



# **MAIQS 2025** **International Conference on Measurement, AI, Quality** **and Sustainability**

**26–28 August 2025, London, UK**

## **MAIQS 2025**

**-Innovating for Smart and Sustainable Industries and Societies**

## **Conference Program**

### **Partners and Sponsors**



Please visit the conference website for more information [www.maiqs2025.org](http://www.maiqs2025.org)

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## Welcome Message

On behalf of the Organising Committee, I am delighted to welcome you to the inaugural International Conference on Measurement, AI, Quality and Sustainability (MAIQS 2025), to be held at Brunel University London on 26–28 August 2025.

Today's industries and societies are facing urgent and complex challenges. Their satisfactory solutions demand a rigorous scientific approach. We are entering a new era, Industry 4.0+, which is seeing the convergence of the Fourth Industrial Revolution and an emerging scientific revolution, the two reinforcing one another and advancing together.

The MAIQS themes of Measurement, AI, Quality, and Sustainability are fundamentally linked to this new science and lie at the heart of Industry 4.0+. They together underpin the trust, intelligence and high-value required to develop the future smart industries and sustainable societies.

We are proud to host this global gathering with contributions from over 15 countries, supported by a network of academic and industrial partners, including Brunel University London, UK's National Physical Laboratory, Tsinghua University, China Jiliang University, Université d'Angers, North University of China, Mitutoyo, TWI, SensoPart, and others.

With a dynamic programme of keynote speeches, technical tracks, special sessions and panel discussions, MAIQS 2025 provides a unique platform to explore novel ideas and solutions, and foster international collaborations.

I would like to express my sincere thanks to our keynote and invited speakers, committee members, sponsors, and institutional and industrial partners for your invaluable support and contributions.

We hope you enjoy your time in London, a city well known for world-leading science and innovation, rich history, and beautiful summer. We wish you all a fruitful and enjoyable conference experience.

With warm regards,

Dr QingPing Yang  
MAIQS 2025 Conference Chair



## Conference Committees

### Conference Board:

QingPing YANG, Brunel University of London, UK (Chair)  
Alistair FORBES, National Physical Laboratory, UK (Co-Chair)  
Abdérafi CHARKI, Université d'Angers, France (Co-Chair)  
Yanfu LI, Tsinghua University, China (Co-Chair)  
Binrui WANG, China Jiliang University, China (Co-Chair)

### International Program Committee Co-Chairs:

Valerie LIVINA, National Physical Laboratory, UK  
Marc HIMBERT, LNE-INM/CNAM Laboratoire National de métrologie et d'Essais, France  
Wenyi LIU, North University of China, China  
Qiang WANG, China Jiliang University, China  
Huijie ZHAO, Beihang University, China

### International Program Committee Members:

Faris ALWZINANI, Brunel University of London, UK  
Honggen CHEN, Zhengzhou University of Aeronautics, China  
Fuwen HU, North China University of Technology, China  
Tianjian LI, University of Shanghai for Science and Technology, China  
Feng LIU, Tianjin University, China  
Xianping LIU, Warwick University, UK  
Yohan NOH, Brunel University of London, UK  
Nadeem QAZI, University of East London, UK  
Qunfen QI, University of Bristol, UK  
Mohd Rizal Bin SALLEH, Universiti Teknikal Malaysia Melaka, Malaysia  
Isabel SASSOON, Brunel University of London, UK  
Thammarat SOMTHONG, Thailand National Institute of Metrology, Thailand  
Valentina STOJCESKA, Brunel University of London, UK  
Changjing SUN, China Jiliang University, China  
Wenjuan SUN, KU Leuven, Belgium  
Mark SUTCLIFFE, TWI, UK  
Qijian TANG, Shenzhen University, China  
Zdenek VINTR, University of Defense, Czech Republic  
Fang WANG, Brunel University of London, UK  
Hong WEI, University of Reading, UK  
Decheng WEN, Shandong University, China  
Bin ZHANG, Brunel University of London, UK  
Mengyuan Zhang, Kingston University, UK  
Tao ZHANG, Warwick University, UK



Juan ZHOU, China Jiliang University, China

Yanping ZHU, Changzhou University, China

### **Advisory Committee:**

Steve Dyke, Mitutoyo (UK) Ltd, UK

Barry JONES, Brunel University of London; IET (former Vice President), UK

Pete LOFTUS, Evalu8ion Ltd; University of Edinburgh; RCNDE; Sensing Innovation Leadership Council, UK

Ian NICHOLSON, TWI, UK

Scott PHILLIPS, Autodesk, UK

Hans RABUS, PTB, Germany

Lee STOKES, MACE, UK

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Honggen CHEN, Zhengzhou University of Aeronautics, China

Alistair FORBES, National Physical Laboratory, UK

Ariana FUGA, EDP Sciences, France

Peipei GAO, Nankai University, China

Thong Ngee GOH, National University of Singapore, Singapore

Hong-Zhong HUANG, University of Electronic Science and Technology of China, China

Marc HIMBERT, LNE-INM/CNAM Laboratoire National de métrologie et d'Essais, France

Argiris LASKARAKIS, Aristotle University of Thessaloniki, Greece

Feng LIU, Tianjin University, China

Jian LIU, The University of Arizona, USA

Wenyi LIU, North University of China, China

Yuanyuan LIU, Science Press; EDP Sciences, China

Valerie LIVINA, National Physical Laboratory, UK

Emanuela NATALE, The Università dell'Aquila, Italy

Seung-Nam PARK, Korea Research Institute of Standards and Science, South Korea

Qunfen QI, University of Bristol, UK

Prem K. RACHAKONDA, National Institute of Standards and Technology (NIST), Gaithersburg, USA

Vishal RAMNATH, University of South Africa, Republic of South Africa

Paul J. SCOTT, University of Huddersfield, UK

Changjing SUN, China Jiliang University, China

Marie-France THEVENON, University of Montpellier – CIRAD, France

Zdenek VINTR, University of Defense, Czech Republic

Qiang WANG, China Jiliang University, China

Decheng WEN, Shandong University, China

Juan ZHOU, China Jiliang University, China



## Regional Chairs:

Mokhtar ATTARI, University of Science and Technology Houari Boumediene (USTHB), Algeria

Thong Ngee GOH, National University of Singapore, Singapore

Hong-Zhong HUANG, University of Electronic Science and Technology of China, China

Jian LIU, The University of Arizona, USA

Emanuela NATALE, University of L'Aquila, Italy

Xiangjun WANG, Tianjin University, China

## Publishing and Promotion Committee:

Aliénor DECOURS-PEREZ, Publisher of the International Journal of Metrology and Quality Engineering (IJMQE), EDP Sciences, France

Lena KOUNOVSKY, Publisher of the International Journal of Metrology and Quality Engineering (IJMQE), EDP Sciences, France

Ariana FUGA, Publisher of the European Physical Journal Applied Physics (EPJ AP), EDP Sciences, France

Yuanyuan LIU, Publisher of Security and Safety (S&S), Science Press; EDP Sciences, China

## Local Organising Committee:

QingPing YANG, Brunel University of London, UK (Chair)

Priyanka BHARTI, National Physical Laboratory, UK

Xinli DU, Brunel University of London, UK

Hongying MENG, Brunel University of London, UK

Nila NILAVALAN, Brunel University of London, UK

Yohan NOH, Brunel University of London, UK

Xizhi SUN, Brunel University of London, UK

Fang WANG, Brunel University of London, UK

Bin ZHANG, Brunel University of London, UK

## Keynote Speakers

### **Professor Alistair Forbes** **National Physical Laboratory (NPL)**



Since joining the National Physical Laboratory (NPL) in 1985, Alistair Forbes has carried out research in mathematical and statistical modelling, algorithm design, uncertainty evaluation, numerical software development and validation with applications to metrology. Much of his work has been in the area of coordinate metrology, often undertaken in European collaborative projects, including:

- Generation of test data for coordinate metrology software
- Parametrization of geometric elements
- Reference software for fitting geometric elements according to the Chebyshev criterion
- The Virtual CMM
- CMM calibration
- Traceability in computationally-intensive metrology
- Standards for the evaluation of uncertainty of coordinate measurements in industry <https://eucom-empir.eu>

He is a Fellow in the Data Science Department at NPL and a Visiting Professor at the University of Huddersfield and at the University of Strathclyde, UK, He is chair of the IMEKO Technical Committee 21, Mathematical Tools for Measurements and a member of ISO TC 213, Geometric Product Specification.

**Title of his speech:**  
**Coordinate Metrology and the Quality Infrastructure**

### **Professor Pete Loftus** **Evalu8ion Ltd; University of Edinburgh**



Pete had a 38 year career in Instrumentation and Measurement at Rolls-Royce fostering a passion for measurement and helping others to grow. As the company head of Measurement Engineering, he established standards, skills frameworks, quality system materials, and an R&D portfolio in the discipline. Now, with a private consultancy business and roles as Visiting Professor at the University of Edinburgh; Chair of the Sensing Innovation Leadership Council; Deputy Director of the Research Centre in NDE; Innovate UK contractor, and leader in local Scouting he continues to support and inspire the discipline and community.

**Title of his speech:**  
**Preserving Measurement as a Foundation of Trust and Confidence in the Digital Era**



**Professor Yan-Fu Li**  
**Tsinghua University**



Prof. Yan-Fu Li is currently the Director of the Institute for Quality & Reliability of Tsinghua University and a full Professor at the Department of Industrial Engineering in Tsinghua University, China. From 2011 to 2016, he was a faculty member at CentraleSupélec in Université Paris-Saclay, France. His research areas mainly include condition monitoring, fault detection and system reliability with the applications onto various engineering systems.

Dr. Li has published over 100 peer-reviewed international journal papers with an H-index = 41. The representative papers appear on IEEE Transactions, POM, IJOC, etc. He has been continuously elected as the Highly Cited Chinese Researcher 2019-2023 by Elsevier and Top 2% Scientists Worldwide 2021-2022 by Stanford University. He is the Principal Investigator (PI) of several government projects including the key project funded by National Natural Science Foundation of China and National Key R&D Program of China. He is also experienced in industrial research, the long-term partners include the top enterprises such as Huawei, China Southern Power Grid, etc. He holds 12 national patents, 1 international patent and 1 IEEE standard. He has won multiple national society and international society search/paper awards, including the Gold Medal of Geneva International Invention Exhibition. He is currently an Associate Editor of “IEEE Transactions on Industrial Informatics” and “Reliability Engineering & System Safety” and was an AE for “IEEE Transactions on Reliability” (2017-2024). He is the founding Chair of IEEE Technology and Management Society Beijing Chapter.

**Title of his speech:**  
**Reliability Engineering for Intelligent Autonomous Systems**

**Professor Binrui Wang**  
**China Jiliang University**



Prof. Binrui Wang (PhD) is a doctoral advisor, a state-sponsored returned overseas scholar, and the Vice President of China Jiliang University. He serves as the Director of the National and Local Joint Engineering Laboratory for Disaster Monitoring Technologies and Instruments, the discipline leader of the Provincial First-Class Discipline in Control Science and Engineering, and a recipient of the Zhejiang Province New Century Excellent Talent Award. His main research areas include bionic robots, quality inspection robots, and intelligent perception. As the first or corresponding author, he has published over 160 high-level academic papers, authored one monograph and two textbooks, and holds over 60 authorized invention patents as the first inventor. He has supervised over 100 graduate students and contributed to the formulation and revision of seven national standards and one ISO international standard. He has received the second prize from the Chinese Society of Automation. He serves as the Vice Chairman of the Robotics Professional Committee of the China Association for Standardization. Additionally, he is a member of the National Standards Committee Technical Committees TC591 and TC307.

**Title of his speech:**  
**Research on Calibration and Performance Testing of Industrial Robots**



**Dr Hans Rabus**  
**PTB**

Hans Rabus obtained a PhD in physics in 1992 at the Freie Universität Berlin and has since then with Germany's National Metrology Institute PTB. After eight years the field of synchrotron radiation metrology, he headed the section "detector-based optical radiometry" and organised the first international key comparison of UV spectral responsivity. After changing to ionizing radiation metrology, he chaired the department "Fundamentals of Dosimetry" from 2009 to 2020, pursuing research and development in cross-section measurements, nanodosimetry, track structure simulation and ion microbeam-based radiobiology.

From 2002-2005 he was secretary of the UV working group within the Consultative Committee for Photometry and Radiometry of the Metre Convention. From 2012-2018 Hans was leader of the task group on "Computational Micro- and Nanodosimetry" within WG 6 "Computational Dosimetry" of the European Radiation Dosimetry Group (EURADOS), followed by a six years' term as chair of EURADOS WG6 and consulting member of the EURADOS Council. Presently he is building the new EURADOS WG6 task group on AI in dosimetry.

Since 2020 Hans has been Senior Scientist for "Simulation and Artificial Intelligence in Medicine" and consulting member and temporarily deputy manager of PTB's Innovation Cluster metrology for Health. He is coordinator of pilot project "Metrology for Artificial Intelligence in Medicine (M4AIM)" within the German QI Digital initiative, which comprises 14 Early-Stage Researchers developing quantitative criteria for assessing explainability, robustness and uncertainty of AI algorithms and metrics for data quality (within the EU Testing and experimentation facility TEF Health).

**Title of his speech:**

**Towards Formalized Assessment of Data Quality and Uncertainties of Machine Learning Output Compatible with the GUM**

**LEE STOKES**

**Global Head of Carbon – Mace Group**



Lee's mission is to leave a legacy by creating thriving cities and places that limit their impact on the natural world.

He is an accomplished sustainability-focused innovator with more than 25 years of experience in implementing ESG programmes. He has led prestige projects globally for both private and public sector organisations, saving more than 2.7m tonnes of CO<sub>2</sub>e. An agile leader, he has expertise in mentoring and developing cross-functional teams and working in complex stakeholder environments.

Providing rigor to sustainability methodology and driving innovation through applied research, he has authored research on smart buildings, grid-scale carbon modelling and energy optimisation using machine learning and artificial intelligence.

**Title of his speech:**

**Sustainability in the Global Built Environment**



**Dr QingPing Yang**  
**Brunel University of London**



Dr QingPing Yang is currently a Reader at Brunel University of London (BUL), leading Brunel Quality Engineering and Smart Technology (QUEST) Research Group, and Robotics and Automation Research Group. He joined the Brunel Centre for Manufacturing Metrology (BCMM) in 1988 with a visiting scholarship awarded by the AVIC, after his graduation in Instrumentation and Measurement Technology from Chengdu Aeronautical Polytechnic in 1983 and subsequent 4 years' research experiences at an Aircraft Structure Research Institute (AVIC, Xi'an) and admission to an MSc Programme in Robot Control and Intelligent Control at Northwestern Polytechnical University. In 1989, he was awarded an ORS Award and a PhD Studentship from British Technology Group to develop a patented smart 3D high precision probe system for CMMs, and received his PhD degree in October 1992.

His research experiences include sensors, instrumentation, dimensional metrology, smart systems, robotics, AI, quality engineering and sustainability. Over the last three decades, he has developed a unique and coherent research field broadly integrating metrology, quality engineering and smart technologies (including AI and robotics), published more than 120 papers and supervised (as the first supervisor) 27 PhD students to successful completion in these areas. He has led a number of research projects funded by EU, UK government and industry with a total funding of about £2.7 million as Principal Investigator and £1.2 million as Co-Investigator. Dr Yang has received numerous prizes and awards for outstanding academic and work performance in the past.

**Title of his speech:**

**Towards Unification of Measurement, AI, Quality and Sustainability – Principles and Applications**



## Special Sessions

### **SS1:Artificial Intelligence in Measurement and Instrumentation**

- QingPing YANG, Brunel University of London, UK
- Xiangjun WANG, Tianjin University, China
- Priyanka BHARTI, National Physical Laboratory, UK

### **SS2:Robotics and Smart Inspection**

- Binrui WANG, China Jiliang University, China
- QingPing YANG, Brunel University of London, UK

### **SS3:Artificial Intelligence for NDT**

- Mark SUTCLIFFE, TWI, UK
- Channa NAGESWARAN, TWI, UK
- Qiang WANG, China Jiliang University, China

### **SS4:Industrial Measurement & Control Networks and Systems**

- Wenyi LIU, North University of China
- Nila NILAVALAN, Brunel University of London, UK

### **SS5:Digital Twins and Applications**

- Hongying MENG, Brunel University of London, UK
- Qiang YANG, Zhejiang University, China

### **SS6:Innovations in Robot Mechanism Design, Sensors, and Control for Robotic Systems**

- Yohan NOH, Brunel University of London, UK

### **SS7:Intelligent Quality Management**

- Changjing SUN, China Jiliang University, China
- Decheng WEN, Shandong University, China
- Juan ZHOU, China Jiliang University, China

### **SS8:Artificial Intelligence in Societies**

- Fang WANG, Brunel University of London, UK
- Qiwei CHEN, Brunel University of London, UK
- Chenyang ZHU, Changzhou University, China
- Jun XIAO, Shanghai Open University, China

### **SS9:Systems Reliability, Prognostics & Health Management**

- Abdérafi CHARKI, Université d'Angers, France
- Nizar CHATTI, Université d'Angers, France

### **SS10:Tipping Points in Complex Systems**

- Valerie LIVINA, National Physical Laboratory (NPL), UK
- Ivan SUDAKOW, Open University, UK
- Lee STOKES, MACE Group, UK

### **SS11:Advancing Sustainable Production: Innovations, Challenges and Future Directions**

- Valentina STOJCESKA, Brunel University of London, UK

### **SS12:Advanced Manufacturing Technologies**

- Josh BARRAS, TWI, UK
- Jhonattan GUTJAHR, TWI, UK
- Tianjian LI, University of Shanghai for Science and Technology, China
- QingPing YANG, Brunel University of London, UK



## Conference Partners



清华大学质量与可靠性研究院  
Institute for Quality and Reliability, Tsinghua University





## Conference Sponsors



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### Sponsor and Exhibitor Categories

- ★ – Exhibitor
- ★★ – Bronze Sponsor
- ★★★ – Silver Sponsor
- ★★★★ – Gold Sponsor
- ★★★★★ – Platinum Sponsor

## Conference Venue

### Getting to Brunel University London

#### BY BUS

**From Heathrow Central:** A10 "Heathrow Fast", every 15 minutes, (alight Hillingdon Rd at 'The Greenway' and use footpath to campus).

**From Stockley Park:** A10 "Heathrow Fast" as above.

#### From West Drayton railway station:

U3 (alight Cleveland Road)

U1 (alight Kingston Lane)

222 (alight Cowley Road and use path to campus).

#### From Uxbridge (underground) station:

U3 (alight Cleveland Road)

U1, U4 and U7 (alight Kingston Lane)

222 and U5 (alight Cowley Road and use footpath to campus).

#### BY UNDERGROUND

Uxbridge Station (Transport for London) take the Metropolitan Line from central London (and Piccadilly Line during peak hours). Then take a taxi, or bus U1, U3, U4 or U7. (Alternatively there is a 1 mile walking route.)

#### BY RAIL

West Drayton (First Great Western Link) is the nearest main-line station (approx 15 miles from the campus). Services from London Paddington or the West (Bristol). From West Drayton station take a bus towards Uxbridge: 222 (alight Cowley Road), U5 (alight Station Road), U3 (alight Cleveland Road) or U1 (alight Kingston Lane).

West Ruislip Station (Chiltern Railways) is the main-line service from London Marylebone and the North (Aylesbury, Banbury and Birmingham) and is approximately 4 miles from the campus. From West Ruislip Station take the U1 bus towards West Drayton, alight Kingston Lane.

#### BY ROAD

**Entry by car is via Kingston Lane only.** Sat Nav users: Please enter the road address (Kingston Lane) and the postcode (UB8 3PN). You will be directed to Kingston Lane, which is very close to our main entrance. From there, please follow the signs.

Parking on the Uxbridge Campus and in the local area is very restricted. Barriers control access to the site and all vehicles must display a valid permit. On arrival, pay-and-display parking is available. In addition, parking may also be pre-booked (restrictions apply).

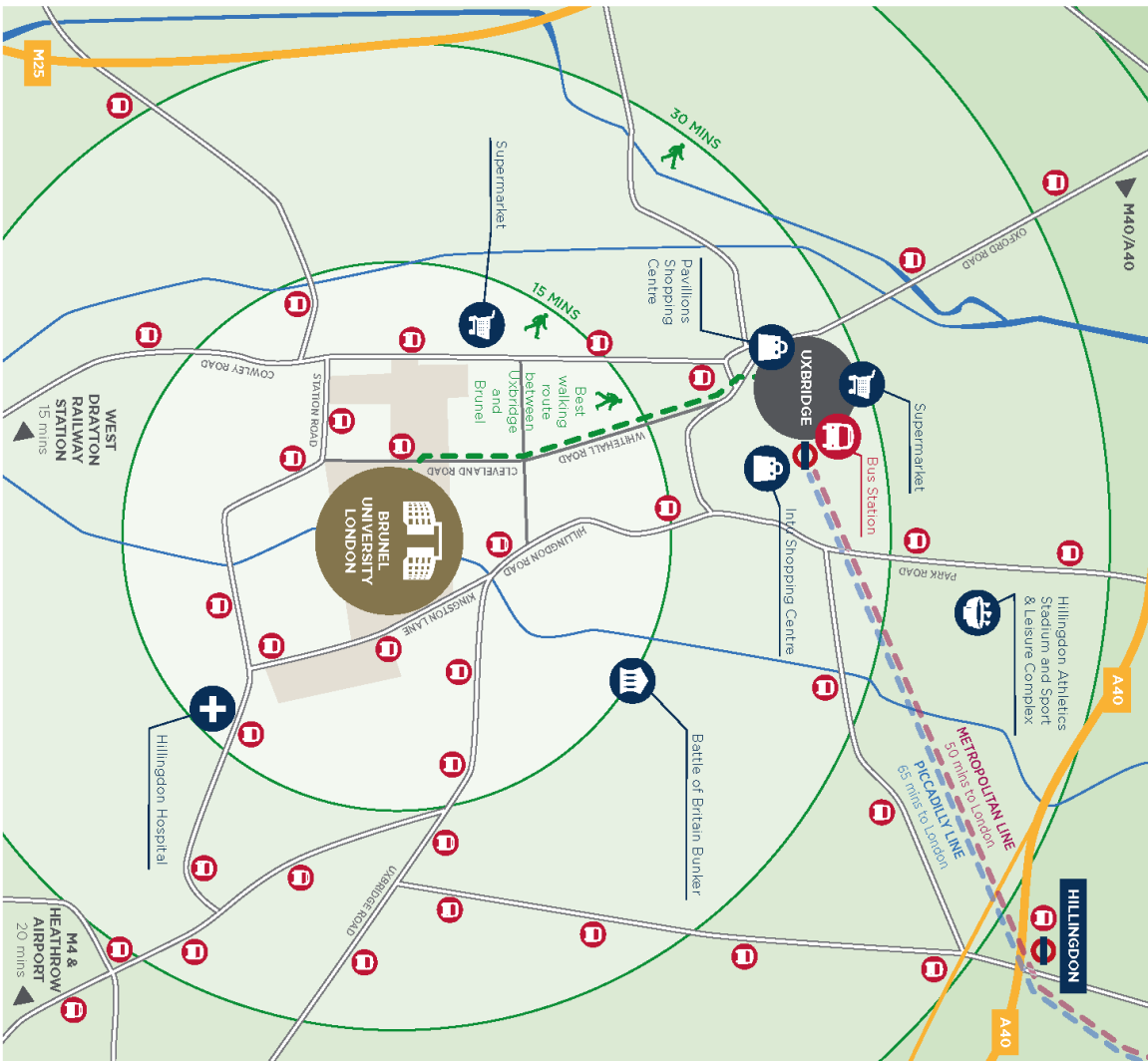
**Parking Charge Notices will be issued for illegally parked vehicles and vehicles not registered for a Brunel Virtual Permit. If not registered for a Brunel Virtual permit all vehicles must use the Pay & Display.**

#### VISITOR PARKING FOR DISABLED BLUE BADGE HOLDERS

Accessible parking bays are available at various locations around campus. Please register for a virtual permit with the Main Reception in the Eastern Gateway Building and display your Blue Badge.



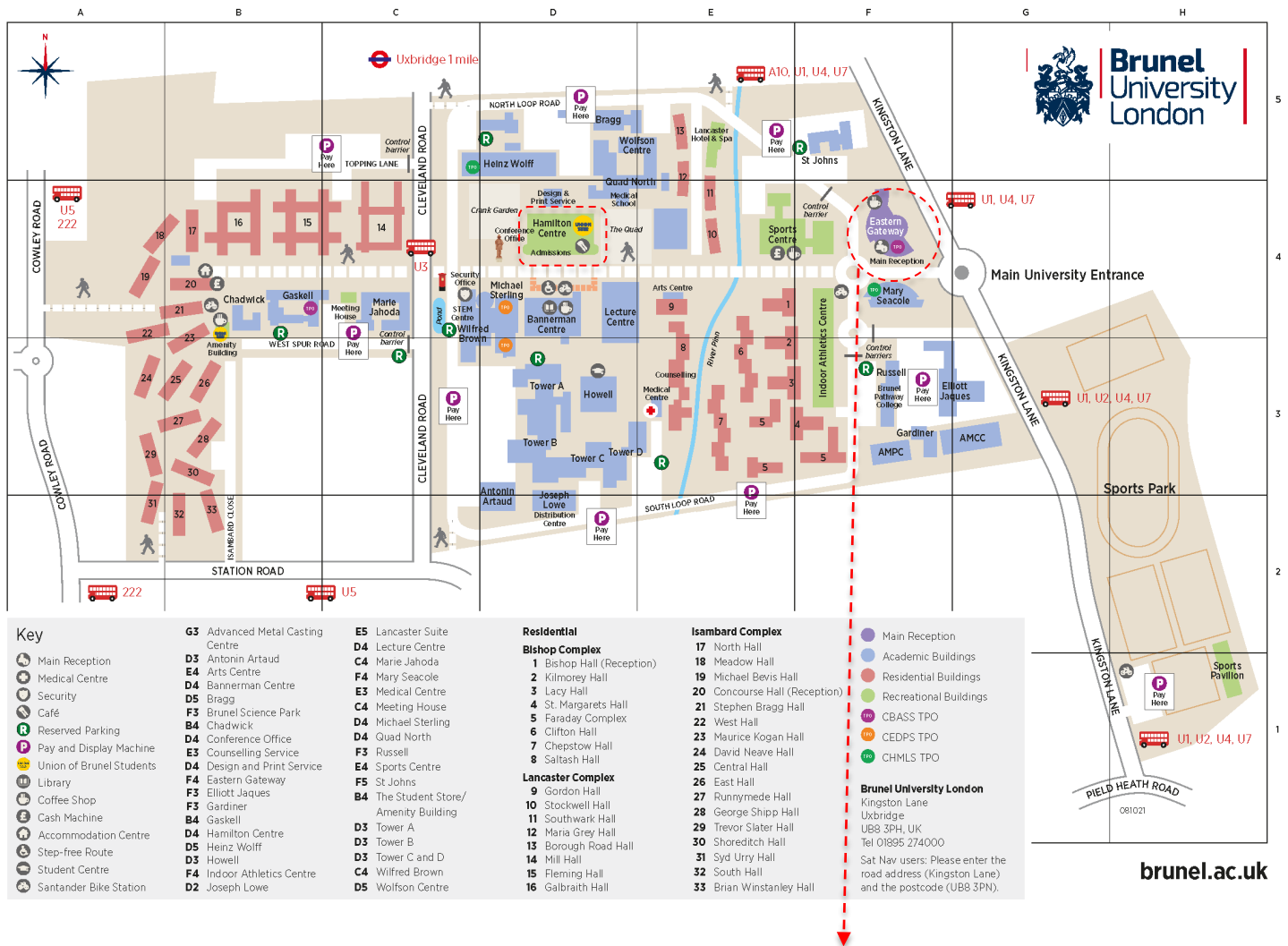
brunel.ac.uk







## Brunel University of London Campus Map



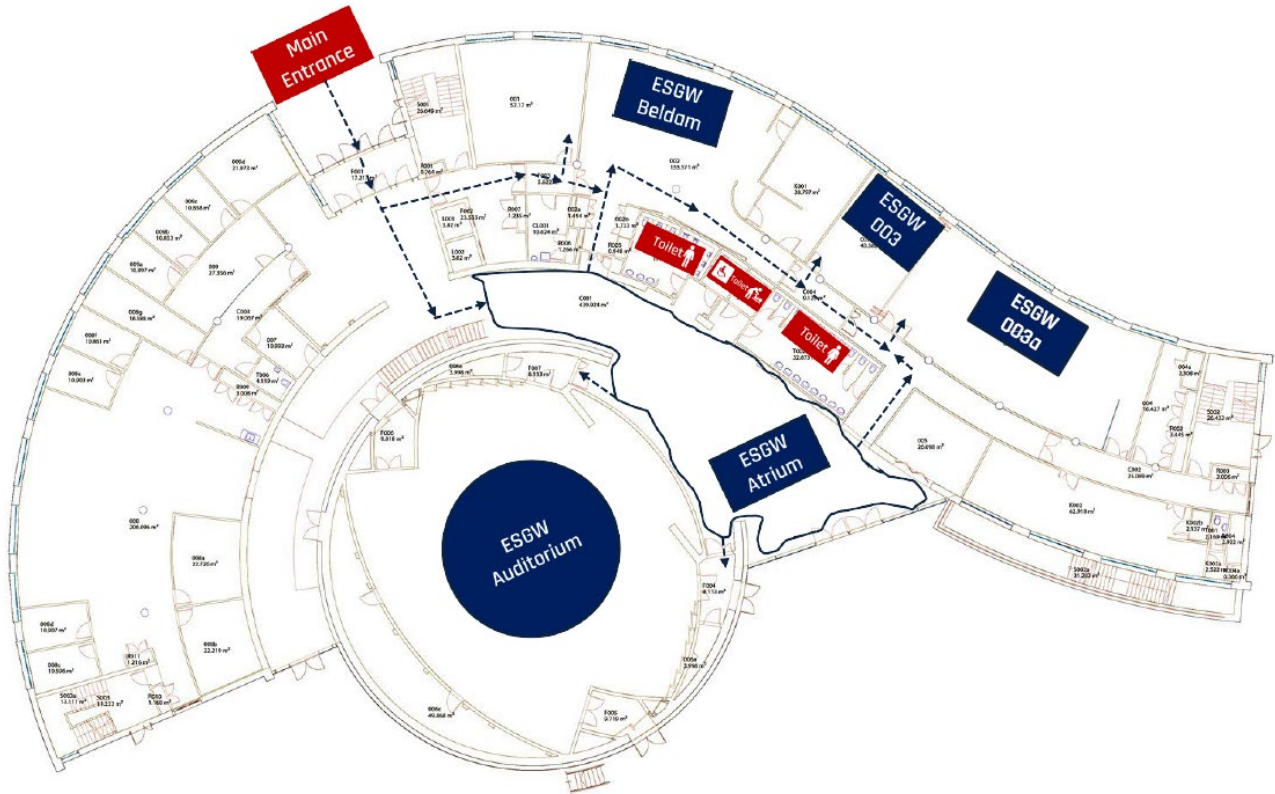
### Conference Building: Eastern Gateway (ESGW)



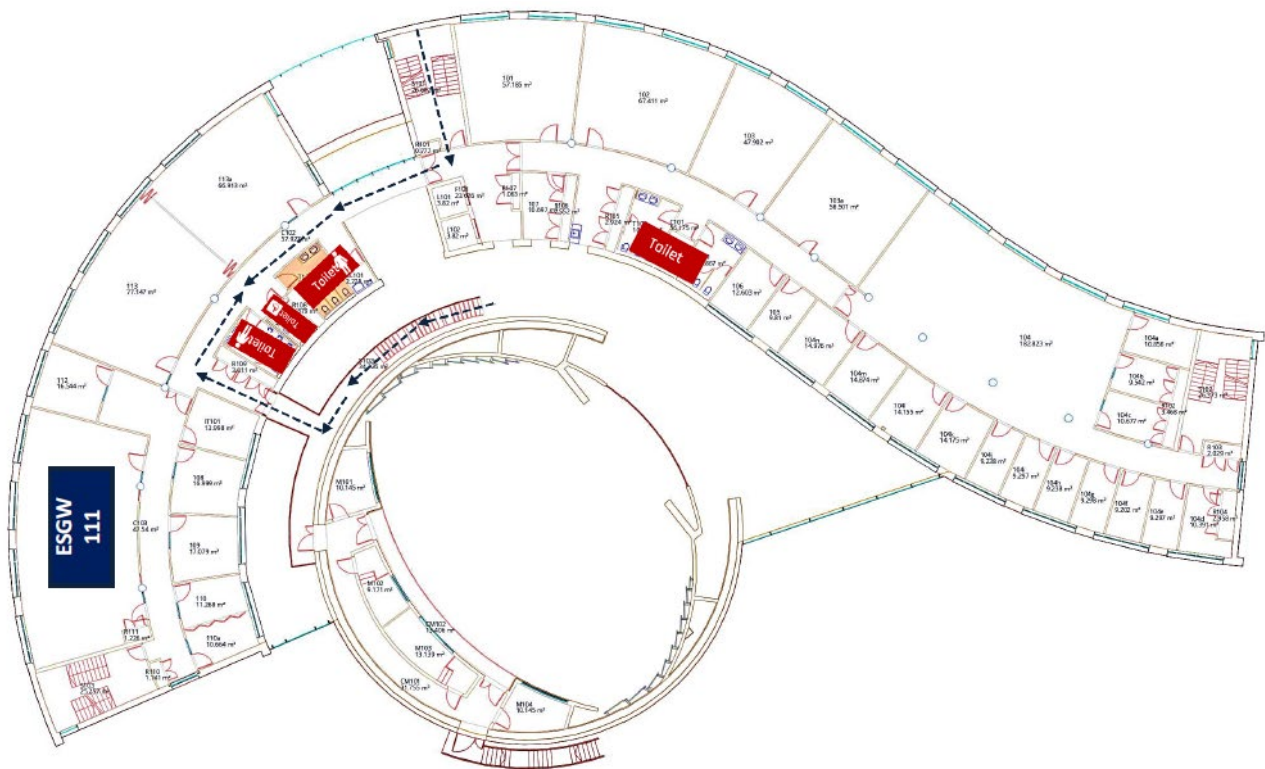


## Eastern Gateway Building (ESGW) MAP

### Ground Floor



### 1st Floor





International Conference on Measurement, AI, Quality and Sustainability (MAIQS 2025)		
Program Grid		
Tuesday 26th August 2025		
	ESGW 003a	ESGW 111
08:00-09:00	Registration	
09:00-09:20	Opening ceremony (Auditorim)	
09:20-10:00	Plenary Speaker: Prof Alistair Forbes, NPL (Auditorim) Coordinate Metrology and the Quality Infrastructure	
10:00-10:40	Plenary Speaker: Prof Pete Loftus, Evalu8ion Ltd; University of Edinburgh (Auditorim) Preserving Measurement as a Foundation of Trust and Confidence in the Digital Era	
10:40-11:10	Coffee break	
11:10-12:50	S1: Advanced Measurement I	S2: Artificial Intelligence
12:50-14:00	Lunch and Poster Session	
14:00-14:40	Plenary Speaker: Dr Hans Rabus, PTB (Auditorim) Towards Formalized Assessment of Data Quality and Uncertainties of Machine Learning Output Compatible with the GUM	
14:40-15:20	Plenary Speaker: Prof Binrui Wang, China Jiliang University (Auditorim) Research on Calibration and Performance Testing of Industrial Robots	
15:20-15:50	Coffee break	
15:50-17:50	S1: Advanced Measurement II	S2/SS1:Artificial Intelligence and Measurement
18:20-21:00	Welcome Reception (Newton Room, Hamilton Centre)	
Wednesday 27th August 2025		
08:30-09:00	Registration	
09:00-09:40	Plenary Speaker: Prof Yan-Fu Li, Tsinghua University (Auditorim) Reliability Engineering for Intelligent Autonomous Systems	
09:40-10:20	Plenary Speaker: Mr LEE STOKES, Global Head of Carbon – Mace Group (Auditorim) Sustainability in the Global Built Environment	
10:20-10:50	Coffee break	
10:50-12:50	SS2/SS6: Robotic Systems and Smart Inspection	SS12:Advanced Manufacturing Technologies
12:50-14:00	Lunch and Poster Session	
14:00-14:40	Plenary Speaker: Dr QingPing Yang, Brunel University of London (Auditorim) Towards Unification of Measurement, AI, Quality and Sustainability – Principles and Applications	
14:40-15:40	Plenary Panel Discussions: Emerging Challenges and Opportunities for the Future of Measurement, AI, Quality and Sustainability	
15:40-16:10	Coffee break	
16:10-17:50	SS3:Artificial Intelligence for NDT	SS8:Artificial Intelligence in Societies
18:30-21:30	Conference Gala Dinner (The Sir Christopher Wren Hotel, Windsor)	
Thursday 28th August 2025		
08:30-09:00	Registration	
09:00-10:20	SS10:Tipping Points in Complex Systems	SS11:Advancing Sustainable Production: Innovations, Challenges and Future Directions
10:20-10:50	Coffee break	
10:50-12:50	SS4:Industrial Measurement & Control Networks and Systems	S3/SS7: Advances in Quality Management
12:50-14:30	Lunch (Conference Board Meeting: 13:30-14:30)	
14:30-15:30	Plenary Discussions and Future Collaborations	
15:30-15:45	Conference Awards	
15:45-16:00	Closing Ceremony and Announcement of MAIQS 2026	
16:00-17:30	Farewell Reception (Lancaster Hotel)	

## MAIQS 2025 Program Schedule – Tuesday 26 August 2025

Tuesday, 26 August 09:00 - 09:20

### **Opening Ceremony**

Room: ESGW Auditorium

Session Chair: QingPing Yang

Tuesday, 26 August 09:20 - 10:00

### **Coordinate Metrology and the Quality Infrastructure**

Plenary Speaker: Prof Alistair Forbes, NPL, UK

Room: ESGW Auditorium

Session Chair: QingPing Yang

Tuesday, 26 August 10:00 - 10:40

### **Preserving Measurement as a Foundation of Trust and Confidence in the Digital Era**

Plenary Speaker: Prof Pete Loftus, Evalu8ion Ltd; University of Edinburgh, UK

Room: ESGW Auditorium

Session Chair: Yan-fu Li

Tuesday, 26 August 10:40 - 11:10

Coffee Break and Poster Session 1 (Beldam Room and Atrium)

Tuesday, 26 August 11:10 - 12:50

S1: Advanced Measurement I

Room: ESGW 003a

Session Chairs: Alistair Forbes, Qingli Luo

### **Invited Talk: Mitutoyo advancements in optics and lens technology**

Ralf Kruse (Mitutoyo (UK) Ltd)

### **Modeling and optimization of a photovoltaic module's parameters**

Oumayma Mabrouk, Abderafi Charki, Nizar Chatti, and Xavier Sidambarompoule University of Angers, France); Sidali Blaifi (University of Medea, Algeria)

### **Joint optimisation model for light source position based on a combined target**

Xiangjin Kong, Zijing Wang, Yupei Miao and Xiaoli Liu (Shenzhen University, China); Qingping Yang (Brunel University of London); Qijian Tang (Shenzhen University, China)

### **Self-calibration measurement and uncertainty evaluation of lens focal length based on Fabry-Perot Interferometer**

Zelin Li, Xiaoyan Shen, Lei Li and Wenxia Kong (China Jiliang University)

### **Angular contact ball bearing cage kinematic deformation testing method**

Xiqiang Ma, Nan Guo, Xiao Wang, Chunyang Liu and Jinyuan You (Henan University of Science and Technology, China)



Tuesday, 26 August 11:10 - 12:50

S2: Artificial Intelligence

Room: ESGW 111

Session Chairs: QingPing Yang, Bringrui Wang

**Research progress on CPG-based movement technology for bionic robots control**

Mingrui Wang, Binrui Wang, Junwei Fang, Qian Li and Pengfei Zhang (China Jiliang University)

**Design of a bio-inspired adaptive central pattern generator control for pneumatic muscle antagonistic joint**

Chenchao Ma, Feifei Qin and Binrui Wang (China Jiliang University)

**Explainability of deep learning models for Covid-19 detection using PCA**

Richard Yang, Qingping Yang, Fang Wang (Brunel University of London, UK); Ding Chen and Yang Qiu (Wuhan Union Hospital affiliated with Tongji Medical College, Huazhong University of Science and Technology, China)

**Few-shot defect detection in industrial scenarios: a comprehensive review of challenges, advances, and frontier trends**

Ruibao Wang and Tao Hong (China Jiliang University, China)

**A deep reinforcement learning approach for flexible multi-path routing using graph neural networks**

Kun Geng, Yingzi Zhang and Wenyi Liu (North University of China)

Tuesday, 26 August 12:50 - 14:00

Lunch and Poster Session (Beldam Room and Atrium)

**P1. Research on local visual global localization method based on out-of-view reference of spatial point association**

Gao Peipei (Nankai University, China); Liu Feng (Tianjin University, China); Yang Qingping (Brunel University London, UK); Wang Jiale (Tianjin University, China)

**P2. TMRL-NBV: Triangular mesh-based reinforcement learning for next-best-view in active 3D reconstruction**

Huijie Zhao, Yong Tang, Siyu Qi, Hongzhi Jiang and Xudong Li (Beihang University, China)

**P3. A time synchronization optimization algorithm based on SharkNet**

Qiang Li, Yanzhang Xie, Gaigai Liu, Wenyi Liu (North University of China)

**P4. Gamma-corrected phase measuring deflectometry with DCT- Poisson solver for high-reflectivity surface reconstruction**

Ji Hu, Chunyang Ma, Guofeng Zhang and Shuming Yang (Xi'an Jiaotong University, China)

**P5. Adaptive multi-wavelength temperature retrieval method**

Yuqian Dong, Xiaojian Hao, Shenxiang Feng, Tong Wei and Hongkai Wei (North University of China)

- P6. CO<sub>2</sub> concentration detection based on TDLAS technology**  
Songtao Gao, Xiaojian Hao, Biming Mo, Junjie Chen, Shuaijun Li, Junjie Ma, Hongkai Wei and Yanlin Wu (North University of China)
- P7. Design and application of a robust multivariate control chart for gas PE pipe production**  
Fan Ye, Juan Zhou, Qiang Wang, Weijiao Zhang, Zuoyuan Zhang, Haiting Zhou, Xiangliang Chen (China Jiliang University)
- P8. Aerodynamic design and analysis of horizontal-axis wind turbine blades**  
Zhongyuan Qiao (North China University of Technology); Suriani Binti Che Kar (Brunel University of London, UK)
- P9. MCAF-Net: a non-invasive early screening method for coronary artery disease based on a multi-scale cross-modal model**  
Fangyuan Chen, Jiangong Cui, Renxin Wang, Pengcheng Shi, Guofu Wang (North University of China); Xinyi Wang (Second Hospital of Shanxi Medical, China); Guojun Zhang (North University of China)
- P10. Characteristic investigation of stress-hydrogen coupling hydrogen diffusion of X80 steel based on finite element simulation**  
Jiaping and Haiting Zhou (China Jiliang University, China); Xinwei Zhu and Jianhua Yang (Jiaxing Special Equipment Inspection and Testing Institute, China); Haibo Miu and Zhihui Cai (Wenzhou Special Equipment Testing Research Institute, China); Qiang Wang and Yun Song (China Jiliang University, China)
- P11. Ground penetrating radar signal recognition and localization method based on improved Yolov8**  
Peng He, Haiting Zhou, Jiajun Feng, Linming Xia, Qiang Wang, Yun Song, Juan Zhou (China Jiliang University)
- P12. Application of artificial intelligence in 3D printing**  
Tiangi Liu (North China University of Technology); Xizhi Sun (Brunel University London, UK)
- P13. Research on analytical methods for defect measurement systems in gas polyethylene pipe welded**  
Chenjia Zong, Juan Zhou, Qiang Wang, Zhilong Yu, Haiting Zhou, Yun Song and Jiayan Chen (China Jiliang University).
- P14. Ultrasonic guided wave-based defect detection in extra-long, small-diameter, thin-walled solar heat-absorbing tubes with heterogeneous salt films**  
Xinyi Ni, Xiaomeng Xu and Qiang Wang (China Jiliang University); Luowei Cao, Lei Zhang (China Special Equipment Inspection & Research Institute); Le Li (China Jiliang University) and Guodong Jia (Henan Boiler and Pressure Vessel Inspection Technology Research Institute, China)
- P15. Theoretical overview of Quality 4.0**  
Wenyu Chen and Lei Sun (Shanghai Dianji University, China)
- P16. Tipping points in MOOC engagement: AI-driven sentiment and topic modeling of cybersecurity learner feedback on the SWAYAM platform**  
Jeetendra Pande (Uttarakhand Open University, India), Harsh Vardhan Pant (Pal College of Technology and Management, India) and Ivan Sudakow (The Open University, UK)



**P17. Environmental and economic sustainability assessment of food waste management options in a tortilla industry (a case study)**

Mosunmola Adeoye and Lu Gan (Brunel University of London, UK); Zainab Oyetunde, Usman and Simon Willcock (Rothamsted Research, UK); Valentina Stojceska (Brunel University of London, UK)

**P18. Correction of misalignment errors in the magnetic gradient tensor measurement system and its application in localization**

Yali Shen and Yingzi Zhang (North University of China); Qingping Yang (Brunel University of London, UK)

Tuesday, 26 August 14:00 - 14:40

**Towards Formalized Assessment of Data Quality and Uncertainties of Machine Learning Output Compatible with the GUM**

Plenary Speaker: Dr Hans Rabus, PTB, Germany

Room: ESGW Auditorium

Session Chair: Abdérafi Charki

Tuesday, 26 August 14:40 - 15:20

**Research on Calibration and Performance Testing of Industrial Robots**

Plenary Speaker: Prof Binrui Wang, China Jiliang University, China

Room: ESGW Auditorium

Session Chair: QingPing Yang

Tuesday, 26 August 15:20 - 15:50

Coffee Break and Poster Session (Beldam Room and Atrium)

Tuesday, 26 August 15:50-17:50

S1: Advanced Measurement II

Room: ESGW 003a

Session Chairs: Pete Loftus, Qiang Wang

**Invited Talk: Mitutoyo's digital threads for manufacturing and quality control**

Andrew Fifield (Mitutoyo (UK) Ltd)

**3D drift correction of AFM using Lissajous and localised scanning**

Xizi Sun, Edward Heaps, Andrew Yacoot (National Physical Laboratory, UK); Qingping Yang (Brunel University of London, UK); Petr Grolich and Petr Klapetek (Czech Metrology Institute, Czech Republic)

**Strengthening data privacy and interconnectivity of a digital twin prototype: application to a heat pump test bench**

Harimanga-Yannick Rakotonirina, Abderafi Charki (Universite d'Angers, France); David Espes (Universite de Bretagne, France), Bassel Chokr (Universite d'Angers, France); Antonio Costanzo (ESAIP, France)

**A low-cost Stewart platform-based multi-axis force/torque sensor using strain gauges**

Yohan Noh, Tamanna Billah, Ruiheng Wu and Dalia Osman (Brunel University of London, UK)

**Design of remote wireless video monitoring system for forest fires based on Internet of Things**

Xiqiang Ma, Fang Yang, Nan Guo (Henan University of Science and Technology, China)

**Microstructural and leaching behavior of aluminum pressure cookware: A case for standardized testing in Saudi Arabia**

Hussain Alsalamah, Mohammed A. Hassan, Saed A. Alzahrani, Ibrahim A. AlMoghed (Saudi Standards Organization, Saudi Arabia); Carl Magnus (Intertek Testing Service, UK)

Tuesday, 26 August 15:50-17:50

S2/SS1: Artificial Intelligence and Measurement

Room: ESGW 111

Session Chairs: Jean-Laurent Hippolyte, Abdérafi CHARKI

**Invited Talk: Semi-automatic mapping with SBERT for ontology-based interoperability in construction data systems**

Priyanka Bharti, Jean-Laurent Hippolyte and Michael Chrubasik (National Physical Laboratory, UK)

**Invited Talk: Visual geolocalization and real-time fire detection for UAVs in GNSS-denied environments**

Qingli Luo, Jiaxu Wang, Shubin Zhang, Tiantian Qin and Xiangjun Wang (Tianjin University, China)

**From transcript to insights: summarizing safety culture interviews with LLMs**

Wouter Steijn, Janneke van de Loo and Dolf van der Beek (TNO, Netherlands); Jop Groeneweg (TNO; TU Delft; Leiden University, Netherlands)

**Rapid aerodynamic approximation of rotating blades using AI**

Mars Burke and Alvin Gatto (Brunel University of London, UK)

**Reliability testing and machine learning approach for modelling high-power light-emitting diode reliability**

Quoc Tiep La, Zdenek Vintr, David Valis, Libor Zak and Zdenek Kohl (University of Defence, Czech Republic)

Tuesday, 26 August 18:20-20:30

Welcome Reception

Room: Newton Room, Hamilton Centre



## MAIQS 2025 Program Schedule – Wednesday 27 August 2025

Wednesday, 27 August 09:00 - 09:40

### **Reliability Engineering for Intelligent Autonomous Systems**

Plenary Speaker: Prof Yan-Fu Li, Tsinghua University, China

Room: ESGW Auditorium

Session Chair: Alistair Forbes

Wednesday, 27 August 09:40 - 10:20

### **Sustainability in the Global Built Environment**

Plenary Speaker: Lee Stokes, Global Head of Carbon – Mace Group, UK

Room: ESGW Auditorium

Session Chair: Valentina Stojceska

Wednesday, 27 August 10:20 - 10:50

Coffee Break and Poster Session (Beldam Room and Atrium)

Wednesday, 27 August 10.50-12:50

SS2/SS6: Robotic Systems and Smart Inspection

Room: ESGW 003a

Session Chairs: QingPing Yang, Yohan Noh

### **Invited Talk: IntACom™: Advancing Robotic NDT**

Ian Nicholson (TWI Ltd, UK)

### **Invited Talk: Smart vision for robot based inspections**

Nadja Nagel (SensoPart, Germany)

### **Invited Talk: A review of non-destructive testing using robot**

*Yongqian Lin and Hanming Zhang (North China University of Technology); Xizhi Sun (Brunel University of London) and Yongliang Chen (North China University of Technology)*

### **Surgical robot for implantation**

*Xinli Du (Brunel University of London, UK)*

### **Development of force, torque, and shape sensors using optoelectronic technologies for robotic systems**

Yohan Noh (Brunel University of London, UK)

### **Design of a two axis optoelectronic joint measurement sensor using orientation constraining mechanism for flexible robotic application**

Dalia Osman, Madeshwaran Murali and Yohan Noh (Brunel University of London, UK)



Wednesday, 27 August 10:50 - 12:50  
SS12: Advanced Manufacturing Technologies  
Room: ESGW 111  
Session Chairs: Bin Zhang, Xizhi Sun

**Invited Talk: Coating applications of EHLA in geothermal pipeline for corrosion resistance**

Tomaso Maccio (TWI Ltd, UK)

**Invited Talk: Generative design method of machine tool conceptual configuration and its application**

*Yulong Yang and Tianjian Li* (University of Shanghai for Science and Technology, China)

**Influence of 3D printing process parameters and design on mechanical properties of tissue scaffolds**

Karim Poonawala and Bin Zhang (Brunel University of London, UK)

**Influence of process parameters on powder jet properties in L-DEDp using different nozzle designs**

Jodo Pedro Madeira Araujo (Brunel University of London, UK); Jhonattan Gutjahr (TWI Ltd, UK); Qingping Yang and Diane Mynors (Brunel University of London, UK)

Wednesday, August 27 12:50 - 14:00  
Lunch and Poster Session (Beldam Room and Atrium)

Wednesday, 27 August 14:00 - 14:40  
**Towards Unification of Measurement, AI, Quality and Sustainability – Principles and Applications**  
Plenary Speaker: Dr QingPing Yang, Brunel University of London, UK  
Room: ESGW Auditorium  
Session Chair: Pete Loftus

Wednesday, 27 August 14:40 - 15:40  
**Plenary Panel Discussions: Emerging Challenges and Opportunities for the Future of Measurement, AI, Quality and Sustainability**  
Panelists: Alistair Forbes, Pete Loftus, Yan-fu Li, Bingrui Wang, Lee Stokes, Mark Sutcliffe  
Room: ESGW Auditorium  
Session Chair: QingPing Yang

Wednesday, 27 August 15:40 - 16:10  
Coffee Break and Poster Session (Beldam Room and Atrium)



Wednesday, 27 August 16:10 - 17:50

SS3: Artificial Intelligence for NDT

Room: ESGW 003a

Session Chairs: Ian Nicholson, Qiang Wang

**Invited Talk: Artificial Intelligence for NDT**

Mark Sutcliffe (TWI Ltd, UK)

**High-density polyethylene buried natural gas pipe butt fusion joint defects automatic detection via total focusing method and deep learning**

Qiang Wang, Haowen Zhang, Tianliang Chen and Weirong Xu (China Jiliang University)

**Trust in AI for NDT: Mitigating risks by building in knowledge**

Alastair Poole (University of Strathclyde, UK)

**NEAT-based 3D path planning for mobile robotic arms in NDT with offline inverse kinematics validation**

Mengyuan Zhang and Qingping Yang (Brunel University of London, UK); Mark Sutcliffe and Ian Nicholson (TWI Ltd, UK)

**LSTM based SCC detection using ultrasonic testing based data**

Sumit Kumar (Brunel University of London, UK); Channa Nageshwaran (TWI Ltd, UK); Qingping Yang (Brunel University of London, UK)

Wednesday, 27 August 16:10-17:50

SS8: Artificial Intelligence in Societies

Room: ESGW 111

Session Chairs: Fang Wang, Chenyang Zhu

**Invited Talk: Temporal-Logic Guided Learning for Reliable Embodied Multi-Robot Systems**

Chenyang Zhu (Changzhou University, China)

**Personalized Email Marketing with Agentic AI**

Venkatasubramaniam, George Ghinea, Kate Hone and Yongmin Li (Brunel University London, UK)

**Streamlining copyright protection: leveraging algorithmic justice, administrative, civil systems**

Faye Fangfei Wang (Brunel University of London, UK)

**Visual transformer with depthwise separable convolution projections for video-based human action recognition**

Yu Cao and Fang Wang (Brunel University of London, UK); Qiusheng Zheng (Zhongyuan University of Technology, UK)

**A framework for truth and honesty in language processing for safety engineering**

John Robert Taylor (University of Southern Denmark)

Wednesday, 27 August 18:30-21:30

Conference Gala Dinner

Room: The Sir Christopher Wren Hotel, Windsor

## MAIQS 2025 Program Schedule – Thursday 28 August 2025

Thursday, 28 August 09:00 - 10:20

SS10: Tipping Points in Complex Systems

Room: ESGW003a

Session Chairs: Ivan Sudakow, Lee Stokes

### **Climate modelling without irrelevant weather details: the Half-Order Energy Balance Equation**

Shaun Lovejoy, Dustin Lebiadowski, Yifan Wang and Dave Clark (McGill University, Canada)

### **Tipping in the Earth System from Rapid Carbon Forcing**

Ivan Sudakow (The Open University, UK)

### **Detecting and classifying dynamical transitions in mass extinction events and environmental turnovers using recurrence quantification analysis**

Andrej Spiridonov, Robertas Stankevič, Simona Rinkevičiūtė, Sigitas Radzevičius, Liudas Daumantas and Simona Bekeraitė (Vilnius University, Lithuania)

### **Advancing predictive understanding of summer Arctic sea ice**

Dmitri Kondrashov (University of California - Los Angeles, USA)

Thursday, 28 August 09:00 - 10:20

SS11: Advancing Sustainable Production: Innovations, Challenges and Future Directions

Room: ESGW111

Session Chairs: Valentina Stojceska, Xiaomeng Xu

### **Advancing Sustainable Production: Innovations, Challenges and Future Directions**

Valentina Stojceska (Brunel University of London, UK)

### **An investigation of the use of the solid-state microwave technology as an energy-efficient method to improve heating uniformity and moisture retention during the baking process**

Leyli Vahid, Dastjerdi and Valentina Stojceska (Brunel University of London, UK); Maria Oruna-Concha (University of Reading, UK); Savvas Tassou (Brunel University of London, UK)

### **Plate waste measurement in hospitality: examining tailored interventions and impact through nudges, mobile ethnography and AI-ML solutions**

Gabriela Appel, Ofira Ayalon and Noga Collins-Kreinner (University of Haifa, Israel)

### **The relation between Artificial Intelligence (AI), Eco Innovation (EI) and Green Innovation (GI) and effects on sustainability**

Lana Freihat (Brunel University London, UK)

Thursday, 28 August 10:20 - 10:50

Coffee Break and Poster Session (Beldam Room and Atrium)

Thursday, 28 August 10:50 - 12:50

SS4: Industrial Measurement & Control Networks and Systems

Room: ESGW 003a

Session Chairs: Nila Nilavalan, Kun Zhou

**Invited Talk: Future communication technologies for industrial control & networks and systems**

*Wenyi Liu (North University of China)*

**Invited Talk: Broadband Industrial Fieldbus Process Automation Solution**

*Yi Huang (Kyland Technology Co., Ltd, China)*

**Invited Talk: Future communication technologies for industrial control & networks and systems**

*Nila NILAVALAN (Brunel University of London, UK)*

**Measurement system of elevator shaft based on 2D LiDAR and corner point detection technologies**

*Zonghua Qi, Yinglian Jin, Junwei Fang, Bin Zhang, Kun Zhou and Chunxiang Zhu (China Jiliang University)*

**SharkNet-5G wireless link integration technology research**

*Yanzhang Xie, Wenyi Liu (North University of China); Qingping Yang (Brunel University of London, UK); Qiang Li and Gaigai Liu (North University of China)*

Thursday, 28 August 10:50 - 12:50

S3/SS7: Advances in Quality Management

Room: ESGW 111

Session Chairs: Changjing Sun, Juan Zhou

**Invited Talk: Thoughts on quality management in the AI era**

*Decheng Wen (Shandong University, China)*

**A study on the application and maturity evaluation of digital quality management based on literature analysis**

*Guihua Dai and Changjing Sun (China Jiliang University)*

**Opportunities of explainable AI for enhancing management systems**

*Thanyalak Sangdean, Aydin Nassehi and Qunfen Qi (University of Bristol, UK)*

**Hybrid and Deep Learning Architectures for Predictive Maintenance: Evaluating LSTM, and Attention-Based LSTM-XGBoost on Turbofan Engine RUL**

*Adam Ahmed (Brunel University of London, UK)*

**How short-video e-commerce shapes urban economic integration and its spatial spillovers**

*Weidong Wang and Jinchi Ma (China Jiliang University)*

**Navigating careers in the digital age: the influence of AI-powered social media platforms on Chinese graduate students' career decision-making**

*Yinghao Wen (King's College London, UK)*



Thursday, 28 August 12:50 - 14:30  
Lunch and Poster Session (Beldam Room and Atrium)

Thursday, 28 August 13:30 - 14:30

**Conference Board Meeting**

Room: ESGW 111

Thursday, 28 August 14:30 - 15:30

**Plenary Discussions and Future Collaborations**

Room: ESGW Auditorium

Session Chair: QingPing Yang

Thursday, 28 August 15:30 - 15:45

**Conference Awards**

Room: ESGW Auditorium

Session Chair: Abdérafi Charki

Thursday, 28 August 15:45 - 16:00

**Closing ceremony and Announcement of MAIQS 2026**

Room: ESGW Auditorium

Session Chairs: QingPing Yang, Bingrui Wang, Qiang Wang

Thursday, 28 August 16:00 - 17:30

**Farewell Reception**

Room: Lancaster Hotel