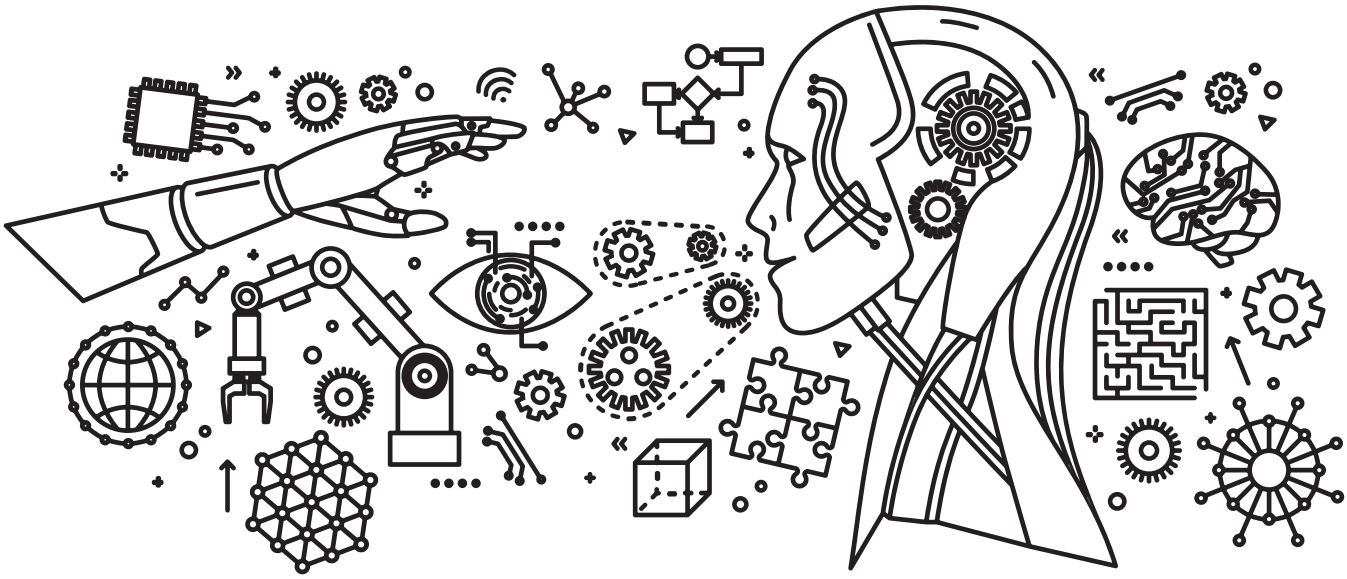

The 30th International Conference on Automation & Computing

ICAC2025

27-29 August 2025, Loughborough, UK

Loughborough University

CACS UK

Welcome to the 30th International Conference on

Automation and Computing (ICAC 2025)

27-29 August 2025
Loughborough University

AGILE·X Robotics | AUTODISCOVERY | 国创中心农业机器人研究所 NICE CART | ANTOBOT | DOBOT

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The 30th International Conference on Automation and Computing (ICAC2025)		
Time (BST)	Programme Outline	Venue
Wednesday, 27 August 2025		
12:00 – 16:00	Registration	Atrium
12:20 – 14:00	Special Session: video presentation	WPT002
14:00 – 16:00	Invited Workshop	WPT002
16:30 – 18:00	CACSUK Committee Meeting & Conference Organisation Meeting	WPT006
Thursday, 28 August 2025		
08:45 – 09:00	Arrival and Registration	Atrium
09:00 – 09:20	The Opening	WPT002
09:20 – 10:05	Keynote Speech 1: Adaptive and Learning Model Predictive Control for Dynamic Systems Prof Yang Shi, University of Victoria, Canada	WPT002
10:05 – 10:50	Keynote Speech 2: From Automation to Autonomy: A small step for machines, one giant leap for humans Dr Dale Richards, Thales UK	WPT002
10:50 – 11:00	Conference Photo Session	Atrium& Exhibition Area
11:00 – 11:20	Tea Break	
11:20 – 12:50	Parallel Session 1	
12:50 – 14:00	Lunch	
14:00 – 14:40	Keynote Speech 3: Recent Advances on Disturbance Rejection Control for Mechatronic Systems Prof Shihua Li, Southeast University, China	WPT002
14:40 – 15:20	Keynote Speech 4: Skill Learning for Human-Robot Interaction and Robot Manipulation Dr Ning Wang, Sheffield Hallam University, UK	WPT002
15:20 – 15:40	Tea Break	
15:40 – 17:10	Parallel Session 2	
18:30 – 21:00	Banquet (18:30-19:00 Arrival; 19:00 Guests to be seated)	Burleigh Court Loughborough
Friday, 29 August 2025		
09:00 – 10:00	Parallel Session 3	
10:05 – 10:50	Keynote Speech 5: Defining and Developing AI for Assistive Autonomy Prof Subramanian Ramamoorthy, University of Edinburgh, UK	WPT002
10:50 – 11:10	Tea Break	
11:10 – 12:25	Parallel Session 4	
12:30 – 13:00	Award Ceremony and The Closing	WPT002
13:00 – 14:00	Lunch	

Keynote Speech 1

Prof. Yang Shi, Fellow of EIC, IEEE, ASME, University of Victoria, Canada

Title: Adaptive and Learning Model Predictive Control for Dynamic Systems

Abstract: Model predictive control (MPC) is a promising paradigm for high-performance and cost-effective control of complex dynamic systems. This talk will report some recent results on adaptive and learning model predictive control (MPC) for a class of constrained dynamic systems with unknown model parameters. By proactively designing the online estimation mechanism and constructing the tube-based adaptive MPC scheme, the enhanced performance can be achieved compared to the robust tube MPC method. The application of adaptive and learning MPC to unmanned systems will be introduced. Some existing challenges and future research directions will be discussed.

Biography: Yang Shi received his B.Sc. and Ph.D. degrees in mechanical engineering and automatic control from Northwestern Polytechnical University, Xi'an, China, in 1994 and 1998, respectively, and the Ph.D. degree in electrical and computer engineering from the University of Alberta, Edmonton, AB, Canada, in 2005. He was a Research Associate in the Department of Automation, Tsinghua University, China, during 1998-2000. From 2005 to 2009, he was an Assistant Professor and Associate Professor in the Department of Mechanical Engineering, University of Saskatchewan, Saskatoon, SK, Canada. In 2009, he joined the University of Victoria, and now he is a Professor in the Department of Mechanical Engineering, University of Victoria, Victoria, BC, Canada. His current research interests include networked and distributed systems, model predictive control (MPC), cyber-physical systems (CPS), robotics and mechatronics, navigation and control of autonomous systems (AUV and UAV), and energy system applications.

On teaching and mentorship, Dr. Shi received the University of Saskatchewan Student Union Teaching Excellence Award in 2007, and the Faculty of Engineering Teaching Excellence Award in 2012 at the University of Victoria (UVic), and the 2023 REACH Award for Excellence in Graduate Student Supervision and Mentorship. On research, he is the recipient of the JSPS Invitation Fellowship (short-term) in 2013, the UVic Craigdarroch Silver Medal for Excellence in Research in 2015, the 2017 IEEE Transactions on Fuzzy Systems Outstanding Paper Award, the Humboldt Research Fellowship for Experienced Researchers in 2018; CSME Mechatronics Medal (2023); IEEE Dr.-Ing. Eugene Mittelmann Achievement Award (2023); the 2024 IEEE Canada Outstanding Engineer Award. He is IFAC Council Member; VP on Conference Activities of IEEE IES and the Chair of IEEE IES Technical Committee on Industrial Cyber-Physical Systems. Currently, he is Editor-in-Chief of IEEE Transactions on Industrial Electronics (2025/01-); he also serves as Associate Editor for Automatica, IEEE Transactions on Automatic Control, Annual Review in Controls, etc. He is a Fellow of IEEE, ASME, CSME, Engineering Institute of Canada (EIC), Canadian Academy of Engineering (CAE), and a registered Professional Engineer in British Columbia, Canada.

Keynote Speech 2

Dr. Dale Richards, Principal Human Factors Engineer, Thales UK.

Title: From Automation to Autonomy: A small step for machines, one giant leap for humans

Abstract: Over the past 50 years we have seen how we have grasped the use of automation as a means to improve such things as safety and efficiency; perhaps using aerospace as a great example of this. However, this technology comes with a cost and is by no means without issue. When we fast forward to where we are today automation was merely the tip of the iceberg, providing the gate to advanced automation, autonomy and Artificial Intelligence. Again, while these technologies can provide increased benefit the nature of how the human interacts with it can still cause significant concern. In this talk we will explore how the human has been represented in the journey of how control has developed from deterministic automation to the bounded rationality of AI. And, form a Human Factors point of view, where do we go from here?

Biography: Dr Dale Richards is a Chartered Psychologist and has both an academic and industry background. This has allowed him to bridge the gap between research and application in the field of AI and autonomous systems. Whilst at QinetiQ Dale led the Human Factors development of the first fast jet to control multiple UAS. Outside of his UK MOD work in autonomy Dale was also HF lead for QinetiQ for autonomous UAVs (ASTRAEA). Following this Dale joined academia for several years (Coventry and later Nottingham Trent University) where he taught Human Factors and won several research grants, ranging from self-driving cars to swarming UAS. Dale currently is a Principal Human Factors Engineer at Thales where he was HF Lead for the successful integration of the S100 UAV onto HMS Lancaster. He sits on the NATO WG for Human-Machine Teaming and has published many papers pertaining to the human element within autonomous systems.

Keynote Speech 3

Prof. Shihua Li, Fellow of IEEE, IET, AAIA and CAA, Southeast University, China

Title: Recent Advances on Disturbance Rejection Control for Mechatronic Systems

Abstract: For mechatronic systems, nonlinearities (frictions, backlash, saturation, etc.), complex internal dynamics, time-varying parameters, external disturbances and complex work tasks make control design a very challenging work. Compared with high gain control and integral control methods, disturbance estimation based control provides a different way to handle disturbance. Disturbance estimation based robust control method can effectively improve the disturbance rejection ability and ensure the robustness of closed-loop system. Some new research developments and results on this topic will be introduced. Specially we will discuss on various advanced modelling, analysis and disturbance rejection control techniques for mechatronic control systems with considerations of time delay, constraint safety control. Considering the characteristics of mechatronic control system, several kinds of composite control design schemes based on disturbance estimation and compensation are presented with experimental or application verification results.

Biography: Shihua Li received his bachelor, master, Ph.D. degrees all in Automatic Control from Southeast University, Nanjing, China in 1995, 1998 and 2001, respectively. Since 2001, he has been with School of Automation, Southeast University, where he is a Chief Professor, dean of School of Automation, Jiangsu Province Specially Appointed Professor.

He is the chairman of IEEE IES Nanjing Chapter, Fellow of IEEE, IET, AAIA and CAA. He is an IEEE Distinguished Lecturer. He is also the Director General of Jiangsu Association of Automation. He served or serves as editor or associate editor of IEEE Transactions on Industrial Electronics, International Journal of Robust and Nonlinear Control, IET Control Theory & Applications, Advanced Control for Applications, etc.

His main research interests include modelling and nonlinear control theory with applications to mechatronic systems, autonomous unmanned systems. He has published 3 monographs, over 300 international journal and conference papers with 34000+ citations (Google Scholar). He is one of Clarivate Analytics Highly Cited Researchers all over the world in 2017-2024. He is a winner of the 6th Nagamori Award in 2020.

Keynote Speech 4

Dr. Ning Wang, Associate Professor in Robotics and AI, Sheffield Hallam University, UK

Title: Skill Learning for Human-Robot Interaction and Robot Manipulation

Abstract: Imitation learning is a method of learning through observing expert behaviours and imitating their strategies for decision-making in complex situations. It has been widely employed in robotics in recent years, and has shown the advantage of efficiently learning expert skills, including subtle adjustments of contact forces and positions in human dexterous manipulation. Expert skills inherently contain human tacit knowledge and empirical rules, and it is expected that if robots can acquire these in some form, their capabilities can be fundamentally enhanced. Robot imitation learning is based on learning human skilled movements and motor profiles, is also called Learning from Demonstration (LfD) or Programming by Demonstration (PbD), emphasizing the aspect of learning directly from human demonstrations. This talk will focus on the principles of robot imitation learning methods, in specific, dynamic system-based approach and their application in various robot learning scenarios, including human-robot collaboration, contact-rich robot manipulation, obstacle avoidance, grasping, semantic navigation, etc, delivering our recent research findings about robot learning in various real-world tasks.

Biography: Ning Wang is an Associate Professor in Robotics and AI at the School of Computing and Digital Technologies, Sheffield Hallam University, United Kingdom. She received the BEng from the College of Automation, Northwestern Polytechnical University in 2005, M.Phil. and Ph.D. degrees from the Department of Electronics Engineering, The Chinese University of Hong Kong, Hong Kong, in 2007 and 2011, respectively. Dr Wang worked as a research fellow on machine learning and big data at the Dept. of Computer Science & Engineering, The Chinese University of Hong Kong (2011-2013) on physiological data mining and intelligent decision-making. She then worked on multimodal human-robot interaction (HRI) for elderly people with the Centre for Robotics and Neural Systems, University of Plymouth (2014-2015), under the support of EU FP7 Project Robot-Era. She has also been key member of EU Regional Development Funded Project ASTUTE 2020 (2018-2019) and industrial projects with UK companies. Dr Wang was a Senior Lecturer (2019-2024) and interim leader of teleoperation group at the Bristol Robotics Laboratory, the most comprehensive academic centre for multi-disciplinary robotics research in the UK.

Dr Wang has been awarded several awards including Best Application Paper Award of ICAC'24, Best Paper Award of DISA'23, IET Premium Award for Best Paper 2022, etc. Her research seeks to address critical challenges at the intersection of robotics and intelligent systems, with applications in health & social care, industrial automation, and smart environments, etc. by offering solutions with human-like cognitive, social and physical capabilities in a machine.

Keynote Speech 5

Prof. Subramanian Ramamoorthy, Turing AI World-Leading Researcher Fellow,
University of Edinburgh

Title: Defining and developing AI for assistive autonomy

Abstract: Robotics is enjoying a surge in interest, in part driven by the rapidly emerging developments in AI in the past decade. What are autonomous robots really good for? I argue that autonomy used in an assistive capacity is one of the most useful goals to aim for within robotics. The fundamental problem in this direction is that of human-robot teaming and collaborative action. In particular, I argue that effective assistance requires good models of the person being assisted, which in turn requires rich cognitive mechanisms. In order for these mechanisms to be instantiated in practical systems, they need to leverage a variety of mechanisms ranging from human teaching to emerging generative AI methods. In this talk, I will outline an agenda, present results from our group's work and conclude with some thoughts on how these ideas can be applied in domains including healthcare and mobility.

Biography: Subramanian Ramamoorthy is a Professor of Robot Learning and Autonomy in the School of Informatics at the University of Edinburgh, where he is Director of the Centre for AI in Assistive Autonomy, and UKRI Turing AI World-Leading Researcher Fellow. Also, he holds lead roles within multi-university initiatives including the UKRI AI CDT in Dependable and Deployable AI for Robotics and the AI Hub for Productive Research and Innovation in Electronics.

His research focus is on robotics and machine learning, with particular emphasis on achieving safe and robust autonomy in human-centred environments. This work has attracted funding from a variety of sources including UKRI, EU, DARPA, DSTL and the Royal Academy of Engineering, and been recognised with best paper awards at international conferences including ICRA, IROS, CoRL, ICDL and EACL.

In addition to his academic role, he has been involved in Five AI, a UK based technology company developing autonomous vehicles technology, as Vice President - Prediction and Planning (2017 - 2020) and Scientific Advisor (2021-23). Five AI was acquired by Bosch GmbH in 2022.

Wednesday, 27 August 2025		
12:30 – 14:00	Special Session: video presentation	WPT002
Session Chairs: Qichun Zhang, Jun Zhang		
Time (BST)	Presentation Title	Paper ID
12:20 – 12:30	Hierarchical Interpretable Construction Algorithm for Data Analysis Dai, Wei; Duan, Mingzi*; Nan, Jing	83
12:30 – 12:40	Deep Convolutional Neural Networks Combined with Pattern Recognition for Assisted Inspection of Industrial Component Assembly Xu, Feifei*; Tian, Binbin; Wang, Shuai; Liu, Yefeng; Sun, Weitang	15
12:40 – 12:50	Research on Real-Time Monitoring System for Geological Disasters of Power Towers Based on 5G and Multi-Sensor Fusion Wang, Keqian*; Hu, Junshui; Xiong, Huahua	19
12:50 – 13:00	Finding Motifs Based on Wavelet and Dynamic Time Warping Guo, Lu*; Wei, Ying ; Guo, Qiu	21
13:00 – 13:10	WSN Target Tracking Based on Cuckoo Particle Filter Optimization Algorithm Guo, Lu*; Wei, Ying; Guo, Qiu	22
13:10 – 13:20	Research on Variable Speed Limit Control Architecture for Highway Icy Pavement Conditions Yang, Jie*	31
13:20 – 13:30	FDNet: A Frequency-Based Dual-Branch Network for HSI Classification Zhang, Tianxiang*; Jia, Wenxin; Zeng, Yuxin; Li, Jiangyun	66
13:30 – 13:40	A Design of PI Controller for Wastewater Treatment Process Based on DDPG Xing, Jin; Li, Dong; Wang, Xin; Zhang, Jun*	89
13:40 – 13:50	Hybrid Modelling of Hydrometallurgical Copper Solvent Extraction Process Based on BO-XGBoost Ke, Honghe; Li, Dong; Wang, Xin; Zhang, Jun*	92
13:50 – 14:00	Data-driven identification of critical sections for high-risk N-k faults Xia, Xinquan; Tang, Xiafei*; Huang, Zizhu; Cai, Ye; Li, Junyao; Pan, Yukai; Qin, Wentao; Hu, Donglin	132
14:00 – 16:00	Invited Workshop: MPC meets Disturbances and Uncertainties	WPT002
Session Chairs: Yunda Yan, Kai Wang		
Time (BST)	Presentation Title	
14:00 – 14:30	A New Framework for Offset-Free MPC in Robotic Physical Interaction Yunda Yan, University College London	
14:30 – 15:00	MPC with Parameter-Dependent Control Policies: Applications to Lateral Control of Single-Track Vehicles James Fleming, Loughborough University	
15:00 – 15:30	Sample-Based Predictive Control for Agile Robots: Fast Planning, Robust Execution, and Safe Operation Valerio Modugno, University College London	
15:30 – 16:00	Safety-critical Control under Disturbances: Foundation, Methods, and Robotic Applications Jun Yang, Loughborough University	

Thursday, 28 August 2025		
11:20 – 12:50	Parallel Session 1: Intelligent Systems I	WPT001
Session Chairs: Zhongguo Li, Zhenyu Lu		
Time (BST)	Presentation Title	Paper ID
11:20 – 11:35	Robust MPC-Based Rescheduling for High-Density Intercity High-Speed Rail: A Focus on Train Headway Optimization Kang, Jiajun*; Yuan, Zhiming; Yu, Shengping; Zhao, Hui; Cui, Dongliang; Dai, Xuewu	16
11:35 – 11:50	DTCG-Net: A Lightweight Attention-Based Framework for In-Vehicle Distraction Detection Feng, Shuang; Tao, Lijie; Jia, Jiaying; Tian, Zhongyu; Soliman, Abdel-Hamid; Xu, Zhijie; Wei, Yajuan*	34
11:50 – 12:05	Privacy-Preserving Prescribed-Time Distributed Time-Varying Optimization Gong, Tengyang; Li, Zhongguo; Xu, Yiqiao; Wan, Quan; Ding, Zhengtao*	53
12:05 – 12:20	Evaluating and Mitigating GNSS NLOS Effects for Autonomous Navigation in Urban Environments Liu, Shun; Pullin, Rhys; Grech, Raphael; Peng, Bo; Ji, Ze*	61
12:20 – 12:35	Anti-Disturbance Fault-Tolerant Control of Affine Cyber-Physical System: An Information Fusion Strategy Combining Variable Reconstitution Chen, Tao; Chen, Jian*	64
12:35 – 12:50	Wireless Tactile Sensor with Embedded Neural Network for Multifunctional Contact Detection Feng, Yuxiang; Jin, Yixuan; Chen, Mingxu; Yang, Jialong; Cao, Guanqun; Yang, Chenguang; Lu, Zhenyu*	68
11:20 – 12:50	Parallel Session 1: Manufacturing Systems	WPT002
Session Chairs: Yong Yue, Jichun Li		
Time (BST)	Presentation Title	Paper ID
11:20 – 11:35	TRACE: Tracking and Real-time Analytics for Cargo and Enterprise Rehman, Yusuf; Cervantes, Waldo; Mahmoud, Haitham Hassan; Feldman, Gerald; Mohammed, Nazim; Atkins, Philip; Bhana, Rehan*	71
11:35 – 11:50	Review of In-Space Assembly Technologies Idrees, Qaveem*; Luo, Xichun; Xie, Wenkun; Evans, Dorothy	75
11:50 – 12:05	Computational Intelligence-Driven Innovation in Vehicle Body Design Automation An, Jiabao; Chen, Yi*	82
12:05 – 12:20	Binder Jetting Additive Manufacturing of 316L Stainless Steel: Process Behaviour and Green Part Quality Optimization Wang, Lei; Li, Yang*; Hongye, Zhang; Shuhan, Ren; Haoran, Zhang; Kaifeng, Wang	88
12:20 – 12:35	System Variations and Their Impact on the Validation of Digital Twin Models in Dynamic Manufacturing Environments Zare, Ashkan*; Lazarova-Molnar, Sanja	108
12:35 – 12:50	Market and Production Management of Air Bearings using Ontology-based Knowledge Graph and NLP Jia, Zhiyuan; Gou, Ning; Cheng, Kai; Zhu, Xiaohui; Yue, Yong*	122

11:20 – 12:50	Parallel Session 1: Control Engineering I	WPT004
Session Chairs: Jingjing Jiang, Weihao Song		
Time (BST)	Presentation Title	Paper ID
11:20 – 11:35	Gaussian Process-Based Robust Model Predictive Control for Spacecraft Attitude Tracking Zhou, Jiacheng; Sun, Liang*; Jiang, Jingjing	10
11:35 – 11:50	Distributed Fixed-Time Optimization-Based Formation Optimal Tracking for Heterogeneous Multi-Agent Systems Wang, Tingting*; Dong, Xiwang; Hua, Yongzhao; Ren, Zhang	20
11:50 – 12:05	Encryption-Decryption-Based Particle Filtering for Stochastic Systems with Randomly Switching Nonlinearities and Sensor Resolutions Song, Weihao*; Wang, Zidong; Li, Zhongkui	140
12:05 – 12:20	Analysis and Suppression Method of Sub\Supersynchronous Oscillations for Grid-forming AC Grid-connected System with Virtual Impedance Control Dou, Junyue; Tang, Xiafei*; Pan, Yukai; Li, Junyao; Qin, Wentao; Cai, Ye; Hu, Donglin	54
12:20 – 12:35	Dissipativity-Based Control for Polynomial Systems Using Rational Lyapunov Functions Penaforte Brito, Gustavo*; Madeira, Diego	60
12:35 – 12:50	Real-Time Water Quality Monitoring System using the Arduino Uno and a Nextion Touchscreen Yang, Jinyan; Gartlan, Thomas; Zang, Ziling; Wei, Yujia; Ibrahim, Mina; Kuang, Boyu*	62
11:20 – 12:50	Parallel Session 1: Artificial Intelligence I	WPT005
Session Chairs: Yunjie Chen, Linwei Chen		
Time (BST)	Presentation Title	Paper ID
11:20 – 11:35	Advanced Machine Learning Algorithms for Battery State-of-Charge Estimation in Electric Vehicles Dinmohammadi, Fateme; Hingwe, Tanaya; Shafiee, Mahmoud*	3
11:35 – 11:50	Deep Learning for Underwater Object Detection: From CNNs to Transformer-Based Real-Time Solutions Bhandari, Hari; Liu, Pengcheng*	11
11:50 – 12:05	ADD-DETR: An End-to-End Framework for Real-Time Aircraft Defect Detection Using UAV and UGV Collaboration in Pre-flight Inspections Dong, Xiangqing*; Ding, Meng; Zhou, Yi; Cao, YunFeng; Wei, Li ; Wei, YanZhuang; Wang, JiaJun	14
12:05 – 12:20	Privacy-Preserving Pinning Synchronization for Time-Delay Complex Networks: A Noise Injection Scheme Chen, Yunjie*; Wang, Zidong; Liu, Yurong	146
12:20 – 12:35	A Novel Particle Swarm Optimizer with Randomly Occurring Uncertainty Chen, Linwei*; Wang, Zidong; Liu, Weibo; Liu, Xiaohui	147
12:35 – 12:50	Optimization Strategies for Dryer Groups Using Reinforcement Learning Feng, Guoliang; Gao, Tianren*; Yu, Tianming	26

11:20 – 12:50	Parallel Session 1: Robotic Systems I	WPT006
Session Chairs: Jun Yang, Cunjia Liu		
Time (BST)	Presentation Title	Paper ID
11:20 – 11:35	On Robust Consistent Distributed Kalman Filter over Sensor Network for Systems under Disturbances Luo, Bote*; Xue, Wenchao; Fang, Haitao; Yang, Jun	4
11:35 – 11:50	Poly-TagSLAM: Low-Cost Robot Localisation and Mapping in Polytunnels with Fiducial Markers Xu, Shuoyuan; Coombes, Matthew; Liu, Cunjia*	12
11:50 – 12:05	Design and Fabrication of a Two Degree of Freedom Parallel Robot for Use in Education Wang, Xi*; Chang, Jung-Che; Li, Siqian; Dong, Xin	18
12:05 – 12:20	Autonomous Exploration with Virtual Map using Unmanned Surface Vehicles Li, Ye*	24
12:20 – 12:35	Reinforcement-learning-based Navigation and Path Tracking Control for Orchard Unmanned Vehicles Ren, Zhigang; Jian, Chen*	65
12:35 – 12:50	Multi-Rotor UAV Trajectory Planning in Warehouse Picking: An Imitation Learning Approach with Human Directional Correction Yu, Zhenxin; Zhu, Mingchi; She, Haoping*; Si, Weiyong	70

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15:40 – 17:10	Parallel Session 2: Intelligent Systems II	WPT001
Session Chairs: Weibo Liu, Nana Fan		
Time (BST)	Presentation Title	Paper ID
15:40 – 15:55	Transient Lubrication Monitoring of Journal Bearing Via Novel On-Rotor Sensing Technology Hu, Zhifeng*; Ma, JiaoJiao; Chen, Yang ; Zhang, Hao; Gu, Fengshou; Ball, Andrew	69
15:55 – 16:10	Disturbance-Observer-Based Backstepping Control with Disturbance Utilization in DC-DC Boost Converters for Hydrogen Fuel Cells Zheng, Xiyao; Guo, Xiaoyu; Dong, Zhen; Fan, Nana; Wang, Chenliang*	136
16:10 – 16:25	Stochastic Distribution Control for Non-Gaussian Metro Passenger Flow Pan, Zhenqi; Yin, Hanyu; Yi, Yang*; Wang, Weixin; Zhu, Guangyu; Chen, Jing	139
16:25 – 16:40	A Transfer-Learning-Assisted Role-Differentiated Approach for Industrial Outlier Detection under Label Noise Fang, Jingzhong*; Wang, Zidong; Liu, Weibo; Liu, Xiaohui	143

16:40 – 16:55	Vibration-Based Signal Regression for Estimating Tumour Stiffness Using a Capsule Robot Wang, Siyuan*; Afebu, Kenneth O; Papatheou, Evangelos ; Liu, Yang; Prasad, Shyam	157
16:55 – 17:10	Application Layer DDoS Attack Detection Based on Coded Adversarial Networks Xu, Ke*; Liu, Chen; He, Haitao; Li, Jiahui; Yu, Lu; Ren, Jiadong; Song, Xiaofei	28
15:40 – 17:10	Parallel Session 2: Computer Vision	WPT002
Session Chairs: Zhijie Xu, Xiaojun Zhai		
Time (BST)	Presentation Title	Paper ID
15:40 – 15:55	DBU-Net:A Dual-Branch U-Net for Virtual Try-On Ren, Jiadong; Niu, Boya; Yang, Shuailin*; Song, Xiaofei; Li, Jiazheng; Zhang, Dekai	52
15:55 – 16:10	Robust Apple Grasping via PointNet-Based Semantic Segmentation and Centroid Localization Ran, Xu; Hassan, BahaaEldin*; Si, Weiyong; Gu, Dongbing; She, Haoping ; McDonald-Maier, Klaus	102
16:10 – 16:25	AI-Driven Abnormal Behaviour Detection within Crowds Alsiraji, Mohammed ; Wang, Jing*	109
16:25 – 16:40	A System for Automatic Reporting of Technician Movements During Offshore Maintenance Trips Boukhennoufa, Issam*; Zhai, Xiaojun; Singh, Amit Kumar ; Cooper, Bob; Mehew, Tom	111
16:40 – 16:55	A Small Target Sensitive CSNet for Urban Scene Segmentation Zhang, Chaolong*; Xu, Yuanping; Xu, Zhijie; Wang, Weiye; Guo, Benjun; Jin, Jin	158
16:55 – 17:10	Enhancing YOLOv11n for Small Object Detection in UAV Imagery Wu, Kang *	33
15:40 – 17:10	Parallel Session 2: Control Engineering II	WPT004
Session Chairs: Xuewu Dai, Yi Dong		
Time (BST)	Presentation Title	Paper ID
15:40 – 15:55	Deep Koopman operator Approach for Metro Train Dynamics modelling and Speed tracking control Wen, Lian*; Weiqi, Bai; Hairong, Dong ; Zixuan, Zhang; Xiying, Song	73
15:55 – 16:10	Optimized Integral-LQR Control and Crane-Adapted Dynamic Window Approach Algorithm for 3D Overhead Crane Path Planning Mustafa, Ali*; Brahmi, Brahim; Iqbal, Naveed	78
16:10 – 16:25	Weighted Multi-Innovation Stochastic Gradient Identification of CAR Models Dong, Ruiqi*	110
16:25 – 16:40	Safety-Guaranteed Prescribed Performance Control for Virtually-Coupled Trains with Adaptive Parameter Identification Si, Wenxiao; Gao, Shigen*; Dai, Xuewu; Busawon, Krishna	126
16:40 – 16:55	Unscented Kalman Filter-Augmented Nonlinear Model Predictive Fault-Tolerant Control for a Tilting-Rotor Quadcopter Wang, Yanchao*; Baghdadi, Mehdi; Liu, Yuanchang	130

16:55 – 17:10	Primary frequency regulation of power system with two stage BESS Zhang, Bin; Wang, Yongyue ; Ma, Qianxiong; Zhang, Jianhua*	151
15:40 – 17:10	Parallel Session 2: Artificial Intelligence II	WPT005
Session Chairs: Yongqiang Cheng, Qiwen Guan		
Time (BST)	Presentation Title	Paper ID
15:40 – 15:55	Assessing Privacy-Utility Trade-offs in Generative Model-based Synthetic Tabular Datasets Padariya, Debalina*	35
15:55 – 16:10	A Comparative Framework of Prompting, Reasoning, and LoRA Fine-tuning for Imbalanced Offensive Language Detection Guan, Qiwen*	48
16:10 – 16:25	A Proficiency-Oriented Neural Network for Accent Classification Wang, Xinyi; Zhang, Mao; Gu, Yuanlin*	81
16:25 – 16:40	A Non-Invasive Blood Pressure Estimation Method Based on Mamba-Unet and PPG Signals Yu, Huiqun; Fan, Haonan; Li, Qingde; Lu, Fangfang*; Cheng, Yongqiang	91
16:40 – 16:55	Forecasting Public Expenditure Using LSTMs: A Multi-Task Learning Approach for Volatile Data Scherer, Marlene*	101
16:55 – 17:10	FedFall: Federated Learning Based Framework for Fall Detection Pathan, Nazia*; Yu, Hongnian; Vassallo, Michael; Koufaki, Pelagia	129
15:40 – 17:10	Parallel Session 2: Robotic Systems II	WPT006
Session Chairs: Chao Zeng, Rui Huang		
Time (BST)	Presentation Title	Paper ID
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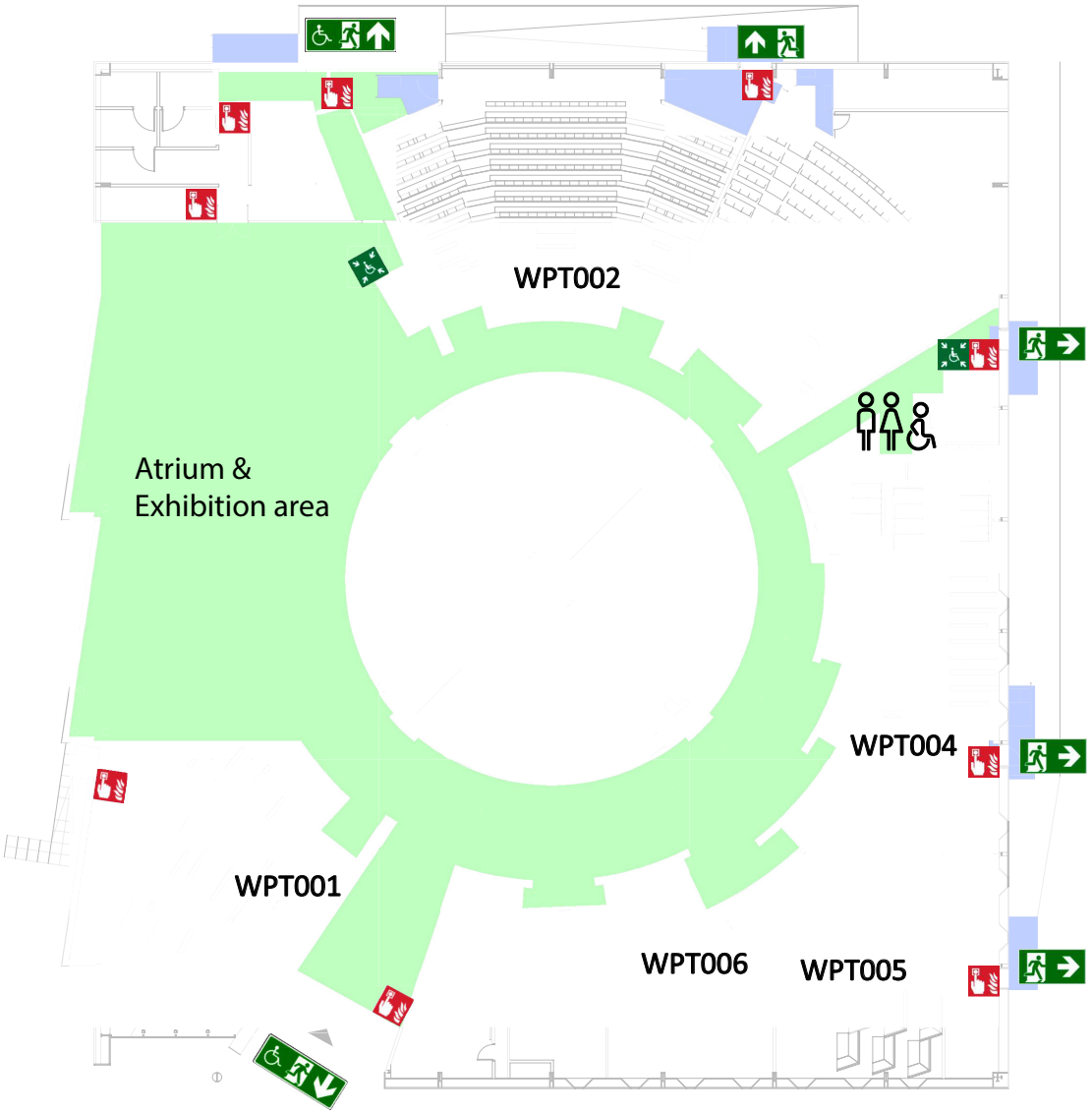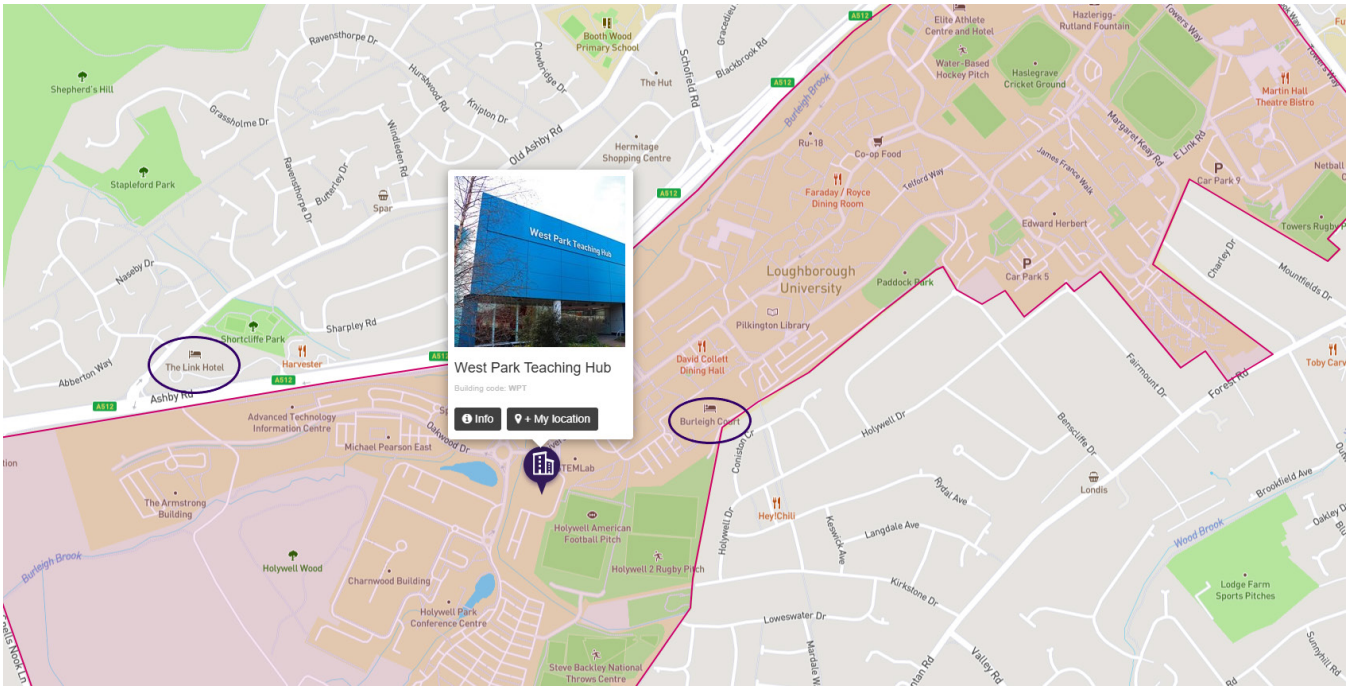
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