–16:10	Talk 6: Multiphase Overmodulation Strategy with Improved Closed-Form Expressions for Multiphase Motors to Reduce Harmonic Current
16:10–16:30	Talk 7: Model-Free Robust U-Control for Variable Speed Pump Controlled Robotic Arms
17:00–18:00	Soft Drinks (Ground floor)
18:00–20:00	Reception Dinner (Ground floor)
Saturday, 8 August 2026, School of Engineering, UWE	
8:50-9:30	Opening Ceremony (Room 3Z015), Chair: Amir Mahmoudi/Baiyang Shi
9:30-10:10	Plenary Talk 1: The Role of Demand Response in Modern Electricity Markets: Challenges and Opportunities, Prof. Khalid Alqunun, Chair: Prof. Jawher Ghommam
10:10-10:40	Coffee Break and Group photo (Ground floor)
10:40-11:20	Plenary Talk 2: Machine Vision for Real-world Applications, Prof. Mark Hansen, Chair: Prof. Jing Na
11:20-12:00	Plenary Talk 3 (online): Robot Control by Learning from Humans, Prof. Chenguang (Charlie) Yang, Chair: Prof. Sumeet Aphale
12:00-13:00	Lunch (Ground floor)

Poster Exhibition

	Room 3Z015	Room 4Z012	Room 4Z013	Ground floor
13:00-14:30	Session 1: Advanced Control Methods and Industrial Control Systems, Chairs: Xin Hu / Sunday Atuba 1. Robust U-Control with Incremental Nonlinear Dynamic Inversion (INDI) (Paper No. 4) 2. A Novel Hybrid Controller for Sit-to-Stand Assistance using a Simscape Model based Lower-Limb Exoskeleton (Paper No. 13) 3. Machine Learning-Based System for Autonomous Thermal Monitoring and Control of a DC Motor in Embedded Applications (Paper No. 20) 4. Event-Triggered Off-Policy Stackelberg Reinforcement Learning for Dual-Manipulator Cooperative Control (Paper No. 21) 5. U-Control-Based Suppression of Tower Vibration of Floating Offshore Wind Turbine under Wind and Wave Loads (Paper No. 57)	Session 2: Autonomous Flight Systems: Dynamics, Guidance and Coordination, Chairs: Taleb Moazzeni / Ji Qiu 1. 4-DOF Flapping-Wing MAV Altitude and Attitude Stabilisation Using SDRE-PI Control (Paper No. 5) 2. Prescribed Performance Cooperative Design for the UAV-UGV System: Vision-based Guidance Control Approach (Paper No. 12) 3. Hybrid RL-PID Control of a Quadcopter UAV in Forward Flight under Lateral Wind Gusts (Paper No. 26) 4. Development of a Parametric, 3D-Printed Indoor Quadcopter Design Tool for Low-Cost Iterative Payload Experimentation (Paper No. 63) 5. Noise Awareness Trajectory Optimization for Urban Air Mobility Aerial Vehicle (Paper No. 103)	Session 3: Modelling, Design and Control of Robotics and Energy Systems, Chairs: Lei Cheng / Appolinaire Etoundi 1. Dynamic Characteristic Analysis and Stability Region Estimation for Gas-Turbine Hybrid Power Systems (Paper No. 23) 2. Folding Motion into Action: An Origami-Inspired Robot Arm (Paper No. 83) 3. Design and Experimental Evaluation of a Low-Cost Hydrofoil Control System Using Dual Trailing-Edge Flaps (Paper No. 87) 4. Data-driven Control of Robotic Systems through Physics-informed Koopman Operator Theory (Paper No. 93) 5. Topology Optimisation and Buckling Analysis of a Wing Rib under Combined Compressive and Shear Loads (Paper No. 102)	
14:30-15:00	Coffee Break (Ground floor)			
15:00-16:30	Session 4: Intelligent Sensing, Detection and Cybersecurity Chairs: Davood Asadi / Guanghui Yang 1. Dielectrophoretic Motion and Deformation of Droplets in the Electric Fields (Paper No. 3)	Session 5: AI, Time-Series Analytics and Intelligent Applications Chairs: Guanbin Gao / Haihong Wang 1. A Comparative Study of ARIMA Models for Wind Farm Generation Forecasting (Paper No. 41)	Session 6: Multi Topics Chairs: Haigang Ding / Alex Yue For later responded papers	

	2. Accuracy Analysis of the Current Source for Brain Impedance Measurements to Instantly Detect Acute Stroke Type (Paper No. 16) 3. Weather-Aware Adaptive Detection for Taara-Based Free-Space Optical Broadband Backhaul in Rural Oman (Paper No. 52) 4. Machine Learning-Based Detection and Classification of DGA-Generated Domains (Paper No. 59) 5. The Impact of Attack Resilience on AI Deepfake Image Detectors in Forensic Investigations (Paper No. 67)	2. A Physics-Guided Time-Aware Method for Multivariate Time Series Anomaly Detection (Paper No. 58) 3. An Industrial Intelligent QA System Based on Knowledge Graph and Edge-Side Model Fine-tuning (Paper No. 66) 4. AI-Driven Predictive Analytics for Early Identification of At-Risk Students in E-Learning Systems (Paper No. 75) 5. Heading Disturbance Suppression for Unmanned Autonomous Swarms via Interval Median Screening (Paper No. 90)	For later responded papers		
17:30-20:30	Banquet starts from 18.30 (Dragon’s Delicacy, Eastgate Oriental City, Bristol BS5 6XX) *Coach departs at 5:30 pm from Travelodge Bristol Abbey Wood, Retail Park, Station Road, Stoke Gifford, BS34 7JL) **Coach returns at 21.00 to Travel Lodge from Dragon’s Delicacy				
Sunday, 9 August 2026, School of Engineering, UWE (Room 3Z015)					
9:00-9:40	Plenary Talk 4 (online): Ethical, Societal and Legal Issues of Robotics Adoption, Prof. Matthew Studley, Chair: Prof. Khalid Alqunun				
9:40-10:20	Plenary Talk 5 (online): Control Issues & Some Solutions for High-Speed Industrial Applications of PKMs, Prof. Ahmed CHEMORI, Chair: Prof. Weicun Zhang				
10:20-10:50	Coffee Break (Ground floor)				
10:50-11:30	Conference Awards				
11:30-12:00	ICMIC2027 Host Presentation and Closing Ceremony				
12:00-13:30	Lunch (Ground floor)				
13:30-17:30	Free Activity				
Monday, 10 August 2026, UWE					
9:00-9:45	Tour of Bristol Robotic Lab, UWE (Optional)				
10:00-12:00	Meet SoE Colleagues for Collaboration, UWE (optional)				

A Full List for Papers in the Poster Exhibition

Paper No.	Title
1	An Automated Synthetic Dataset Framework for Object Detection: Evaluation of Faster R-CNN and RetinaNet in Real-World and Low-Resolution Scenario
19	Command Filter-based Fixed-time Adaptive Backstepping Control for Uncertain Nonlinear Strict-Feedback Systems
28	A Factor Graph-Optimized Method for Ground-Air Heterogeneous Cluster Collaborative Positioning
50	Modeling and Optimization of Temperature Field in Copper Smelting Isa Furnace
51	Node Localization Based on Master-slave Ranging for Underwater Acoustic Sensor Networks
53	Secure Encoding Scheme Based on Auxiliary System for Consensus of Multi-Agent Network
55	Extreme Fast Charging-Oriented Constrained Temperature Control for Thermoelectric Cooling Battery Thermal Management Systems
95	Zero-Phase High-Order Repetitive Extended State Observer-Based Current Control for Permanent Magnet Synchronous Motor
98	Robust Spatial Iterative Learning Control for Track-Irregularity Compensation in Variable-Speed Maglev Suspension Systems
99	Online Optimal Control of Discrete-Time Nonlinear Robotic Systems by Using Time-Based Adaptive Dynamic Programming
114	Experimental Degradation-Informed Techno-Economic Assessment of Air and Liquid Immersion Cooled Lith-ium-Ion Battery Storage for a Rural Microgrid
115	Robot Calibration without Measurement Frame Interference via Multi-pole Distance Error Modeling

Welcome Address from General Chairs



Prof. Ramin Amali



Prof. Quanmin Zhu



Prof. Paolo Mercorelli



Prof. Weicun Zhang

Dear Friends and Colleagues,

On behalf of the General Chairs, the International Advisory Committee, the Technical Programme Committee, and the Organising Committee, it is our great pleasure to welcome you to the **2026 International Conference on Modelling, Identification and Control (ICMIC 2026)**.

This year, the main conference is hosted by the **University of the West of England (UWE Bristol), United Kingdom**, with four parallel academic sessions taking place in China. We are delighted to welcome keynote speakers, invited speakers, authors, reviewers, delegates, industrial partners, sponsors, supporters, and guests from around the world. Your participation reflects the truly international spirit of ICMIC and our shared commitment to advancing scientific research, engineering innovation, and global academic collaboration.

Since its establishment, ICMIC has grown into a well-recognised international conference dedicated to the advancement of modelling, identification, control, automation, robotics, artificial intelligence, intelligent systems, and their broad interdisciplinary applications. Founded with the vision of creating a global forum for the exchange of innovative ideas and cutting-edge research, ICMIC has consistently brought together researchers from academia, research institutions, and industry to present original contributions, exchange knowledge, and establish long-term international collaborations. Over the years, the conference has developed into a vibrant academic community, attracting participants from numerous countries and regions while maintaining high academic standards and a welcoming atmosphere for both established researchers and early-career scientists.

The scientific landscape is evolving rapidly. Breakthroughs in artificial intelligence, machine learning, data-driven modelling, digital twins, cyber-physical systems, autonomous systems, intelligent robotics, smart manufacturing, smart energy, and sustainable engineering are transforming both scientific research and industrial practice. Behind these remarkable advances, the disciplines of modelling, identification, and control continue to provide the essential theoretical foundations and enabling technologies that allow increasingly complex systems to be analysed, understood, optimised, and controlled.

ICMIC 2026 provides an international platform for discussing these exciting developments. The conference brings together experts working across theoretical research, computational methodologies, and practical engineering applications to exchange ideas, present innovative solutions, and explore future research opportunities. Through keynote lectures, invited sessions, technical presentations, and academic discussions, participants have valuable opportunities to share knowledge, establish new collaborations, and contribute to the future development of systems science and intelligent engineering.

A distinctive feature of ICMIC 2026 is its international multi-venue format. While the main conference is held at the University of the West of England in Bristol, four parallel academic sessions are organised simultaneously in China. This innovative arrangement enables wider participation from the international research community, strengthens academic collaboration across continents, and demonstrates the continuing growth of ICMIC as a truly global conference. Although participants are gathered in different locations, we are united by one common objective—to advance scientific knowledge, encourage innovation, and strengthen international cooperation in modelling, identification, and control.

The success of ICMIC is built upon the dedication and generous support of many organisations and individuals. We would like to express our sincere appreciation to the University of the West of England (UWE Bristol) for serving as the principal sponsor and host institution of ICMIC 2026. We are equally grateful to all sponsoring organisations, supporting universities, research institutes, professional societies, industrial partners, technical co-sponsors, and collaborating institutions whose encouragement and contributions have helped make this conference possible. Their continued support has been instrumental in promoting international academic exchange, fostering interdisciplinary research, and enhancing the global impact of ICMIC.

We also extend our heartfelt gratitude to the members of the International Advisory Committee, the Technical Programme Committee, the Organising Committee, the Local Organising Committee, session organisers, keynote and invited speakers, reviewers, session chairs, volunteers, and conference staff. Their professionalism, commitment, and countless hours of dedicated service have ensured the high academic quality and successful organisation of both the conference and these proceedings.

Our deepest appreciation goes to all authors and participants. Your research contributions are the foundation of ICMIC and the driving force behind its continued success. The papers presented at ICMIC 2026 and published in these proceedings represent the latest advances in modelling, identification, control, automation, artificial intelligence, robotics, intelligent systems, and many emerging interdisciplinary research areas. We hope that this volume will serve not only as a permanent record of the conference but also as a valuable reference that inspires future research, technological innovation, and international collaboration.

The over twenty year's running history is particularly rewarding to witness the conference continue to grow as a respected international platform connecting researchers, engineers, educators, and students from diverse backgrounds and cultures. Scientific progress is achieved through openness, collaboration, and the free exchange of ideas. We hope that every participant will find ICMIC 2026 to be an inspiring forum for learning, discussion, networking, and the development of lasting professional friendships.

Finally, we wish all participants a productive, rewarding, and memorable conference. We also hope that our international delegates enjoy their stay in the historic and vibrant city of Bristol while experiencing the excellent academic environment of the University of the West of England. We look forward to the new ideas, collaborations, and friendships that will emerge from ICMIC 2026 and continue to shape the future of our research community.

We thank you for your participation and warmly welcome you to **ICMIC 2026**.

General Chairs

Prof. Ramin Amali

University of the West of England, Bristol, United Kingdom

Prof. Quanmin Zhu

University of the West of England, Bristol, United Kingdom

Prof. Paolo Mercorelli

Leuphana University of Lüneburg, Germany

Prof. Weicun Zhang

University of Science and Technology Beijing, China

Conference Committees

General Chairs

Ramin Amali (UK, University of the West of England)
Quanmin Zhu (UK, University of the West of England)
Paolo Mercorelli (Germany, Leuphana University of Lüneburg)
Weicun Zhang (China, University of Science and Technology Beijing)

Advisory Committee Chairs

Zidong Wang (UK, Brunel University London)
Hamid Reza Karimi (Italy, Politecnico di Milano)
Xuebo Jin (China, Beijing Technology and Business University)
Matthew Studley (UK, University of the West of England)

Organization Committee Chairs

Tingli Su (China, Beijing Technology and Business University)
Baiyang Shi (UK, University of the West of England)
Amir Mahmoudi (UK, University of the West of England)

International Program Committee Chairs

Qiang Chen (China, Zhejiang University of Technology)
Sumeet S. Aphale (UK, University of Aberdeen)
Jawhar Ghommam (Oman, Sultan Qaboos University)

Publicity Committee Chairs

Zain Anwar Ali (Ireland, Maynooth University)
Jun Chen (USA, Oakland University)

Special and Invited Session Chairs

Jianlei Kong (China, BTBU)
Jianhua Zhang (China, QUT)
Yizhi Wang (China, JIT)
Jinxiang Chen (China, SKLMIMS)

Student Activities Chair

Suhas Sampath (UK, UWE)
Yasindu Wagachchi (UK, UWE)

Registration Chairs

Abbey Samuel (UK, UWE)
Alex Yue (UK, UWE)

Publication Committee Chairs

William Holderbaum (UK, UR)
Weicun Zhang (China, USTB)

Award Committee Chairs

Jing Na (China, Kunming University of Science and Technology)

Charlie Yang (UK, University of Liverpool)

Siyuan Zhan (Ireland, Trinity College Dublin)

Advisory Committees

Feng Ding (China)	Luis Antonio Aguirre (Brazil)
Nabil Derbel (Tunisia)	Khaled El-Metwally (Egypt)
Giuseppe Fusco (Italy)	Maarouf Saad (North America)

International Program Committees

Abbey, Samuel University of the West of England	Aguirre, Luis Antonio Universidade Federal de Minas Gerais
Ali, Zain Anwar Maynooth University	An, Yi Dalian University of Technology
Aphale, Sumeet S. University of Aberdeen	Asadi, Davood University of the West of England
Azar, Ahmed Prince Sultan University, Riyadh	Becerra, Victor M. University of Portsmouth
Boubaker, Olfa University of Carthage	Bouchhida, Ouahid University of Medea
Chemori, Ahmed CNRS	Chen, Jing Jiangnan University
Chen, Jinxiang China Iron & Steel Research Institute Group	Chen, Jun Oakland University
Cheng, Lei Wuhan University of Science and Technology	Ding, Feng Jiangnan University
Ding, Haigang China Mining University	El-Metwally, Khaled Cairo University
Farah, Raouf University of Sharjah	Fusco, Giuseppe Università degli Studi di Cassino
Gao, Guanbin Kunming University of Science and Technology	Golestani, Mehdi Southern University of Science and Technology
Hao, Xiaodong State Key Laboratory of Metallurgical Intelligent Manufacturing Systems	Holderbaum, William University of Reading
Hu, Xin Ludong University	Jiao, Dongmei Qingdao University of Science and Technology

Jin, Xue-bo Beijing Technology and Business University	Jing, Shaoxue Huaiyin Normal University
Koumboulis, Fotios N. National & Kapodistrian University of Athens	Li, Ning Shanghai Jiaotong University
Li, Xun Xi'an Polytechnic University	Liu, Peng North University of China
Liu, Ru State Key Laboratory of Metallurgical Intelligent Manufacturing Systems	Liu, Zhen Qingdao University
Lu, Zhenyu South China University of Technology	Ma, Yue Beijing Institute of Technology
Ma, Xianghua Shanghai Institute of Technology	Mercorelli, Paolo Leuphana University of Lueneburg
Mahmoudi, Amir University of the West of England	Mohan, Dhanesh G. University of Sunderland
Na, Jing Kunming University of Science & Technology	Nibouche, Mokhtar University of the West of England
Pearson, Martin University of the West of England	Pouliquen, Mathieu University of Caen Normandy
Qiao, Feng Shenyang JianZhu University	Qiu, Ji Guangxi Minzu University
Rahman, Mohamed Habib University of Wisconsin Milwaukee	Rahmani, Amir Masoud Khazar University
Rakhtalarostami, Mehdi University of the West of England	Saad, Maarouf Université du Québec
Sheng Ning Qingdao University of Science and Technology	Shi, Haifei Jinling Institute of Technology
Shi, Baiyang University of the West of England	Soufi, Youcef University Larbi Tebessa
Su, Tingli Beijing Technology and Business University	Sun, Ning Nankai University
Sun, Yanguang State Key Laboratory of Metallurgical Intelligent Manufacturing Systems	Wang, Haihong Qingdao University of Science and Technology
Wang, Juan Shenyang JianZhu University	Wang, Rui Civil Aviation University of China

Wang, Shubo Qingdao University	Wang, Xiaopuwen Chengdu Technological University
Wang, Yizhi Jinling Institute of Technology	Wang, Zhengjie Beijing Institute of Technology
Whiting, James University of the West of England	Wu, Ligang Shanxi Datong University
Xiong, Weili Jiangnan University	Xu, Ling Changzhou University
Yan, Hao Beijing Jiaotong University	Yang, Jun Loughborough University
Yang, Liu Shenyang City university	Yue, Alex University of the West of England
Zhan, Siyuan Trinity College Dublin	Zhang, Jianhua Qingdao University of Technology
Zhang, Mei Guizhou University	Zhang, Qichun Buckinghamshire New University
Zhang, Xiao Jiangnan University	Zhang, Yu Ming University of Kentucky
Zhao, Dongya China University of Petroleum	Zhu, Guibing Zhejiang Ocean University

Venue and Accommodation

Conference Venue

The conference will be held at:

School of Engineering, University of the West of England (UWE Bristol), Frenchay Campus, Bristol, BS16 1QY, United Kingdom.

A map of the conference venue and nearby facilities is available [here](#).

Accommodation Options

For the convenience of conference attendees, we have identified three recommended hotels near the UWE Frenchay Campus.

1. Travelodge Bristol Abbey Wood

Address: Abbey Wood Retail Park, Station Road, Stoke Gifford, Bristol, BS34 7JL

Distance: approx. 15 minutes on foot

Website: <https://www.travelodge.co.uk/hotels/708/Bristol-Abbey-Wood-hotel>

Indicative price: standard rooms from £60 per night (subject to availability)

2. Holiday Inn Express Bristol – Filton

Address: New Road, Bristol Parkway Business Park, Bristol, BS34 8TJ

Distance: approx. 20 minutes on foot

Website: <https://www.ihg.com/holidayinnexpress/hotels/gb/en/bristol/brsnr/hoteldetail>

Indicative price: £95–£120 per night

3. Premier Inn Bristol Parkway (M32)

Address: Fox Den Road, Stoke Gifford, Bristol, BS34 8EF

Distance: approx. 15 minutes on foot

Website: <https://www.premierinn.com/gb/en/hotels/england/bristol/bristol/bristol-parkway-m32.html>

Indicative price: £70–£110 per night

Prices are indicative only and may vary depending on dates and availability. Attendees are advised to book early, as availability in the area can be limited during the conference period.

Transportation Guidance

This section provides practical guidance for travelling to the UWE Bristol Frenchay Campus from major arrival points. Attendees may choose between public transport, taxi services, and driving.

From London to Bristol

By train: Direct trains operate from London Paddington to two Bristol stations:

- **Bristol Parkway** – the closest station to Frenchay Campus (approx. 10 minutes by taxi, or a short ride on the M4 Metro Bus, which runs directly between Bristol Parkway and the campus).
- **Bristol Temple Meads** – located near the city centre and convenient for city-centre hotels, with frequent onward buses and taxis.

Typical journey time from London Paddington is approximately 1 hour 20 minutes to Bristol Parkway and slightly longer to Bristol Temple Meads.

By coach: National Express and FlixBus operate frequent services from London Victoria Coach Station to Bristol (approx. 2 hours 20 minutes – 2 hours 45 minutes). Some services stop directly at Frenchay Campus, which has its own National Express and FlixBus stop — attendees are advised to check for services calling at "UWE Frenchay Campus" when booking. Otherwise, alight at Bristol Coach Station and continue by local bus (see below). [University of the West of England Bristol](#)

From Heathrow Airport

By coach (direct): National Express operates direct services from Heathrow Central Bus Station (Terminals 2/3) and Terminal 5 to Bristol Coach Station. Journey time: approximately 2 hours – 2 hours 35 minutes. [National Express](#)

By rail: Take the Heathrow Express or Elizabeth line to London Paddington, then a direct train to Bristol Parkway or Bristol Temple Meads.

From Gatwick Airport

By coach: National Express coaches run from Gatwick to Bristol Coach Station (approx. 4 hours; some services require a change).

By rail: Take a train from Gatwick Airport towards central London and transfer to London Paddington (via the Elizabeth line from Farringdon, or Underground from Victoria/London Bridge) for trains to Bristol.

From Bristol Airport to Frenchay Campus

By bus: Take the A1 Airport Flyer, which runs 24 hours a day to Bristol Temple Meads (approx. 30 minutes). From Temple Meads, continue by bus 70 or 72 direct to Frenchay Campus, or travel into the city centre for Metro Bus services M1, M3, or M4.

By taxi: Approx. 30–40 minutes; indicative fare £40–£50.

From Bristol City Centre to Frenchay Campus

By bus: Frequent services run from the city centre to Frenchay Campus:

- **M1, M3, M4** – Metro Bus routes offering fast, frequent services (up to every 10 minutes on weekdays). Note that Metro Bus is buy-before-you-board: purchase a ticket in advance (via the First Bus app or an iPoint machine at the stop) or use contactless Tap On, Tap Off. [First Bus](#)
- **70 and 72** – First Bus routes from Bristol Temple Meads station via the city centre.

Typical journey time: 20–40 minutes depending on the route.

By taxi: Approx. 15–20 minutes; indicative fare £15–£20.

Driving to Frenchay Campus

From the M4: Exit at Junction 19 onto the M32 (towards Bristol), leave the M32 at Junction 1, and follow signs to UWE Frenchay Campus (Coldharbour Lane, BS16 1QY).

Parking: Visitor parking on campus is limited. Attendees who require parking should contact the organising committee in advance.

Car hire: Available at Bristol Airport, Bristol Temple Meads, and Bristol Parkway through major rental companies.

Plenary Talks

Plenary Talk 1

The Role of Demand Response in Modern Electricity Markets: Challenges and Opportunities



Professor Khalid Alqunun
Department of Electrical Engineering
University of Hail, Saudi Arabia

Saturday, 8 August 2026
9:30-10:10 am
Room 3Z015

School of Engineering, University of the West of England

Abstract

The vast expansion of the existed loads besides the rapid increase of deploying the renewable energy resources have created many challenges for the power system operators to control and maintain the energy demand. The increase of the volatility of the energy prices has initiated obstacles to manage energy usage. Therefore, demand response (DR) programs is designed in the modern electricity markets to overcome these challenges and smooth the management of the load patterns. Also, the DR allows the power system operator to effectively interact with the end-user costumers to reduce or change the demand according to the availability of the power productions. The lecture will describe how the DR has the ability to deal with various bidding prices and the power systems' technical constraints to ensure both the energy balance and the minimum operation costs. The lecture also aims to describe the technique of the DR to procure the minimum operation costs of a power network through advanced optimization technique. Examples and case studies will be discussed to demonstrate the effectiveness of applying the DR in the electricity markets.

Biography

Khalid Alqunun received the M.Sc. degree in electrical engineering from the University of Denver, Colorado, in 2014, and the PhD degree in the electrical and electronic engineering from the University of Manchester, U.K., in 2017. He is currently a Professor in the department of electrical engineering at the University of Hail, Saudi Arabia. His main research interests include microgrids, demand response, power system optimization, energy economics and operation of renewable energy resources.

Plenary Talk 2

Machine Vision for Real-world Applications



Prof. Mark Hansen

Centre for Machine Vision, Bristol Robotics Lab

School of Engineering

University of the West of England, Bristol, UK

Saturday, 8 August 2026

10:40-11:20 am

Room 3Z015

School of Engineering, University of the West of England

Abstract

Machine vision has become ubiquitous over the last decade, as deep learning architectures and huge datasets allow for reliable features to be extracted from images and fine tuned to new domains. In this talk I will discuss how traditional methods worked with case studies performed at the Centre for Machine Vision and our transition to deep learning based frameworks which have paved the way for commercial solutions to previously impossible applications. Finally I will try to provide an overview of state of the art in machine vision (such as Visual Language Action models) and probable future directions of this fascinating area.

Biography

Mark Hansen is a Professor of Machine Vision and Machine learning in the Centre for Machine Vision at the Bristol Robotics Laboratory, UWE Bristol. He has a very wide range of experience with a BSc Psychology, an MSc Computer Science and 10 years in the software engineering industry before completing an engineering PhD. For the last decade his work has focused primarily on Agritech and precision livestock farming, with three commercialisations (HarvestEye, Herd.vision, SKAi reconfigurable camera) as well as fundamental research on pig biometrics/welfare recognition and automated mealworm farming. He has around 40 publications and currently supervises 6 PhD students. He is particularly driven by translating state-of-the-art research into useable on-farm applications and is an Associate Editor for Elsevier's Computers and Electronics in Agriculture.

Plenary Talk 3

Robot Control by Learning from Humans



**Professor Chenguang (Charlie) Yang, PhD, CEng
Fellow of IEEE, IET, IMechE, BCS, AAIA & HEA
Member of European Academy of Sciences and Arts
Department of Computing
The Hong Kong Polytechnic University
HKSAR, China**

Saturday, 8 August 2026

11:20-12:00

Room 3Z015

School of Engineering, University of the West of England

Abstract

This presentation will provide a broad overview of my research in robotics with a focus on learning from Demonstration (LfD). LfD allows robots to acquire and generalize task skills through human demonstrations, creating a seamless integration of artificial intelligence and robotics. Most LfD approaches often overlook the importance of demonstrated forces and rely on manually configured impedance parameters. In response, my team has developed a series of biomimetic impedance and force controllers inspired by neuroscientific findings on motor control mechanisms in humans, enabling robots to imitate compliant manipulation skills. The presentation also covers collaborative control strategies for human-robot interaction, and long-horizon manipulation based on subgoal planning. Tactile sensing designs, soft gripper designs, perception and mapping methods, and advancements in dynamic SLAM and object tracking are also included. Particularly, we designed anthropomorphic visual tactile sensors that assess contact force, surface texture, and shape, to improve robot skill learning through enhanced perceptual capabilities.

Biography

Professor Chenguang Yang (Charlie) received the B.Eng. in Measurement and Control Technology from Northwestern Polytechnical University, China, and the Ph.D. in Adaptive and Neural Network Control from the National University of Singapore. He completed postdoctoral research in human robotics at Imperial College London, UK. Previously, he held professorships at University of Liverpool, University of the West of England as well as South China University of Technology. He was leading the Robotics and Autonomous Systems Group at University of Liverpool and was leading the Robot Teleoperation Group at Bristol Robotics Laboratory. He holds fellowships with Institute of Electrical and Electronics Engineers (IEEE), Institute of Engineering and Technology (IET), Institution of Mechanical Engineers (IMechE), Asia-Pacific AI Association (AAIA), and British Computer Society (BCS). He is a member of European Academy of Sciences and Arts (EASA) and a member of National Academy of Artificial Intelligence (NAAI). Professor Yang was selected as a Featured Author on IEEE Xplore in 2023. As lead author, he received the IEEE Transactions on Robotics Best Paper Award in 2012 and IEEE Transactions on Neural Networks and Learning Systems Outstanding Paper Award in 2022. He also was a lead contributor to the 1st Prize of Chinese Association of Automation (CAA) Natural Science Award in 2022. His current research focuses on embodied AI for robot learning, human robot interaction, and intelligent system design.

Plenary Talk 4

Ethical, Societal and Legal Issues of Robotics Adoption



Matthew Studley
Professor of Ethics and Technology
Director of Engineering Research and Enterprise
Bristol Robotics Laboratory
UWE, Bristol

Sunday, 9 August 2026

9:00-9:40

Room 3Z015

School of Engineering, University of the West of England

Abstract

As robotics systems transition from controlled industrial environments into public, domestic, and social domains, their adoption raises profound ethical, societal, and legal questions. This talk explores the tensions between technological capability and normative frameworks, examining how issues such as autonomy, accountability, bias, and surveillance manifest in robotic applications. Drawing on case studies from healthcare, defence, and elder care, the presentation will highlight the challenges of aligning robotic behaviour with human values, the implications for legal responsibility, and the societal impact of delegating decision-making to machines.

Biography

Matthew Studley's career in robotics has been driven by a commitment that Godlike Technology results in more good than harm, and that it should be possible for citizens to influence the future beyond the laissez-faire approach of abnegating responsibility to market forces. As the UWE Bristol Engineering Director of Research, he drives strategic initiatives, fosters international collaborations, and ensures research aligns with ethical standards. His work spans robotics, machine learning and AI, autonomous weapons, standards and sustainability, with a keen focus on embedding ethics into every stage of technological development. He has served as an advisor for the World Economic Forum and UK Government, and a board member for the Engineering Professors Council and the European Robotics League, where he advances the consideration of ethical and social impacts of robotics through international competitions.

Plenary Talk 5

Control Issues & Some Solutions for High-Speed Industrial Applications of PKMs



Prof. Ahmed CHEMORI
IEEE Senior Member
Robotics Department
LIRMM, University of Montpellier, CNRS

Sunday, 9 August 2026

9:40-10:20

Room 3Z015

School of Engineering, University of the West of England

Abstract

Serial robotic manipulators are mainly characterized by their large workspace and their high dexterity. However, despite these advantages, such robots are not always recommended because of their lack of stiffness and accuracy. Indeed, parallel kinematic manipulators (PKMs) are more suitable for such tasks. PKMs have important advantages with respect to their serial counterparts in terms of stiffness, speed, accuracy and payload. However, these robots are characterized by their high nonlinear dynamics, kinematic redundancy, uncertainties, actuation redundancy, singularities, etc. Besides, when interested in high-speed robotized tasks, such as food packaging and waste sorting applications, the key idea lies in looking for short cycle-times. This means obviously to look for short motion and short stabilization times while guaranteeing robustness and performance with respect to disturbances and changes/uncertainties in the operational conditions. This talk will give an overview of some proposed advanced control solutions for high-speed industrial applications of PKMs in food packaging, waste sorting, and machining tasks. The proposed solutions are mainly borrowed from nonlinear robust, adaptive, or predictive control techniques and have been validated through real-time experiments on different PKM prototypes.

Biography

Ahmed CHEMORI received his M.Sc. and Ph.D. degrees, both in automatic control from Polytechnic Institute of Grenoble, France, in 2001 and 2005 respectively. In 2004/2005 he has been a Research and Teaching assistant at L2S laboratory, University Paris 11. Then he joined Gipsa-Lab as a CNRS postdoctoral researcher. He is currently a senior CNRS researcher in Automatic control and Robotics at LIRMM Laboratory. His research interests include nonlinear (robust, adaptive and predictive) control and their real-time applications in different fields of robotics (underwater robotics, parallel robotics, wearable robotics, and underactuated robotics). He is the author of nearly 200 scientific publications, including international journals, patents, books, book chapters and international conferences. He is currently Technical Editor of the Journal IEEE/ASME Transactions on Mechatronics and served as guest editor for several special issues in other journals. He is member of the IFAC Technical Committee on Adaptive and Learning Systems (TC 1.2), the IFAC Technical Committee on Mechatronic Systems (TC 4.2), the IFAC Technical Committee on Robotics (TC 4.3), and the IFAC Technical Committee on Marine Systems (TC 7.2). He served as a TPC/IPC member or associate editor for different international conferences and organized.