ICIT 2024

The 25th IEEE International Conference on Industrial Technology

IEEE Industrial Electronics Society

Institute of Electrical and Electronics Engineers

March 25-27, 2024 Bristol UK

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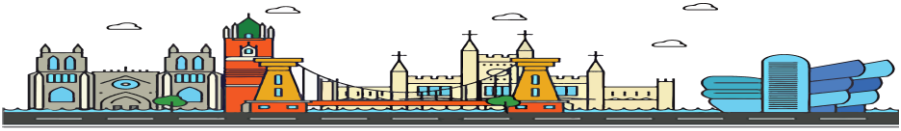
Welcome Message

On behalf of the conference committee, we are pleased to welcome you to the 25th International Conference on Industrial Technology (ICIT 2024) at Bristol, UK, from March 25th to 27th, 2024. ICIT 2024 is fully sponsored by the Industrial Electronics Society (IES) of Institute of Electrical and Electronics Engineers (IEEE).

ICIT 2024 provides an international forum for researchers and practitioners from academia and industry who are dedicated to the dissemination of new ideas, research and progress work in the areas of intelligent and computer control systems, robotics, communications and automation, flexible manufacturing, data acquisition, as well as signal processing, vision systems, and power electronics for the development of an intelligent and resilient society. The conference has received nearly 400 paper submissions from over 30 countries and regions. Approximately 240 papers have been accepted and will be presented in more than 40 sessions, with topics covering signal and image processing, computational intelligence, control systems, robotics and mechatronics integration, power electronics, energy and smart grids, motors, drives, sensors and actuators, etc.

ICIT 2024 is particularly successful in attracting students and young professionals, supported by the IES Student and Young Professionals Paper Assistance Program (IES-SYPA). We will also hold the SYP Forum, which is designed to help students and young professional stay connected to the IES

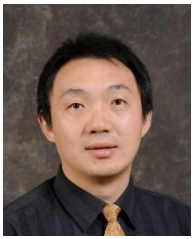


community. The SYP Forum also provides a unique opportunity for participants to ask questions and get professional advice directly from IES seniors such as IEEE Fellows, IES Chairs, AdCom members, and experienced colleagues. The SYP Forum features a series of keynote speeches by leaders from academia and industry, a 3M video session, and an open discussions between participants.

ICIT 2024 will also hold an Industry Forum, where industry speakers will address technology directions, products, and challenges to IES conference attendees and industry perspectives that need to be faced every day. The presentations of the invited speakers of this forum will focus on directions, use cases, changes, and challenges faced by industry associated with the technical areas of IES. The selected topics will represent an industry perspective on the subjects of interest to the IES community.

We thank the authors, reviewers and special session organizers for their valuable contribution to ICIT 2024. Without their support and dedication, we would not have been able to reach such a good number of submissions and high-quality evaluations. Finally, we would like to thank all the conference committee co-chairs and volunteer session co-chairs for their hard work in making the ICIT 2024 possible and successful.

Chenguang Yang
General Co-Chair
The University of Liverpool
Liverpool, UK



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University of Victoria
Victoria, Canada

Huijun Gao
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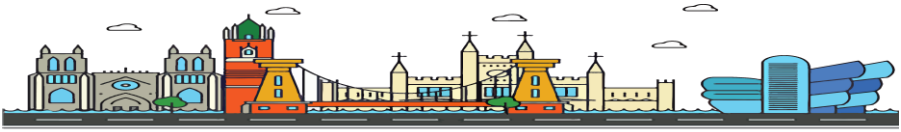

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Dandan Zhang, UK

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Keynote Speakers

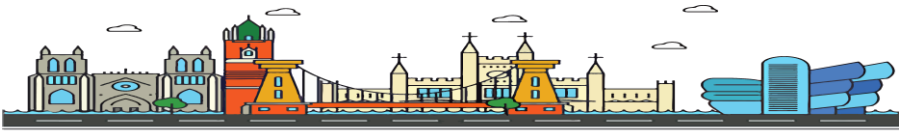
Title: Electric Vehicle Battery Charging Using Plug-in Solutions

Professor Emil Levi

Biography: Emil Levi received his Dipl. Ing. degree from the University of Novi Sad, Yugoslavia in 1982 and his MSc and the PhD degrees in Electrical Engineering from the University of Belgrade, Yugoslavia in 1986 and 1990, respectively. From 1982 till 1992 he was with the Dept. of Electrical Engineering, University of Novi Sad. He joined Liverpool John Moores University, UK in May 1992, where he was promoted to a Reader in 1995 and appointed to a Full Professorship in September 2000 as Professor of Electric Machines and Drives. He served as a Co-Editor-in-Chief of the IEEE Trans. on Industrial Electronics in the 2009-2013 period and as Editor-in-Chief of the IET Electric Power Applications from 2010 until 2022. Emil is currently serving as Editor-in-Chief of the IEEE Trans. on Industrial Electronics (2019-2024) He is a Fellow of the IEEE and the recipient of the Cyril Veinott award of the IEEE Power and Energy Society for 2009 and the Best Paper award of the IEEE Trans. on Industrial Electronics for 2008. He is also a recipient of the European Power Electronics (EPE) Association "Outstanding Achievement Award" for 2014, "Professor Istvan Nagy Award" of the Power Electronics and Motion Control (PEMC) Council for 2018, and is a Foreign Member of the Serbian Academy of Engineering.

Abstract: Numerous countries have recently set the target for cessation of pure combustion engine car manufacturing within the next 10 to 20 years, leading to substantial acceleration of passenger vehicle electrification. The presentation will at

first give an overview of the current EV market, with emphasis on the inverter power rating and dc-link voltage level. This will be followed by a survey of a multitude of different charging options and charging levels for plug-in charging, which will be the topic of the remaining part of the presentation. Wired charging of non-integrated on-board type will be examined first. Topologies of semi-integrated on-board chargers will be reviewed next, including those with integration of either the propulsion motor or the inverter in the charging process. This will be followed by some solutions that provide full integration of on-board chargers and which may become accepted in the future by EV manufacturers. All such fully integrated charger topologies involve multiphase (more than three phases) power electronic converters and machines.



Keynote Speakers

Title: Dual Control for High Levels of Automation in Uncertain Environments

Professor Wen-Hua Chen

Biography: Dr Wen-Hua Chen holds Professor in Autonomous Vehicles in the Department of Aeronautical and Automotive Engineering at Loughborough University, UK. Prof. Chen has a considerable experience in control, signal processing and artificial intelligence and their applications in aerospace, automotive and agriculture systems. In the last 20 years, he has been working on the development and application of unmanned aircraft and intelligent vehicle technologies, spanning autopilots, situational awareness, decision making, verification, remote sensing for precision agriculture and environment monitoring. He is a Chartered Engineer, and a Fellow of IEEE, the Institution of Mechanical Engineers and the Institution of Engineering and Technology, UK. Prof Chen currently holds a 5-years UK EPSRC (the Engineering and Physical Sciences Research Council) Established Career Fellowship award in developing control theory for robotics and autonomous systems.

Abstract: For a system operating in an unknown or changing environment, it is desirable to design a control system to keep it always operating at its best possible performance (i.e. in terms of productivity or efficiency). This talk introduces a new approach, namely dual control for exploitation and exploration (DCEE), to this type of self-optimisation control problems. In this framework, the control action not only

drives a system moving towards a believed optimal operational condition, but also aims to reduce the uncertainty of this belief by actively exploring and learning the unknown environment. Autonomous search of the source of airborne dispersion using a robot and maximum power point tracking in solar farming are used as case studies to illustrate the proposed DCEE approach. Its link with reinforcement learning and active inference in neuroscience is also discussed.

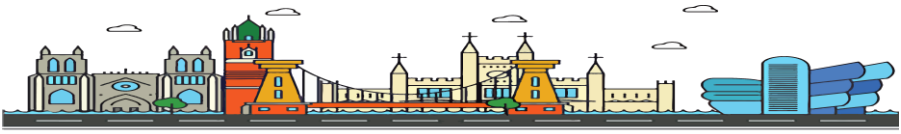
Keynote Speakers

Title: Rolling Friction Model-Based Initial Value Compensation in Fast and Precision Positioning for Industrial Positioning Devices

Professor Makoto Iwasaki

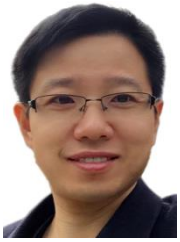
Biography: Makoto Iwasaki received the B.S., M.S., and Dr. Eng. degrees in electrical and computer engineering from Nagoya Institute of Technology, Nagoya, Japan, in 1986, 1988, and 1991, respectively. He is currently a Professor at the Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology. As professional contributions of the IEEE, he has participated in various organizing services, such as, a Co-Editors-in-Chief for IEEE Transactions on Industrial Electronics from 2016 to 2022, a Vice President for Planning and Development in term of 2018 to 2021, etc. He is IEEE fellow class 2015 for "contributions to fast and precise positioning in motion controller design". He has received many academic, foundation, and government awards, like the Best Paper and Technical Awards of IEE Japan, the Nagamori Award, the Ichimura Prize, and the Commendation for Science and Technology by the Japanese Minister of Education, respectively. He is also a fellow of IEE Japan, and a member of Science Council of Japan. His current research interests are the applications of control theories to linear/nonlinear modeling and precision positioning, through various collaborative research activities with industries.

Abstract: Fast-response and high-precision motion control is one of indispensable techniques in a wide variety of high-performance mechatronic systems including micro and/or nano scale motion, such as data storage devices, machine tools, manufacturing tools for electronics components, and industrial robots, from the standpoints of high productivity, high quality of products, and total cost reduction. In those applications, the required specifications in the motion performance, e.g. response/settling time, trajectory/settling accuracy, etc., should be sufficiently achieved. In addition, the robustness against disturbances and/or uncertainties, the mechanical vibration suppression, and the adaptation capability against variations in mechanisms should be essential properties to be provided in the performance. The plenary talk presents the fast and precision motion control techniques, where a 2-degrees-of-freedom (2DOF) control framework is especially handled as one of practical and/or promising approaches to improve the motion performance. Actual issues and relevant solutions for each component in the 2DOF control structure are clarified and, then one of examples, a 2DOF controller design for fast and vibration suppression positioning, is presented as an application to industrial high precision positioning devices. In this speech, especially, a practical approach of mathematical modelling and compensation for friction in the precision positioning is discussing for typical industrial manufacturing machines, e.g. laser processing machine, electronic chip placement machine, semiconductor manufacturing machine, e.tc., where a nonlinear stiff characteristic with hysteresis property of friction in the micro-displacement region can be mathematically modeled using a rheology-based rolling friction model. The friction model can be applied to analyze response variations and slow settling responses in positioning and then, an initial value compensation by mode switching control to ensure the required positioning control specifications.



Industry Forum Organizers

Dr. Zhibo Pang
Industry Forum Organizers
ABB/KTH
Sweden



Dr. Yichao Jin
Industry Forum Organizers
Toshiba
UK

Dr. Chang Liu
Industry Forum Organizers
Extend Robotics
UK

Industry Forum Speakers

Rob Deaves, Senior Principal Engineer, Dyson, Honorary Professor, University of Birmingham

Abstract/teaser: Rob will provide an overview of the 360VisNav, Dysons 3rd World-wide sales, mass market automated home vacuum cleaner. In the overview he will highlight how the 'harsh' environment of the home affects the robot and the technologies and processes applied to overcome them!

Industry Forum Speakers

Rich Walker, Director of Shadow Robot Company

Abstract/teaser: Rich will talk about the work Shadow Robot have done developing highly-dexterous robot hands for robotics R&D, and some of the industrial areas where these technologies are relevant. Rich will include some examples of early work to address these challenges, and what the barriers are to taking the technology forwards industrially. Finally, Rich will reflect on how to engage with the opportunities of robotics from a research and from an industrial perspective.

Industry Forum Speakers

Pete Allport, Head of Remote Technologies Group at Sellafield

Abstract/teaser: Remote Technology Deployments at Sellafield are difficult at the best of times, however by adopting an Equipment Programme approach to three asset types and the domains they operate in we have accelerated remote robotic deployments across the enterprise and are now realising some of the wider benefits that came with robotic deployments in nuclear.

Industry Forum Speakers

Xiao Ai, Co-Founder & CTO of QLM Technology Ltd

Abstract/teaser: The talk will address the urgent need for monitoring greenhouse gases, specifically methane, and explores the real-world impacts. QLM Technology introduces its Quantum Gas Lidar (QGL) technology, highlighting its practical deployment for sensitive methane detection in industrial settings. The presentation emphasizes the working principle of the QGL as a novel scientific instrument, showcasing its effectiveness in field trials and regulatory compliance. The technology not only meets but exceeds industry standards, offering a comprehensive solution for monitoring and mitigating industrial methane emissions. The widespread implementation of this technology contributes significantly to the global net-zero emissions objectives.

SYPA Keynote Speakers

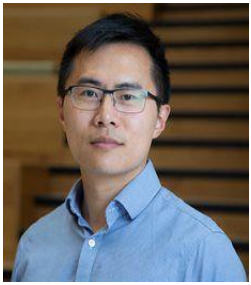
Title: Cloud/Fog Automation: the New Paradigm of Industrial Automation Calling Cross-disciplinary Synergy

Dr. Zhibo Pang
Adjunct Professor, KTH Royal Institute of Technology, Sweden. Senior Principal Scientist, ABB Corporate Research Sweden

Abstract: Inspired by the fast evolution of 5G, cloud computing, and artificial intelligence, the manufacturing industry are looking for new generation automation systems that can be deployed on open, flexible, and IT-style communication and computing infrastructures. However, major technical challenges must be solved in terms of determinism before the expected benefits are achievable, especially for field level regulatory control. In this presentation, I will share what we have done towards the vision of doing field level regulatory control over cloud and fog computing and wireless networks. I will show the significant improvements in the latency and reliability of the latest wireless technologies such as 5G and WiFi6, as well as the insufficiencies to support the real-time control tasks. More importantly, our preliminary progress suggests, it will be much easier to solve the overall challenge if we can tune the control model according to the latency pattern of the networks. Despite its effectiveness in our specific use case, the generalizability of the proposed “latency-aware control” or “control-computing-communication co-design” is still a big research question. I hope to trigger more discussions on this topic by this talk.

SYPA Keynote Speakers

Title: Smart robotic disassembly and remanufacturing automation

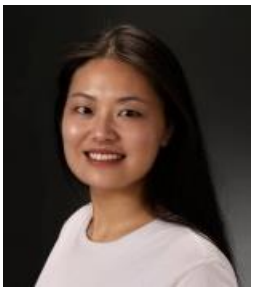


Dr. Yongjing Wang
Associate Professor in the School of Engineering, Associate Professor, University of Birmingham

Abstract: Disassembly is a key step in remanufacturing and recycling, both of which are critical components in a circular economy. Disassembly is also a common operation in the repair and maintenance of machines and public infrastructure facilities (e.g. transport and energy). n many ways, disassembly is challenging to robotise due to variability in the condition of the returned products and the required dexterity in robotic manipulations. Compared to the assembly of new products, which is deterministic because the components to be assembled are of known geometries, dimensions and states, disassembly is more stochastic as it has to contend with used products of uncertain shapes, sizes and conditions. This talk introduces recent research developments in the area of robotic disassembly and remanufacturing automation, and highlight key opportunities and technical gaps in the use of robots to support sustainable manufacturing.

Tutorials

Title: Digital active gate driver IC augmented with ANN optimisation for power semiconductor devices



Jenny Feng
Doctor of Toshiba, Research Engineer

Abstract: For the power semiconductor devices, the widespread adoption of SiC MOSFETs is driven by their superior switching performance and matured fabrication processes. To unlock the full potential of SiC MOSFETs, active gate drivers offer optimal driving patters, minimizing switching losses and overshoots for enhanced efficiency and EMC performance in various applications. SiC MOSFETs exhibit inherent variations in key parameters due to semiconductor fabrication processes and temperature sensitivity. From an application perspective, slew rate control and related noises can either expedite or impede the design process, becoming critical factors in converter prototyping and time-to-market.

Addressing these considerations, active gate drivers must possess precise controllability and adaptability to varying application requirements. This presentation introduces a fully integrated digital active gate driver augmented with an artificial neural network for optimizing the drain current overshoot and energy loss during switching transients. The on-chip ADC and 2n-sec gate current control enable surge current cancellation under various load current conditions. The programmable capabilities of the active gate driver allow adaptability to different

application scenarios. While the on-chip lookup table ensures easy implementation, contributing to efficient and flexible SiC MOSFET-driven converter designs.

Tutorials

Title: New Advances and Trends in Model Predictive Control for Power Electronics and Electrical Drives

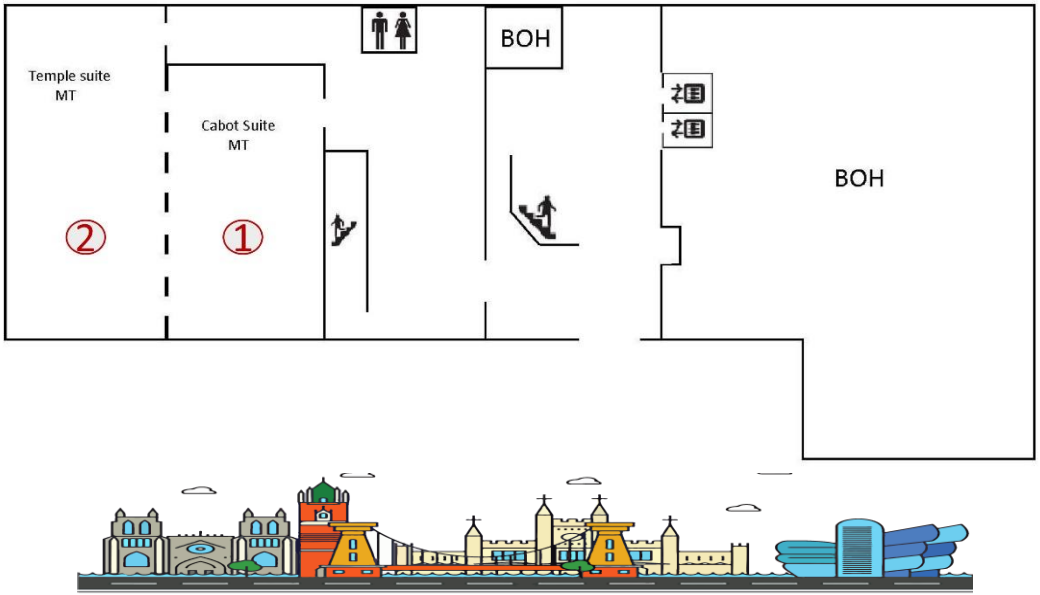
Marco Rivera
Professor in the Power Electronics and Machine Centre, University of Nottingham

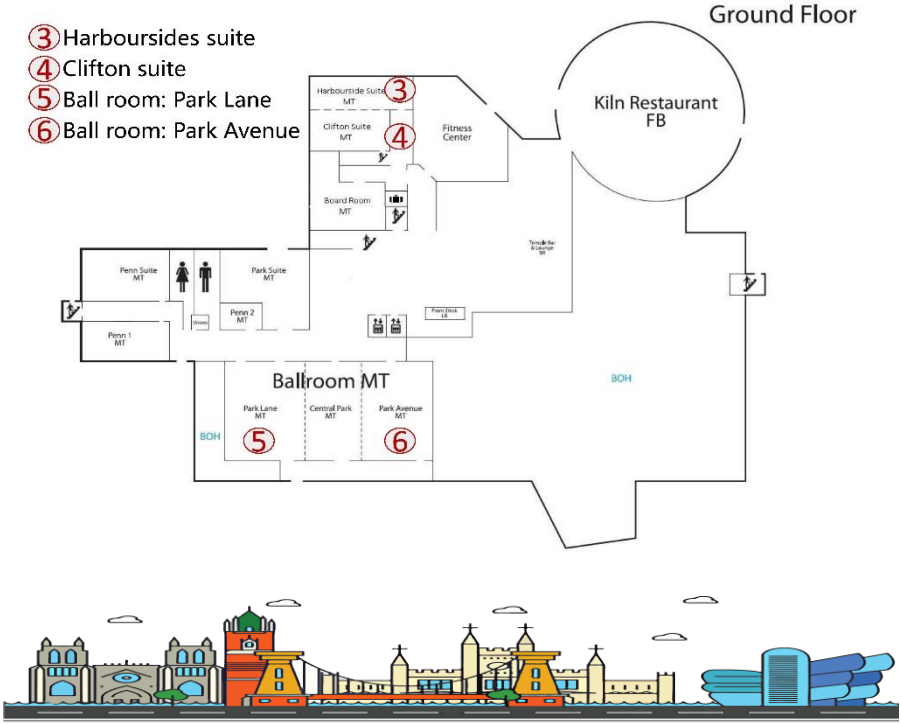
Abstract: In the last decades, the application of fast modern microcontrollers has been continuously growing, allowing the development and implementation of new and more intelligent control strategies as an alternative to conventional techniques for power converters. Model Predictive Control is one of these powerful and attractive alternatives that has received a lot of attention in recent years. The use of predictive control offers several interesting advantages: it is an intuitive control approach, it does not need linear controllers and modulators, and it is possible to easily include nonlinearities and restrictions in the control law. It is expected that the advantages of predictive control will lead to industrial applications very shortly. In this tutorial, new advances and trends in the application of model predictive control for power electronics and electrical drives will be presented.

Floor Plan

Lower Ground Floor

① Cabot suite
② Temple suite




③Harboursides suite
④Clifton suite
⑤Ball room: Park Lane
⑥Ball room: Park Avenue
Ground Floor
Kiln Restaurant
FB
Harbourside Suite
MT
Clifton Suite
MT
Fitness
Center
Board Room
MT
Penn Suite
MT
Park Suite
MT
Penn 2
MT
Penn 1
MT
Ballroom MT
Park Lane
MT
Central Park
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Park Avenue
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Program of ICIT 2024

Note: The conference program shows the time of Greenwich Mean Time (GMT). Registration desk is located next to the hotel reception on the ground floor. It starts from 7pm on the 24th Mar, 2024.

Sunday, March 24th, 2024	
19:00 – 21:00	**Registration**
Monday, March 25, 2024	
08:30 – 16:30	**Registration**
08:45 – 09:15	**Reception Tea**
09:15 – 10:15	**Keynote Speech 1 ~ Emil Levi (Ball room Chair: Chenguang Yang)**
10:15 – 10:45	**Tea Break**
10:45 – 12:30	**Parallel Sessions**

	Room ①	Room ②	Room ③	Room ④	Room ⑤	Room ⑥
	Session MON.A1	Session MON.B1	Session MON.C1	Session MON.D1		
	Signal and Image Processing and Computational Intelligence (1)	Advanced Technologies in Power Electronics Converter	Control Systems, Robotics and Mechatronics (1)	Intelligent Perception, Control and Safe Protection for Smart Transportation		
12:30 – 13:30	Lunch					
13:30 - 15:00	Session MON.A2	Session MON.B2	Session MON.C2	Session MON.D2	Session MON.E2	Session MON.F2
	Signal and Image Processing and Computational Intelligence (2)	Power Electronics, Energy and Smart Grids (6)	Control Systems, Robotics and Mechatronics (2)	Electrical Machines, Drives, Sensors and Actuators (1)	AI and Industrial Informatics - AI(1)	Industrial Automation, Communication and Manufacturing (1)
15:00 - 15:30	Tea Break					
15:30 - 17:00	Session MON.A3	Session MON.B3	Session MON.C3	Session MON.D3	Session MON.E3	Session MON.F3
	Signal and Image Processing and Computational Intelligence(3)	Power Electronics, Energy and Smart Grids (3)	Control Systems, Robotics and Mechatronics (3)	Electrical Machines, Drives, Sensors and Actuators (2)	AI and Industrial Informatics - AI (2)	Advances in Autonomous Robot Sensing and Control for Industrial and Special Applications

18:00 -21:30	ZAZA BAZAAR Buffet with Complimentary Welcome Drink (Please refer to ZAZA notes at Dinning Tips)				
Tuesday, March 26, 2024					
08:30 – 16:30	Registration				
08:30 – 09:00	Reception Tea				
09:00 – 10:00	Keynote Speech 2 ~ Wen-Hua Chen (Ball room Chair: Jing Zhou)				
10:00 – 10:30	Tea Break				
10:30 – 12:30	Industrial Forum				
	Industrial forum Sperkers: Rob Deaves; Rich Walker; Pete Allport; Xiao Ai; Discussion: Panel discussion; Zhibo Pang; Yichao Jin; Chang Liu; Wenhua Chen; Okyay Kaynak.				
12:30 – 13:30	Lunch				
	Parallel Session				SYPA & Tutorial
	Room ①	Room ②	Room ③	Room ④	Ball room
13:30- 15:00	Session TUE.A2	Session TUE.B2	Session TUE.C2	Session TUE.D2	Student Forum
	Power Electronics, Energy and Smart Grids (4)	Industrial Automation, Communication and Manufacturing (2)	Control Systems, Robotics and Mechatronics (4)	Modern Energy Systems: Advanced Applications Of Machine Learning and Evolutionary Computing	

15:00 – 15:30	**Tea Break**					
15:30 –17:00	**Session TUE.A3**	**Session TUE.B3**	**Session TUE.C3**	**Session TUE.D3**	**Tutorial**	
	EV and DER Grid Integration	**Industrial Automation, Communication and Manufacturing (3)**	**Advanced control for industrial automation and autonamous system**	**Security, Safety and Privacy in Assistive Autonomous and Robotic Systems**	**Jenny Feng (15:30 – 16:15) Marco Rivera (16:15 – 17:00)**	
19:00	**Banquet**					
Wednesday, March 27, 2024						
08:30	**Registration**					
08:45 – 09:15	**Reception Tea**					
09:15 – 10:15	**Keynote Speech 3 ~ Makoto Iwasaki (Ball room Chair: Hairong Dong)**					
10:15 – 10:45	**Tea Break**					
	Parallel Sessions					
	Room ①	**Room ②**	**Room ③**	**Room ④**	**Room ⑤**	**Room ⑥**
10:45 – 12:30	**Session WED.A1**	**Session WED.B1**	**Session WED.C1**	**Session WED.D1**	**--**	**--**

	Industrial Automation, Communication and Manufacturing (1)	Electrical Machines, Drives, Sensors and Actuators (3)	Robot Learning, Navigation and Interaction Control	Advances in Data-Driven Fault Diagnosis and Fault-Tolerant Control for Industrial Systems		
12:30 – 13:30	Lunch					
13:30 –15:00	Session WED.A2	Session WED.B2	Session WED.C3	Session WED.D2	Session WED.E2	Session WED.F2
	Power Electronics, Energy and Smart Grids (2)	Electrical Machines, Drives, Sensors and Actuators (5)	Control Systems, Robotics and Mechatronics (5)	Environmental Perception, Planning, and Control of Multi-Robots	Power Electronics, Energy and Smart Grids (5)	Sustainable Manufacturing and Power
15:00 – 15:30	Tea Break					
15:30 –17:00	Session WED.A3	Session WED.B3	Session WED.C3	Session WED.D3	Session WED.E3	Session WED.F3
	Emerging Technologies in Wireless Power Transfer	Electrical Machines, Drives, Sensors and Actuators (4)	Monitoring, Information Gathering and Sensing of Robotics	Application Of Power, Healthcare and Education	Cloud Computing, Sensing, Big Data and Software Engineering for Perception and Society	Adcanced technology on Scene Understanding and Mechatronics

Day 1: March 25, 2024- Parallel Sessions		
Session MON.A1 **Signal and Image Processing and Computational Intelligence(1)**	**10:45 am - 12:30 pm**	
Co-Chair: Lu Chen	**Room ①: Cabot suite**	**Paper ID**
10:45-11:00	Dual-branch Low-light Image Enhancement via Spatial and Multi-scale Frequency Domain Fusion	ICIT24-000056
11:00-11:15	Texture image classification using LLGMN and HLAC features	ICIT24-000207
11:15-11:30	Localization and Classification of Defects on Natural Wood Surfaces	ICIT24-000209
11:30-11:45	Continuous Valence-Arousal Space Prediction and Recognition based on Feature Fusion	ICIT24-000211
11:45-12:00	Node Reservation based Incremental Learning Network for Object Classification	ICIT24-000340
12:00-12:15	Spatial-Temporal Graph U-Net for Skeleton-based Human Motion Infilling	ICIT24-000404
12:15-12:30	Water content classification on leaves based on multi-spectral imagery and machine learning techniques for wildfire prevention	ICIT24-000374

Session MON.B1 Advanced Technologies in Power Electronics Converter	10:45 am - 12:30 pm	
Co-Chair: Liping Mo	**Room ②: Temple suite**	**Paper ID**
10:45-11:00	Comparative Analysis of Identification Methods for Estimating the Electrical Equivalent Circuit of Domestic Induction Heating Systems	ICIT24-000043
11:00-11:15	Increasing the linear modulation range of a Five-level inverter to the Full base speed with the elimination of lower-order harmonics for variable-speed drive applications	ICIT24-000079
11:15-11:30	Analysis of Phase Voltage Oscillation Affected by Switching State Changes of Other Phases in Three-Phase T-Type Converter	ICIT24-000197
11:30-11:45	FCS-MPC Control Strategies Based on Period Control for 3L-NPC Inverter	ICIT24-000233
11:45-12:00	A Hybrid Model and Data-Driven Approach for Online Diagnosis of Open-Circuit Faults in Grid-Tied Three-Phase VSIs	ICIT24-000254
12:00-12:15	Loss Analysis Method for Laminated Magnetic Cores in Inductive Power Transfer Applications	ICIT24-000272
12:15-12:30	Harmonic Elimination Based on Harmonic Extraction and Inverse Injection for Parity-Time Symmetric WPT	ICIT24-000303
Session MON.C1 **Control Systems, Robotics an Mechatronics**	**10:45 am - 12:30 pm**	

Co-Chair: Haitao Chang	Room ③: Harbourside suite	Paper ID
10:45-11:00	Improved Fixed Time Preset Performance Sliding Mode Control for Robotic Manipulator	ICIT24-000063
11:00-11:15	Car path planning with improved artificial bee colony algorithm	ICIT24-000096
11:15-11:30	AoI-Based Communication Traffic Reduction for Networked Railway Vehicle Control	ICIT24-000141
11:30-11:45	Network and Control Co-Design for Heterogeneous CACC Systems Under Communication Constraints	ICIT24-000142
11:45-12:00	Continuously Weighted Majority Voting for Detection of Data Tampering Attacks in Redundant CACC Systems	ICIT24-000144
12:00-12:15	Robust Control of Feeding Speed for Coal Mine Tunnel Drilling Machines	ICIT24-000159
12:15-12:30	Enhancing Human-to-Robot Skill Transfer: A Framework Integrating Movement and Variable Impedance Skill Transfer	ICIT24-000304
Session MON.D1	**10:45 am - 12:30 pm**	
Intelligent Perception, Control and Safe Protection for Smart Transportation		

Co-Chair: Haifeng Song	Room ④: Clifton suite	Paper ID
10:45-11:00	Train Tracking Interval Optimization Method Based on Cooperative Perception of Train Speed and Communication States	ICIT24-000293
11:00-11:15	Speed Optimization Strategy for Connected Vehicles on Ecological Roads	ICIT24-000294
11:15-11:30	Construction of Traffic Control Scenarios for Energy-saving Trucks Driving	ICIT24-000296
11:30-11:45	Risk Analysis for Urban Road Tunnel Operation Safety Based on Social Network Analysis (SNA)	ICIT24-000307
11:45-12:00	Digital Twin-Driven Smart Transportation Infrastructure: Connotation, Reference Model, Applications and Research Issues	ICIT24-000308
12:00-12:15	Cooperative Control for Multiple Trains with Prescribed Performance and Collision Avoidance Guarantees	ICIT24-000329
12:15-12:30	Investigating Unsafe Behaviors of Vehicles at Non-Signalized Intersections Based on Trajectory Data	ICIT24-000331
Session MON.A2		
Signal and Image Processing and Computational Intelligence(2)	**13:30 pm - 15:00 pm**	
Co-Chair: Tianhua Chen	**Room ①: Cabot suite**	**Paper ID**

13:30-13:45	Exploiting Machine Learning and LSTM for Human Activity Recognition: Using Physiological and Biological Sensor Data from Actigraph	ICIT24-000360
13:45-14:00	Deep learning approach to estimate the optimal number of piles and beams from architectural floorplans	ICIT24-000400
14:00-14:15	Foreign Object Separation in Bulk Good Systems using Machine Learning and Image Processing	ICIT24-000020
14:15-14:30	Panorama Inspector: A Novel Methodology for Automated Error Detection in Stitched Images	ICIT24-000097
14:30-14:45	Maturity and Yield Estimation of Tomatoes using RGB and Multispectral Images	ICIT24-000131
14:45-15:00	Segment Anything Model (SAM) Meets Object Detected Box Prompts	ICIT24-000169
Session MON.B2 **Power Electronics，Energy and Smart Grids(6)**	**13:30 pm - 15:00 pm**	
Co-Chair: Maurice FADEL	**Room ②： Temple suite**	**Paper ID**
13:30-13:45	Optimal Control of a Hybrid Offshore Platform Combining a Wind Turbine and Multiple Floats	ICIT24-000290
13:45-14:00	A Shared Control Approach for Muti-Area Interconnected Power System via Operational Behaviors Learning	ICIT24-000255

14:00-14:15	Automated Anomaly Detection in Concentrated Solar Power Plants with Linear Least Squares Approximation	ICIT24-000264
14:15-14:30	Voltage Relaxation Pattern Recognition for Efficient Sorting of Healthy Cells for Second-life Applications of Retired Electric Vehicle Batteries	ICIT24-000315
14:30-14:45	A High Voltage DC Power Supply with Output Ladder Filter as a Lumped Delay Line for Reducing the Short-Circuit Fault Stress	ICIT24-000320
14:45-15:00	Experimental Investigation about the Effect of Voltage Ripple of the Power Supply on the Performance of High Power Electron Tubes	ICIT24-000345
Session MON.C2 **Control Systems, Robotics and Mechatronics (2)**	**13:30 pm - 15:00 pm**	
Co-Chair: Jinya Su	**Room ③: Harbourside suite**	**Paper ID**
13:30-13:45	Energy Profiling for Wheeled Mobile Robots with LuGre Friction Model in a Realistic Simulation Framework	ICIT24-000081
13:45-14:00	Automatic Emoticons Insertion System based on Acoustic Information of User Voice: 2st Report on Feature Selection for Emotion Estimation using Machine Learning	ICIT24-000339
14:00-14:15	Lanty: A Deep Sea Stereo Vision System	ICIT24-000145

14:15-14:30	Fast Dual Control of Exploration and Exploitation for Autonomous Search of Hazardous Sources	ICIT24-000182
14:30-14:45	Rapid roboting towards fruit harvesting tool design and implementation in robotic farming	ICIT24-000191
14:45-15:00	Precision Motion Control of Hydraulic Actuators with Performance Guaranteed Online Parameter Estimation	ICIT24-000210
Session MON.D2 **Electrical Machines, Drives, Sensors and Actuators(1)**	**13:30 pm - 15:00 pm**	
Co-Chair: Bahar Houtan	**Room ④: Clifton suite**	**Paper ID**
13:30-13:45	UDE-based trajectory tracking control for uncertain USV subject to environmental disturbance	ICIT24-000007
13:45-14:00	A fast feature extraction-based method for globally accurate registration of multi-view point clouds	ICIT24-000095
14:00-14:15	Dynamical Systems Based Compliance Control Approach without Direct Force Information	ICIT24-000155
14:15-14:30	Multi-Task Incremental Learning with Refined Pseudo-Label Generation for Robotic Semantic Grasp Detection	ICIT24-000157
14:30-14:45	An Acoustic Indoor Localization Method Based on Directional Variability for Mobile Robot	ICIT24-000160

14:45-15:00	A flexible imitation learning system based on the Lyapunov energy function of the neural networks	ICIT24-000249
Session MON.E2	**13:30 pm - 15:00 pm**	
AI and Industrial Informatics - AI (1)		
Co-Chair: Ziwei Wang	**Room ⑤: Ball room: Park Lane**	**Paper ID**
13:30-13:45	Rapid Beam Training at Terahertz Frequency with Contextual Multi-Armed Bandit Learning	ICIT24-000018
13:45-14:00	Transparency of Task Dependencies of Reinforcement Learning in Unmanned Systems	ICIT24-000246
14:00-14:15	Design and Optimization of Sensing-Communication Integration System in Industrial Automation based on FDA and PA	ICIT24-000362
14:15-14:30	Addressing the Productivity Paradox in Healthcare with Retrieval Augmented Generative AI Chatbots	ICIT24-000383
14:30-14:45	Multi-Agent RAG Chatbot Architecture for Decision Support in Net-Zero Emissions Energy Systems	ICIT24-000390
14:45-15:00	Integrating Modeling Languages with Ontologies in the Context of Industry 4.0	ICIT24-000402
Session MON.F2	**13:30 pm - 15:00 pm**	
Industrial Automation, Communication and Manufacturing (1)		

Co-Chair: Ming Zhang	Room ⑥: Ball room: Park Avenue	Paper ID
13:30-13:45	A Data Fusion Service-Oriented Infrastructure for Production Line Monitoring	ICIT24-000164
13:45-14:00	Partible State Replication for Industrial Controller Redundancy	ICIT24-000267
14:00-14:15	Deadline-Based Class Assignment for Time-Sensitive Network Frame Preemption	ICIT24-000324
14:15-14:30	Enabling Automated Timing Verification: A Unified Approach for Industrial Distributed Control Systems	ICIT24-000338
14:30-14:45	TRUST Issues: Multicast and Integrity Protection for the TRUST Redundancy Mechanism	ICIT24-000391
14:45-15:00	RSSI-Based Localization in Industrial Environments: A Wi-Fi/BLE Hybrid Approach	ICIT24-000405
Session MON.A3	**15:30 pm - 17:00 pm**	
Signal and Image Processing and Computational Intelligence(3)		
Co-Chair: Lu Chen	**Room ①: Cabot suite**	**Paper ID**
15:30-15:45	A deep transfer learning approach for lung tumour detection with resilience testing under suboptimal conditions	ICIT24-000187

15:45-16:00	A Fair Scheduling Algorithm and Schedulability Analysis for Performance Asymmetric Multiprocessors	ICIT24-000100
16:00-16:15	A Novel Framework of DOM Producing for Air-ground Collaboration in Ultra-low-altitude Aerial Photography	ICIT24-000103
16:15-16:30	Enhancing Speech Emotion Recognition in Urdu Using Bi-GRU Networks: An In-depth Analysis of Acoustic Features and Model Interpretability	ICIT24-000270
16:30-16:45	Human Dynamic Motion Classification Framework integrating MediaPipe and CNN	ICIT24-000327
16:45-17:00	Collaborative Lightweight Fire Detection Method for Non-local Spaces	ICIT24-000356
Session MON.B3 **Power Electronics，Energy and Smart Grids(3)**	**15:30 pm - 17:00 pm**	
Co-Chair: Haochen Hua	**Room ②: Temple suite**	**Paper ID**
15:30-15:45	Fuzzy-Based Energy Management for a Fuel Cell Micro Gas Turbine Battery Power Plant	ICIT24-000033
15:45-16:00	Analytical Model and Control for Three-Phase Single-Stage Rectifier for Battery Chargers	ICIT24-000045
16:00-16:15	System level modeling of electromagnetic couplings for the energy efficiency of static converters	ICIT24-000149

16:15-16:30	Fuzzy Control for Multi-Energy Microgrids	ICIT24-000151
16:30-16:45	Overview of Challenges of Microgrid Clusters	ICIT24-000172
16:45-17:00	Fuzzy Logic Controller for Load-Shifting in Smart Homes with Battery Storage & Rooftop PV	ICIT24-000274
Session MON.C3 **Control Systems, Robotics and Mechatronics (3)**	**15:30 pm - 17:00 pm**	
Co-Chair: Hyondong Oh	**Room ③: Harbourside suite**	**Paper ID**
15:30-15:45	Facial Expression Recognition with Multi-level Integration Disentangled Generative Adversarial Network	ICIT24-000024
15:45-16:00	An Adaptive Control Method Based on Radial Basis Function Neural Network for Variable Stiffness Actuator	ICIT24-000027
16:00-16:15	Optimized Admittance Control for Manipulators Interacting with Unknown Environment	ICIT24-000376
16:15-16:30	Complex Double Integration Enhanced ZNN with Rejection of Linear Noise for Computing Time-Dependent Sylvester Equation	ICIT24-000226
16:30-16:45	Sim-to-Real Transfer for Robotics using Model-free Curriculum Reinforcement Learning	ICIT24-000231
16:45-17:00	Generalised 2-Trailer Vehicle's Dataset with LiDAR Point Cloud and last trailer's position measurements	ICIT24-000261

Session MON.D3 Electrical Machines, Drives, Sensors and Actuators (2)	15:30 pm - 17:15 pm	
Co-Chair: Ramsha Karampuri	**Room ④: Clifton suite**	**Paper ID**
15:30-15:45	Guaranteed Torque and Demagnetization Current During Active Short Circuit Transients of PMSMs	ICIT24-000361
15:45-16:00	Magnet Loss Computation for PMSMs Under PWM Supply via Corrected Magnetostatic FEA	ICIT24-000382
16:00-16:15	Fast efficiency mapping procedure for PMSM accounting for the PWM supply impact	ICIT24-000384
16:15-16:30	Adaptive Neuro-Fuzzy Based Incipient Fault Detection and Diagnosis for Three Phase Induction Motor	ICIT24-000431
16:30-16:45	Optimisation of PM-assisted Synchronous Reluctance Motor with Rectangular Flux Barriers	ICIT24-000240
16:45-17:00	Unified Adaptive Flux Observer for AC Machines	ICIT24-000062
17:00-17:15	An Innovative Tactile Sensor Roller for Composites Inspection	ICIT24-000230
Session MON.E3 **AI and Industrial Informatics - AI (2)**	**15:30 pm - 17:00 pm**	
Co-Chair: Yiwe Shi	**Room ⑤: Ball room: Park Lane**	**Paper ID**
15:30-15:45	From Publication to Production: Interactive Deployment of Forklift Activity Recognition	ICIT24-000025

15:45-16:00	Model Comparative Analysis of Neighborhood Aggregation Levels in Graph Neural Networks and Traditional Neural Networks for Metaschedulers	ICIT24-000057
16:00-16:15	Enhanced Symbolic Artificial Intelligence Mechanism for External Magnetic Interference Classification in Magnetostrictive Position Sensors	ICIT24-000115
16:15-16:30	Physical Layer Key Sharing for an Off-The-Shelf UWB Module	ICIT24-000183
16:30-16:45	NLOS Identification and Mitigation with WiFi: A Performance Evaluation in Dynamic Environments	ICIT24-000189
16:45-17:00	A GPU-accelerated Neural Networks Approximation Scheme for Heston Option Pricing Model	ICIT24-000319
Session MON.F3 **Advances in Autonomous Robot Sensing and Control for Industrial and Special Applications**	**15:30 pm - 17:00 pm**	
Co-Chair: Haifeng Song	**Room ⑥: Ball room: Park Avenue**	**Paper ID**
15:30-15:45	Pre-Training Graph Neural Network for Fault Diagnosis and Safety Assessment	ICIT24-000433
15:45-16:00	Enhancing Bandgap Depth in Locally Resonant Metastructures via Notch-filtered Piezoelectric Actuation	ICIT24-000434
16:00-16:15	Model Free Adaptive Trajectory Tracking for Multiple High-Speed Trains with I/O Saturations	ICIT24-000435

16:15-16:30	Admittance Based Robot Force Control Framework for Server Board Assembly	ICIT24-000336
16:30-16:45	A reinforcement learning based control framework for robot gear assembly with demonstration learning and force feedback	ICIT24-000359
16:45-17:00	DeformerNet based 3D Deformable Objects Shape Servo Control for Bimanual Robot Manipulation	ICIT24-000238

Day 2: March 26, 2024- Parallel Sessions		
Session TUE.A2	**13:30 pm - 15:00 pm**	
Power Electronics, Energy and Smart Grids (4)		
Co-Chair: Mahdi Jalili	**Room ①: Cabot suite**	**Paper ID**
13:30-13:45	Control allocation for optimal and resilient operation of the MMC	ICIT24-000005
13:45-14:00	Energy-efficient HVAC Control based on Reinforcement Learning and Transfer Learning in a Residential Building	ICIT24-000076
14:00-14:15	Robust Control and Unified Operation of Integrated Fuel Cell Electric Vehicle and Supercapacitor	ICIT24-000104
14:15-14:30	Privacy Leakage in Federated Home Applications Using Gradient Inversion Algorithms	ICIT24-000080

14:30-14:45	A Novel High Step-Up DC-DC Converter with Mirrored Dual Voltage Multiplier Modules	ICIT24-000116
14:45-15:00	Flatness-Based Control for Transient Current Suppression in a Dual Active Bridge Converter	ICIT24-000147
Session TUE.B2	**13:30 pm - 15:00 pm**	
Industrial Automation, Communication and Manufacturing (2)		
Co-Chair: Irwin Allen Diaz Diaz	**Room ②: Temple suite**	**Paper ID**
13:30-13:45	An FPGA-Based Intrusion Detection System Using Binarised Neural Network for CAN Bus Systems	ICIT24-000122
13:45-14:00	Bandwidth Reservation Analysis for Schedulability of AVB Traffic in TSN	ICIT24-000186
14:00-14:15	Inverter-based Switched Current Programmable Sampled and Hold Amplifier for LV Applications	ICIT24-000194
14:15-14:30	Analog Implementation of 1-D Discrete Map	ICIT24-000422
14:30-14:45	Multi-agent Robot Systems: Analysis, Classification, Applications, Challenges and Directions	ICIT24-000048
14:45-15:00	Optimization of a Data-Driven Soft Sensor for Use Cases with Multiple Dimensions	ICIT24-000089
Session TUE.C2	**13:30 pm - 15:00 pm**	
Control Systems, Robotics and Mechatronics (4)		
Co-Chair: Yunda Yan	**Room ③: Harbourside suite**	**Paper ID**

13:30-13:45	Reinforcement Learning-Based Output Stabilization Control for Nonlinear Systems With Generalized Disturbances	ICIT24-000203
13:45-14:00	A Formal Finite-Control-Set Control Approach for PMSM Drives under Disturbances	ICIT24-000280
14:00-14:15	Initial study toward motion generation by autonomous decentralized control for peristaltic mixing and conveying device imitating intestines.	ICIT24-000430
14:15-14:30	Genetic Algorithm-Based Two-Layer Predictive Optimization Control	ICIT24-000299
14:30-14:45	Discrete-Time Optimization of Collision-Free Rotary Crane Motion with Load-Sway Suppression	ICIT24-000328
14:45-15:00	System Development and Integration of Unmanned Aerial Vehicle Navigation Techniques for Indoor Environments	ICIT24-000085
Session TUE.D2		
Modern Energy Systems: Advanced Applications of Machine Learning and evolutionary computing	**13:30 pm - 15:00 pm**	
Co-Chair: Hongnan Ma	**Room ④: Clifton suite**	**Paper ID**
13:30-13:45	Optimal Planning Framework for Battery Energy Storage System and Electric Vehicle Charging Stations in Distribution Networks	ICIT24-000420
13:45-14:00	Reinforcement learning-tuned robust nonlinear controller for enhanced EV charger control	ICIT24-000428

14:00-14:15	Parameters Estimation of PV Modules for a Three-Diode Model Using an Enhanced Salp Swarm Algorithm	ICIT24-000046
14:15-14:30	Optimizing Grid-Integrated Renewable Systems for Cost-Effective Electricity and Hydrogen Supply	ICIT24-000093
14:30-14:45	Building's Energy Consumption Prediction With Limited Historical Data Via AR-RNN	ICIT24-000244
14:45-15:00	Lithium Ion Batteries Impedance Approximation and Model Parameterization Using Artificial Neural Networks	ICIT24-000251
Student Forum	**13:30 pm - 15:15 pm**	
Chair: Weiyong Si	**Ball room**	**Speaker**
	Formal Opening	
13:30-13:35	Welcome address by the ICIT'24 General Chair and Student Forum Chair	**Chenguang Yang**
13:35-13:45	Students and Young Professionals Activities in IES – Vision, Mission and Action plan	**Weiyong Si**
	SYP Keynote Speeches	
13:45-14:15	Smart robotic disassembly and remanufacturing automation	**Yongjing Wang**
14:15-14:45	Cloud/Fog Automation: the New Paradigm of Industrial Automation Calling Cross-disciplinary Synergy	**Zhibo Pang**
	Video presentations of SYPA winner	**Paper ID**
14:45-14:50	Proof of location verification towards trustworthy collaborative multi-vendor robotic systems	ICIT24-000050
14:50-14:55	A Quad-Active Bridge (QAB)-based Solid-State Transformer for Fast Charging of Light/Medium and Heavy Electric Vehicles	ICIT24-000306

14:55-15:00	The Behavior of DC Microgrid Connected Solid State Transformer During Internal Short Circuits	ICIT24-000305
15:00-15:05	An FPGA-based Intrusion Detection System using Binarised Neural Network for CAN Bus Systems	ICIT24-000122
15:05-15:10	BIM and Digital Twin for Electrical Systems: A Case Study of an Industrial Building	ICIT24-000395
15:10-15:15	Adaptive Neuro-Fuzzy Based Incipient Fault Detection and Diagnosis for Three Phase Induction Motor	ICIT24-000431
Session TUE.A3	**15:30 pm - 17:00 pm**	
EV and DER Grid Integration		
Co-Chair: Syed Ali	**Room ①: Cabot suite**	**Paper ID**
15:30-15:45	Cost Optimized Scheduling in Modular Electrolysis Plants	ICIT24-000259
15:45-16:00	The Behavior of DC Microgrid Connected Solid State Transformer During Internal Short Circuits	ICIT24-000305
16:00-16:15	A Quad-Active Bridge (QAB)-based Solid-State Transformer for Fast Charging of Light/Medium and Heavy Electric Vehicles	ICIT24-000306
16:15-16:30	A Virtual Platform for EV Drivetrain Testing Based on Low-Power Hardware in the Loop System	ICIT24-000353
16:30-16:45	Predicting EV charging duration using Machine Learning and charging transactions at three sites	ICIT24-000389
16:45-17:00	Averaged models and analysis of a three-phase CSI as a dual of a three-phase VSI	ICIT24-000352

Session TUE.B3 Industrial Automation, Communication and Manufacturing (3)	15:30 pm - 17:00 pm	
Co-Chair: Ze JI	**Room ②: Temple suite**	**Paper ID**
15:30-15:45	Probabilistic Model Checking for IEC 61499: A Manufacturing Application	ICIT24-000185
15:45-16:00	Human digital twin for real-time physical fatigue estimation in human-robot collaboration	ICIT24-000137
16:00-16:15	AR and HRC integration for Enhanced Pragmatic Quality	ICIT24-000153
16:15-16:30	A Brief Review to Moving Objects Capturing and Imaging Method Using Single Pixel Imaging	ICIT24-000347
16:30-16:45	Smart Factory Production Process Using Virtual Cost Optimization	ICIT24-000135
16:45-17:00	Leveraging GraphQL for Large-Scale Queries on Digital Twins in Industry 4.0	ICIT24-000139
Session TUE.C3 **Advanced control for industrial automation and autonamous system**	**15:30 pm - 17:00 pm**	
Co-Chair: Zhenhong Li	**Room ③: Harbourside suite**	**Paper ID**
15:30-15:45	Robust Image-Based Visual Servo Target Tracking of UAV with Depth Camera	ICIT24-000049
15:45-16:00	Real-time object detection and robotic manipulation for agriculture using a YOLO-based learning approach	ICIT24-000212

16:00-16:15	Precision Robotic Assembly of Industrial Components with Robust Pose Estimation and Cooperative Manipulation	ICIT24-000330
16:15-16:30	Strict Lyapunov Function for New Finite-time Nonsingular Sliding Mode Control	ICIT24-000373
16:30-16:45	Adaptive Super-Twisting Sliding Mode Control of Uncertain Underactuated Cranes	ICIT24-000234
16:45-17:00	Event-Triggered Control for a Fog Computing Platform with AI-based Inference	ICIT24-000148
Session TUE.D3	**15:30 pm - 17:00 pm**	
Security, Safety and Privacy in Assistive Autonomous and Robotic Systems		
Co-Chair: Marchang Jimes	**Room ④: Clifton suite**	**Paper ID**
15:30-15:45	Proof of location verification towards trustworthy collaborative multi-vendor robotic systems	ICIT24-000050
15:45-16:00	Machine Learning Security of Connected Autonomous Vehicles: A Systems Perspective	ICIT24-000208
16:00-16:15	Secure by Design Smart Authentication for Care Robots to Support the Elderly	ICIT24-000262
16:15-16:30	Beyond Data Collection: Safeguarding User Privacy in Social Robotics	ICIT24-000378
16:30-16:45	Access Control Architecture of Assistive Robots for Physical Activity Wellbeing Data	ICIT24-000412
16:45-17:00	AIoT and VR-Based Technology for Robots Control in Critical Safety Environments: Challenges and Opportunities	ICIT24-000110

Day 3: March 27, 2024- Parallel Sessions		
Session WED.A1	**10:45 am - 12:30 pm**	
Industrial Automation, Communication and Manufacturing (1)		
Co-Chair: Ziwei Wang	**Room ①: Cabot suite**	**Paper ID**
10:45-11:00	Development of a robot system for sorting polymer-based recycling	ICIT24-000003
11:00-11:15	3D Single-pixel Imaging by virtual binocular vision	ICIT24-000042
11:15-11:30	Low-Voltage Ride-Through Scheme for Distributed Generation Inverters using a Modified Current Reference Strategy	ICIT24-000064
11:30-11.45	A digital twin of a ball screw drive under different conditions: a case study about temperature drift	ICIT24-000111
11.45-12:00	A dual-arm robotics teleoperation system for needle steering in prostate brachytherapy	ICIT24-000348
12:00-12:15	Task planning optimization in assisting multiple NC machine tools using AMR	ICIT24-000344
12:15-12:30	Detection of Cracks in the Industrial System using Adaptive Principal Component Analysis and Wavelet Denoising	ICIT24-000118
Session WED.B1	**10:45 am - 12:30 pm**	
Electrical Machines, Drives, Sensors and Actuators (3)		
Co-Chair: Ramsha Karampuri	**Room ②: Temple suite**	**Paper ID**

10:45-11:00	Torque Ripple Reduction Technique Using Current Injection for a Five-Phase PM-BLDC drive	ICIT24-000109
11:00-11:15	Fast and Accurate Iron Loss Evaluation Using Static FEA for Traction PMSMs	ICIT24-000129
11:15-11:30	Investigations of vibratory lines from PWM in order to recover vibratory energy on an electric machine	ICIT24-000188
11:30-11.45	PLECS Implementation of a Predictive Control Strategy for a Multi-Drive System based on an Indirect Matrix Converter	ICIT24-000205
11.45-12:00	A Novel Magnetic Gear Integrated Segmented Rotor SRM with Reduced Rare-earth Material	ICIT24-000237
12:00-12:15	Optimisation of Slot Wedges for 27 kW 100 krpm Axially Laminated Synchronous Reluctance Machine	ICIT24-000072
12:15-12:30	Toolbox for an Analytical Determination of a Gearbox-Generator-Combination	ICIT24-000091
Session WED.C1 **Robot learning, Navigation and Interaction Control**	**10:45 am - 12:30 pm**	
Co-Chair: Weiyong Si	**Room ③: Harbourside suite**	**Paper ID**
10:45-11:00	Sensor-free Variable Impedance Control Using Quadratic Programming and Extended State Observer	ICIT24-000253
11:00-11:15	Robot Manipulation Skill Learning Based on Stable Sparse Gaussian Process	ICIT24-000256

11:15-11:30	Lightweight of SiamCAR Network for UAV Single Target Track	ICIT24-000288
11:30-11.45	Robot Skill Learning in Human-Robot Collaboration with DTW-ILC	ICIT24-000427
11.45-12:00	Autonomous Liver Ultrasound Examination Based on Imitation Learning and Stiffness Estimation	ICIT24-000366
12:00-12:15	A Novel shared control framework Based on Imitation Learning	ICIT24-000369
12:15-12:30	Development of Sand-free Plastering Smart Robotic System for Green Building	ICIT24-000342
Session WED.D1		
Advances in Data-Driven Fault Diagnosis and Fault-Tolerant Control for Industrial Systems	**10:45 am - 12:30 pm**	
Co-Chair: Zhiwen Chen	**Room ④: Clifton suite**	**Paper ID**
10:45-11:00	Online Performance Optimization for Railway Traction System Based on PnP Structure	ICIT24-000066
11:00-11:15	Real-Time Vibration-Based Bearing Fault Diagnosis Under Time-Varying Speed Conditions	ICIT24-000128
11:15-11:30	A Hybrid Process Data and Knowledge-Based Fault Diagnosis Method for Product Quality Monitoring of a Hot Rolling Mill	ICIT24-000163
11:30-11.45	Blast Furnace Condition Recognizing in the Ironmaking Process Based on Prior Knowledge and Platt Scaling Probability	ICIT24-000165

11.45-12:00	A Co-estimation Algorithm Based on Adaptive Residual Generator for Multi-sinusoidal Signals	ICIT24-000177
12:00-12:15	A Data-Driven Closed-Loop System Identification Approach Using Canonical Correlation Analysis	ICIT24-000178
12:15-12:30	A Neural Additive Domain Adaptation Network with Interpretability for Fault Detection in Various Operating Conditions	ICIT24-000222
Session WED.A2 **Power Electronics，Energy and Smart Grids (2)**	**13:30 pm - 15:00 pm**	
Co-Chair: Muhammad Khalid	**Room ①: Cabot suite**	**Paper ID**
13:30-13:45	A Resilient Consensus-based Energy 5.0 Framework for Micro-grids under Ramp-rate Constraints and Stochastic FDI Attacks	ICIT24-000275
13:45-14:00	Composite Control Scheme based on Practical Droop and Tube Model Predictive Control for Electric Vehicles in Grid Frequency Regulation	ICIT24-000367
14:00-14:15	Distributed Economic Dispatch with Valve-Point Effect via LPV-based Modified Incremental Cost Consensus Approach	ICIT24-000223
14:15-14:30	Modified modulation strategy for nine-level packed E-cell converter	ICIT24-000236
14:30-14:45	Decentralized Optimal Energy Dispatch of Multiple Park-level Integrated Energy Systems	ICIT24-000247

14:45-15:00	Differentiated Congestion Management in Distribution Network Considering Price- and Incentive-Based Hybrid Demand Response	ICIT24-000248
Session WED.B2	**13:30 pm - 15:00 pm**	
Electrical Machines, Drives, Sensors and Actuators (5)		
Co-Chair: Fuli Wang	**Room ②: Temple suite**	**Paper ID**
13:30-13:45	GRU-TemporalAttention Model with Time Series Decomposition Module for Battery Fault Diagnosis in Quadrupedal Robots	ICIT24-000266
13:45-14:00	Collision-free Edge-following Path Planner based on Adaptive Sampling Continuous Collision Detection	ICIT24-000295
14:00-14:15	An Initialization Method of Genetic Algorithm for Robot Path Planning Based on Directed Acyclic Graph and Effective Obstacles	ICIT24-000070
14:15-14:30	Conditional Trigger Model Predictivec Control for Aerial Manipulation	ICIT24-000287
14:30-14:45	Mobile-SPEEDNet: a Lightweight Network for Non-cooperative Spacecraft Pose Estimation	ICIT24-000436
14:45-15:00	Robot Hand-eye Calibration Method Incorporating Filtering Techniques	ICIT24-000001
Session WED.C2	**13:30 pm - 15:00 pm**	
Ontrol Systems, Robotics and Mechatronics (5)		
Co-Chair: Guangzhu Peng	**Room ③: Harbourside suite**	**Paper ID**

13:30-13:45	Spatial Iterative Learning Control for Robots in Contact with Unknown Environments	ICIT24-000060
13:45-14:00	Based Fixed-Time Bipartite Output Consensus Tracking for Fuzzy Adaptive Nonlinear Coopetition MASs	ICIT24-000061
14:00-14:15	Prescribed-time Output-feedback Tracking for Nonlinear Systems via a Novel Time-varying Gain	ICIT24-000161
14:15-14:30	A novel adaptive LSTM model for polyester oligomer density prediction	ICIT24-000170
14:30-14:45	Weight Sensory Presentation Considering Impulsive Force of Ball Kicking by a Force Feedback Exoskeleton Using MR Fluid Brakes	ICIT24-000368
14:45-15:00	Minimum-Time Trajectory Optimization for Underactuated Overhead Crane Under Disturbances	ICIT24-000357
Session WED.D2		
Environmental Perception, Planning, and Control of Multi-Robots	**13:30 pm - 15:00 pm**	
Co-Chair: Gangqi Dong	**Room ④: Clifton suite**	**Paper ID**
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13:45-14:00	VAEPose: 6D Pose Estimation with Visual Appearance Ehancement for Low-light Conditions	ICIT24-000059
14:00-14:15	Research on Intelligent Evasion Methods for UAV Based on Deep Reinforcement Learning	ICIT24-000106

14:15-14:30	Cooperative pursuit of multiple evaders based on location information only	ICIT24-000108
14:30-14:45	Contraction Theory based Trajectory Tracking Control of Free-Floating Space Manipulator	ICIT24-000140
14:45-15:00	A Mixed Integer Linear Programming Model for the Distribution of Transport Tasks Among Heterogeneous Robots in a Factory	ICIT24-000311
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Power Electronics，Energy and Smart Grids (5)		
Co-Chair: Eileen L.M. Su	**Room ⑤: Ball room: Park Lane**	**Paper ID**
13:30-13:45	Interconnection of renewable sources : Multi-Active-Bridge Converter	ICIT24-000385
13:45-14:00	Performance Enhancement of Renewable System via Hybrid Switched-Inductor-Capacitor Converter	ICIT24-000386
14:00-14:15	Investigation of Effects of Path Planning Algorithms on Mobile Robot's Performance	ICIT24-000083
14:15-14:30	Evaluation of Particle Swarm Optimization, Genetic Algorithms, and Ant Colony Optimization in Autonomous Mobile Robots Scheduling: A Comparative Study	ICIT24-000084
14:30-14:45	Selection of Power System Variables for Binary-Class Support Vector Machine in Static Security Assessment of Power System	ICIT24-000411
14:45-15:00	Identification of Critical Feeders in Integrated Electricity and District Heating Networks for Decentralized Implementation of Proactive Schemes	ICIT24-000241

Session WED.F2 Sustainable Manufacturing and Robotics	13:30 pm - 15:00 pm	
Co-Chair: John Oyekan, Yongjing Wang	Room ⑥: Ball room: Park Avenue	Paper ID
13:30-13:45	Robotic Assembly of Aviation Fuel Probes and Parameters Optimisation Using Bees Algorithm	ICIT24-000198
13:45-14:00	Enabling Flexible Manufactuirng in Wind Industry based on Movable Factory Concept: Definitions, Requirements, and Challenges	ICIT24-000213
14:00-14:15	BIM and Digital Twin for Electrical Systems: A Case Study of an Industrial Building	ICIT24-000395
14:15-14:30	Cyber-Resilient Adaptive Control of Grid-Following Inverter-Based Resources Against Measurement Manipulation	ICIT24-000075
14:30-14:45	Dual Function Photovoltaic System for Power Quality Enhancement and Power Generation	ICIT24-000419
14:45-15:00	Battery Saving Mode in Grid-Forming Battery Storage Systems for Islanded Microgrids	ICIT24-000418
Session WED.A3 Emerging Technologies in Wireless Power Transfer	15:30 pm - 17:00 pm	
Co-Chair: Yuanshuang Fan	Room ①: Cabot suite	Paper ID
15:30-15:45	A Bidirectional AGV to UAV Wireless Charging System Based on Information Collaborative Localization	ICIT24-000038

15:45-16:00	Frequency Tuning and Power Flow Decoupling Control Method for Bidirectional Capacitive Power Transfer System	ICIT24-000125
16:00-16:15	Coupling Coefficient and Load Estimation for Model Predictive Control of Inductive power Transfer Systems with Constant Voltage Load	ICIT24-000235
16:15-16:30	Modelling and Controller Design for Active Rectifier based Current-sourced Inductive Power Transfer System	ICIT24-000291
16:30-16:45	Magnetic Coupling Wireless Power Transfer System With Dynamic Misalignment Tolerance Based on Frequency Control	ICIT24-000416
Session WED.B3 **Electrical Machines, Drives, Sensors and Actuators (4)**	**15:30 pm - 17:00 pm**	
Co-Chair: Zhiwen Chen	**Room ②: Temple suite**	**Paper ID**
15:30-15:45	Online Maximum Torque per Ampere Control for Doubly-Fed Induction Machines	ICIT24-000036
15:45-16:00	Power and Speed Control of Brushless Doubly-Fed Induction Generators	ICIT24-000037
16:00-16:15	Performance Analysis of Six-Phase Segmented Switch Reluctance Motor Considering the Effect of Punching	ICIT24-000053
16:15-16:30	A Lightweight Target Following Architecture for Indoor Mobile Robot	ICIT24-000229

16:30-16:45	Self-Supervised Bayesian Visual Imitation Learning Applied to Robotic Pouring	ICIT24-000410
16:45-17:00	Calibration of the stiffness of soft cantilevers based on electromagnetic and electrostatic force compensation principles	ICIT24-000286
Session WED.C3	**15:30 pm - 17:00 pm**	
Monitoring， Information Gathering and Sensing of Robotics		
Co-Chair: Cunjia Liu	**Room ③: Harbourside suite**	**Paper ID**
15:30-15:45	Bézier-UKF Enhanced Incremental MPC Planner for Quadrotor Based Target Following	ICIT24-000088
15:45-16:00	Consensus-based Deep Reinforcement Learning for Mobile Robot Mapless Navigation	ICIT24-000117
16:00-16:15	Reinforcement Learning for Source Location Estimation: A Multi-Step Approach	ICIT24-000245
16:15-16:30	Gas Source Localization in Complex Unknown Indoor Environments Using a Hierarchical Planner	ICIT24-000281
16:30-16:45	Distributed Communication Relay Strategy With Deployment Switching for Robust End-to-End Connectivity in Complex Indoor Environments	ICIT24-000333
Session WED.D3	**15:30 pm - 17:00 pm**	
Application of Power, Healthcare and Education		
Co-Chair: Dandan Zhang	**Room ④: Clifton suite**	**Paper ID**

15:30-15:45	Facial Expression Recognition Network Based on Cross-Modality Feature Fusion	ICIT24-000313
15:45-16:00	Robotics in Surgeries: Surgical Robot Operation and Workflow Optimization	ICIT24-000314
16:00-16:15	Decentralized Multi-Agent Coverage Path Planning with Greedy Entropy Maximization	ICIT24-000282
16:15-16:30	Accurate Action Recommendations and Demand Response for Smart Homes via Knowledge Graphs	ICIT24-000077
16:30-16:45	Online Tuning of Extended Kalman Filter Using Reinforcement Learning for Improved Battery State-of-Charge Estimation	ICIT24-000173
Session WED.E3		
Cloud Computing, Big Data and Software Engineering For Perception and Society	**15:30 pm - 17:00 pm**	
Co-Chair: Rebecca Raper, Gilbert Tang	**Room ⑤: Ball room: Park Lane**	**Paper ID**
15:30-15:45	Is there a need for robots with moral agency? A case study in social robotics	ICIT24-000193
15:45-16:00	Reading and understanding house numbers for delivery robots using the ”SVHN Dataset”	ICIT24-000323
16:00-16:15	Data Store Architectures: Balancing Functionality and Performance	ICIT24-000162
16:15-16:30	SketchBoard: Sketch-Guided Storyboard Generation for Game Characters and Game Design	ICIT24-000363
16:30-16:45	A Stable Diffusion Based Image Generation Method for Few-shot Emerging Pest Detection in the Wild	ICIT24-000300

16:45-17:00	Intelligent Network Optimisation for Beyond 5GNetworks Considering Packet Drop Rate	ICIT24-000429
Session WED.F3 **Adcanced technology on Scene Understanding and Mechatronics**	**15:30 am - 17:00 pm**	
Co-Chair: Jing Zhou	**Room ⑥: Ball room: Park Avenue**	**Paper ID**
15:30-15:45	Cooperative Spectrum Sensing with MachineLearning Approaches in Cognitive Radio Networksfor loMT Applications	ICIT24-000387
15:45-16:00	Barriers to the Development of The Industrialized House Building in China	ICIT24-000055
16:00-16:15	PA Time Series Segment Finding Motifs Based On Sliding Window Algorithm	ICIT24-000219
16:15-16:30	WSN Target Tracking Based on Cuckoo Particle Filter Optimization Algorithm	ICIT24-000220
16:30-16:45	Image Matching Method based on Harris Wavelet Algorithm and Sift Algorithm	ICIT24-000221
16:45-17:00	A Novel Multi-Class Product Rating Prediction Model based on Enhanced Textrank Text Encoding and Human Psychology Simulation	ICIT24-000034

Bristol Day Trip Tips

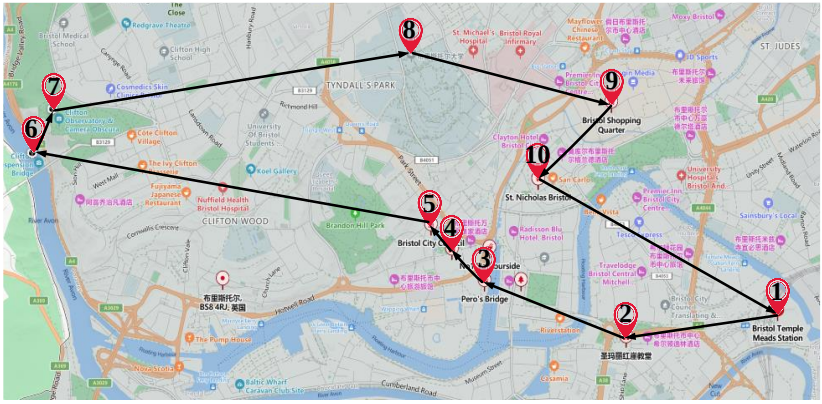


Fig 1 Tourist Route Map

①: Bristol Temple Meads station; ②: St Mary Redcliffe Church; ③: Pero's Bridge; ④: Bristol Cathedral; ⑤: Bristol City Council; ⑥: Clifton Suspension Bridge; ⑦: Clifton Observatory & Camera Obscura; ⑧: University of Bristol; ⑨: Bristol Shopping Quarter; ⑩: St Nicholas Market.

Here, we provide you with a route to visit Bristol. Please note that this route is not unique. You can choose a suitable route based on your itinerary and preferences. Below, we will provide a brief introduction to this route.

a) ① is our starting point. It will take you about 12 minutes to walk to ②.

b) ② is a magnificent Gothic church known for its architectural beauty and deep history. It will take you about 15 minutes to walk to ③.

c) ③ is a pedestrian bascule bridge that spans St Augustine's Reach in Bristol Harbour, Bristol, England. It links Queen Square and Millennium Square. The bridge is composed of three spans; the two outer ones are fixed and the central section can be raised to provide a navigation channel in the

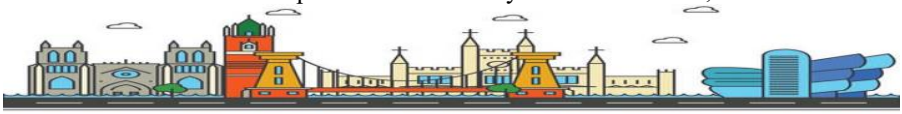
harbour. The most distinctive features of the bridge are the pair of horn-shaped sculptures which act as counterweights for the lifting section, leading it to be commonly known as the Horned Bridge or Shrek's Bridge as the counterweights resemble the ears of the animated star of the eponymous film. It will take you about 7 minutes to walk to ④.

d) ④, formally the Cathedral Church of the Holy and Undivided Trinity, is a Church of England cathedral in the city of Bristol, England. It is the seat of the Bishop of Bristol. The cathedral was originally an abbey dedicated to St Augustine, founded in 1140 and consecrated in 1148. It became the cathedral of the new diocese of Bristol in 1542, after the dissolution of the monasteries. It is a Grade I listed building. It will take you about 5 minutes to walk to ⑤.

e) ⑤ is the local authority of Bristol, England. The council is a unitary authority, and is unusual in the United Kingdom in that its executive function is controlled by its directly elected mayor. It will take you about 50 minutes to walk to ⑥.

f) ⑥ is a place worth visiting. Bristol's most famous landmark has to be the Clifton Suspension Bridge, designed by Isambard Kingdom Brunel. Built in 1864, the bridge spans the Avon Gorge and attracts visitors from all over the world with its impressive views and dizzying height (101 meters above sea level).The views on both sides of the bridge were great. It will take you about 10 minutes to walk to ⑦.

g) ⑦ Travel to Clifton Observatory and purchase tickets to visit the Giant's Cave and the Dark Box for a unique view of this bridge. Take the 130 steep steps down to the Giant's Cave, which was once part of a chapel in 305 AD. Bristol folklore tells of two giants who lived there, Goram and Giston. Located at the top of the Observatory Tower in Clifton, Camera Obscura



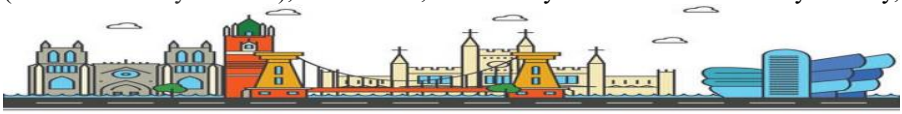
is one of only three working Camera Obscura's in the UK. The Victorian designed 'camera' uses a series of lenses and mirrors to reflect a 360 panoramic view of the suspension bridge. It will take you about 30 minutes to walk to ⑧.

h) ⑧ was founded in 1876, located in the city of Bristol, Southwest England, for research universities, is one of the UK's famous six red-brick universities, but also the United Kingdom Russell Group of Universities, the Coimbra Group, the World University Consortium, the International Union of University Climatology and the European Association of Universities of the important academic members.It will take you about 30 minutes to walk to ⑨.

i) ⑨ Bristol Shopping Quarter include Cabot Circus, Broadmead, The Arcade and The Galleries shopping centers. It's basically the Bristol shopping district. Everything is in one compact area, bordered by Castle Park to the south and the A 38 to the north. It's mostly pedestrianized, so there's little traffic to worry about. All of Bristol's major stores are located here. If you want to go shopping in Bristol, you must come here! It will take you about 30 minutes to walk to ⑩.

j) ⑩ is Bristol's most popular market, located in the heart of the Old Town, with Georgian buildings lining the street, the market is nearly 300 years old! From food, to seasonal vegetables, to handicrafts, to clothing, this is the place to go for every day needs you can think of. If you're looking to source some hand-me-downs, St. Nicholas Indoor Market is the place to go. Overall, it's a bit like London Borough Market and Old Spitalfields Market in one. It will take you about 25 minutes to walk to ①.

Also, in addition, if there is more time, you can visit Bristol Central Library (near Bristol City Council), Castle Park, Bristol City Museum & Art Gallery. Finally,



we look forward to immersing you in the beauty of Bristol in addition to the academic seminars.


St Mary Redcliffe Church


Pero's Bridge


Bristol Cathedral


Bristol City Council


Clifton Suspension Bridge


Clifton Observatory


University of Bristol


Bristol Shopping Quarter


St Nicholas Market

Fig 2 Recommended Sightseeing Spots

Dining Tips

ZAZA BAZAAR

For directions to Zaza Bazaar, kindly consult the map provided and the instructions on navigating from the venue to the restaurant, see Fig 3.

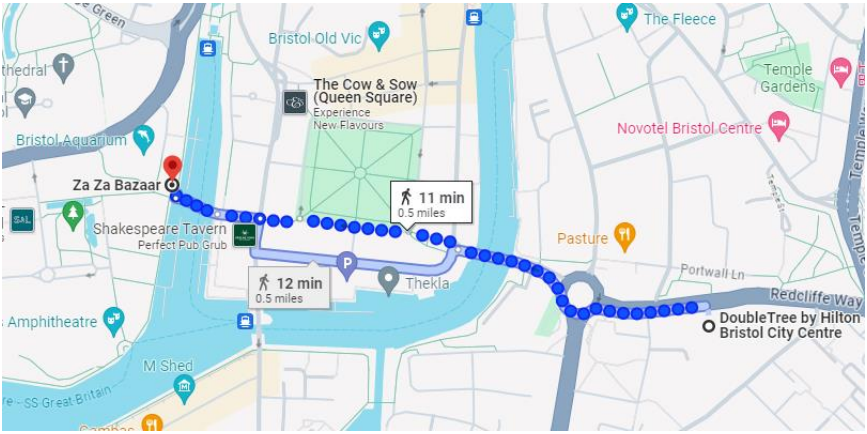


Fig 3 From venue to ZAZA BAZAAR

Complimentary Welcome Drink (18:00 -19:00):

Present your meal voucher at the **ZAZA entrance to receive a ZAZA band (see Fig 4)and three drink coupons** (to be used for ordering drinks during the buffet) from the ZAZA staff.

Fig 4 ZAZA band

Fig 5 Entrance of ZAZA

Attendees are entitled to one welcome drink (choice of alcoholic or non-alcoholic) at ZAZA's lobby bar. This is an opportunity to unwind before the buffet begins. Arrival at any time within this hour is welcome.

Fig 6 Lobby bar

Buffet (19:00-21:30):

Guests are invited to proceed from the lobby bar (see Fig 6) to the dining area

located on the first floor (see Fig 7).

Fig 7 Entrance of first floor

An exclusive seating area has been arranged for our guests, separated by barriers and marked with our logo for easy identification., see Fig 8.

Fig 8 Exclusive Area

Guests may use their drink coupons to select three beverages from the gold menu. Alternatively, orders placed from the standard menu with a ZAZA band will benefit from a 20% discount.

Help yourself (21:30-)

Post-buffet, guests choosing to remain may continue their evening in the lobby bar, where the ZAZA band will secure a 20% discount on further purchases. Those wishing to depart may do so at their leisure.

Important Notices:

a) Meal vouchers are to be collected upon registration.

b) The meal voucher is essential for obtaining a ZAZA band. In the event of loss, a ZAZA band cannot be issued.

c) The ZAZA band must be worn at all times for identification by ZAZA staff. Please do not remove the band should you wish to continue availing of ZAZA's services.

d) To fully enjoy the buffet experience, we recommend arriving on time.

e) The dinner package only includes a welcome drink, buffet access, three gold menu drinks, with any additional purchases to be made and paid by the attendees.

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ICIT24-000304	Session MON.C1 Room ③
ICIT24-000305	Session TUE.A3 Room ①
ICIT24-000306	Session TUE.A3 Room ①
ICIT24-000307	Session MON.D1 Room ④
ICIT24-000308	Session MON.D1 Room ④

ICIT24-000311	Session WED.D2 Room ④
ICIT24-000313	Session WED.D3 Room ④
ICIT24-000314	Session WED.D3 Room ④
ICIT24-000315	Session MON.B2 Room ②
ICIT24-000319	Session MON.E3 Room ⑤
ICIT24-000320	Session MON.B2 Room ②
ICIT24-000323	Session WED.E3 Room ⑤
ICIT24-000324	Session MON.F2 Room ⑥
ICIT24-000327	Session MON.A3 Room ①
ICIT24-000328	Session TUE.C2 Room ③
ICIT24-000329	Session MON.D1 Room ④
ICIT24-000330	Session TUE.C3 Room ③
ICIT24-000331	Session MON.D1 Room ④
ICIT24-000333	Session WED.C3 Room ③
ICIT24-000336	Session MON.F3 Room ⑥
ICIT24-000338	Session MON.F2 Room ⑥
ICIT24-000339	Session MON.C2 Room ③
ICIT24-000340	Session MON.A1 Room ①
ICIT24-000342	Session WED.C1 Room ③
ICIT24-000344	Session WED.A1 Room ①
ICIT24-000345	Session MON.B2 Room ②
ICIT24-000347	Session TUE.B3 Room ②
ICIT24-000348	Session WED.A1 Room ①
ICIT24-000352	Session TUE.A3 Room ①
ICIT24-000353	Session TUE.A3 Room ①
ICIT24-000356	Session MON.A3 Room ①
ICIT24-000357	Session WED.C2 Room ③
ICIT24-000359	Session MON.F3 Room ⑥
ICIT24-000360	Session MON.A2 Room ①
ICIT24-000361	Session MON.D3 Room④

ICIT24-000362	Session MON.E2 Room ⑤
ICIT24-000363	Session WED.E3 Room ⑤
ICIT24-000366	Session WED.C1 Room ③
ICIT24-000367	Session WED.A2 Room ①
ICIT24-000368	Session WED.C2 Room ③
ICIT24-000369	Session WED.C1 Room ③
ICIT24-000373	Session TUE.C3 Room ③
ICIT24-000374	Session MON.A1 Room ①
ICIT24-000376	Session MON.C3 Room ③
ICIT24-000378	Session TUE.D3 Room ④
ICIT24-000382	Session MON.D3 Room ④
ICIT24-000383	Session MON.E2 Room ⑤
ICIT24-000384	Session MON.D3 Room ④
ICIT24-000385	Session WED.E2 Room ⑤
ICIT24-000386	Session WED.E2 Room ⑤
ICIT24-000387	Session WED.F3 Room ⑥
ICIT24-000389	Session TUE.A3 Room ①
ICIT24-000390	Session MON.E2 Room ⑤
ICIT24-000391	Session MON.F2 Room ⑥
ICIT24-000395	Session WED.F2 Room ⑥
ICIT24-000400	Session MON.A2 Room ①
ICIT24-000402	Session MON.E2 Room ⑤
ICIT24-000404	Session MON.A1 Room ①
ICIT24-000405	Session MON.F2 Room ⑥
ICIT24-000410	Session WED.B3 Room ②
ICIT24-000411	Session WED.E2 Room ⑤
ICIT24-000412	Session TUE.D3 Room ④
ICIT24-000416	Session WED.A3 Room ①
ICIT24-000418	Session WED.F2 Room ⑥
ICIT24-000419	Session WED.F2 Room ⑥

ICIT24-000420	Session TUE.D2 Room ④
ICIT24-000422	Session TUE.B2 Room ②
ICIT24-000427	Session WED.C1 Room ③
ICIT24-000428	Session TUE.D2 Room ④
ICIT24-000429	Session WED.E3 Room ⑤
ICIT24-000430	Session TUE.C2 Room ③
ICIT24-000431	Session MON.D3 Room ④
ICIT24-000433	Session MON.F3 Room ⑥
ICIT24-000434	Session MON.F3 Room ⑥
ICIT24-000435	Session MON.F3 Room ⑥
ICIT24-000436	Session WED.B2 Room ②