22nd International Conference on Manufacturing Research (ICMR 2025)

Conference Programme

Tuesday 9 September 2025	
17:00-17:50	**Springer Nature Workshop** Dr. Mustafa Hasanov, Publishing Editor, Springer Nature Lecture Theatre 2, Teaching and Learning Building
18:00-19:30	**Welcome Reception** Professor Karl Dearn, Head of School of Engineering, University of Birmingham, Engineering Building

Wednesday 10 September 2025 - Teaching and Learning Building	
08:00-09:00	Registration and Refreshments

Plenary Session 1	
09:00-09:10	**Welcome and Formal Opening of the Conference** Professor Nick Vaughan-Williams, Provost and Vice-Principal University of Birmingham
09:10-09:20	**Introduction to the Conference** Dr. Mozafar Saadat, ICMR 2025 General Chair School of Engineering, University of Birmingham
09:20-09:55	**Keynote Presentation 1** ***From Discovery to Deliver: Building the Manufacturing Research and Innovation Ecosystems*** Dr. Chris Dungey, Chief Technology Officer, High Value Manufacturing Catapult Chair: Dr. Mozafar Saadat

10:00-10:20	**Conference Photograph - All delegates**

Parallel Sessions 1				
	Session 1A - Lecture Theatre 2 **Sustainable Systems in Manufacturing - 1**	**Session 1B - Room 109** **Manufacturing Ergonomics and Education**	**Session 1C - Room 118** **Asset Monitoring and Supply Chain**	**Session 1D - Room 119** **Additive and Hybrid Manufacturing - 1**
10:25-10:45	Application of a toolset for calculating component sustainability metrics: A case study of an automotive part Anees Abu-Monshar, *The Manufacturing Technology Centre*	Making VLF Development Accessible: LLM-Assisted Software Development for Engineering Education Andrea Bondin *University of Malta*	Assessing automated estimates for machine parts Robert Kirkwood *K6 Manufacturing*	Evaluating the Effectiveness of Brick Layering in FDM 3D Printing: A Parameterized Study on Tensile Properties of PLA Al Azhar Al Amri *University of Bristol*
10:45-11:05	Rethinking Recycling and Symbiosis for a Circular Economy Natanael Bolson *University of Birmingham*	Machine Learning-Based Generation of Personalized Ergonomic Work Envelopes for Human Machine Interaction Sharanjeet Kaur *The University of Sheffield*	A Validated Approach for Supply Chain Reconfiguration Dasunika Ubeywarna *Sheffield Hallam University*	Assessing Sustainability in Additive Manufacturing: A Meta-Analysis Across Key Performance Indicators Samniroshan Thayapararajah *Cranfield University*
11:05-11:25	Integrating Sustainability in Outsourced Food Supply Chains: A Comprehensive Review Somayeh Hatami *Sheffield Hallam University*	Towards automatic visual verification of manual bracket installations in aerospace via Convolutional Neural Network Dr John Oyekan *The University of York*	Embedding Supply Chain Considerations within Product Design for Competitive Advantage Michael Murphy *Queen's University Belfast*	Stereolithography Additive Manufacturing for Soft Lattice Metamaterials Benedict Rogers *The University of Bath*

11:25-11:55	**Refreshment Break**

Plenary Session 2	
11:55-12:30	**Keynote Presentation 2** ***From Geometry to Intelligence: Reshaping Manufacturing through AI-Driven Design and Process Planning*** Professor Charlie Wang, Chair in Smart Manufacturing, University of Manchester Chair: Professor Duc Pham

Parallel Sessions 2				
	Session 2A - Lecture Theatre 2 **Advanced Manufacturing Technologies**	**Session 2B - Room 109** **Applications of Industry 4.0**	**Session 2C - Room 118** **Applications of Machine Vision**	**Session 2D - Room 119** **Modelling and Simulation**
12:35-12:55	Experimental and Numerical Study on Electromagnetic Self-Piercing Riveting Joining of CFRP and Aluminum Alloy Ji-yeon Shim, *Korea Institute of Industrial Technology*	Analysis and development of Augmented Reality (AR) technology for the maintenance of manufacturing equipment Andrea Bezzina *University of Malta*	A Training-Free Drone System for Foreign Object Debris Detection: A Novel Approach Seemal Asif *Cranfield University*	Experimental and modelling studies of the temperature effects on the interfacial heat transfer coefficient (IHTC) during hot stamping of AA6111 aluminium alloy Lemeng Zhang *Imperial College London*
12:55-13:15	Examining the functional feasibility of an electrically actuated SPF machine Mohammad Reza Allazadeh *Nmis*	An overview of Platform-Based Design Methodologies for Cyber-Physical Systems in the Industrial Metaverse Xiangyi Xiao, *City St George's, University of London*	Automated connector detection and 3D localization for EV battery recycling using deep learning and Kalman filtering Majid Sorouri *Maynooth University*	CFD Simulation and Fabrication of Micromixers and Microseparators Omid Doustdar *University of Birmingham*
13:15-13:35	Critical Analysis of Machine Learning for Data-Driven Drilling Optimization in Aircraft Aluminum Components: Leveraging CNC Machining Insights Suriani Che Kar, *Universiti Tun Hussein Onn Malaysia (uthm)*	Planning method and case study for a real-life digital factory twin Jonas Lick *Fraunhofer IEM*	A Comparative Study of Visual Recognition Algorithms for Flexible Cable in Occluded Scenarios Ruifeng Ye *University of Birmingham*	Flow Field Simulation Comparison Based on PINN and Digital Twin Haobing Li University of Exeter
13:35-13:55	A study on the fracture behaviour of DP800 steel deformed along different strain paths Sisir Dhara *WMG, University of Warwick*	Leveraging Industry 4.0 Technologies for Supply Chain Resilience in SMEs Mohamed Khamkham *Sheffield Hallam University*	Taxonomy enhanced human action recognition in manufacturing assembly Junxi Zhang *University of Sheffield*	Enhancing flexibility and resilience in vaccine supply chains through a climate data modelling framework Michael Farnsworth *University of Sheffield*

13:55-14:50	**Lunch**

Plenary Session 3	
14:50-15:25	**Keynote Presentation 3** ***Achieving Manufacturing Excellence*** Ms. Sarah Black-Smith, General Manager, Motion Control, Siemens Digital Industries Chair: Professor Adrienne Houston

Parallel Sessions 3			
	Session 3A - Lecture Theatre 2 **Remanufacturing - 1**	**Session 3B - Room 109** **Advanced Manufacturing Systems**	**Session 3C - Room 118** **Advanced Materials and Production**
15:30-15:50	Triage for circular economy: techniques for optimising end-of-use decision-making Gustav Jonsson *University of Birmingham*	Machining efficiency and geometrical accuracy on Multi–axis Near–dry EDM of Inconel–718 alloy Ankush Katheria *National Institute of Technology Delhi*	Tribological assessment of a Zr-based Bulk Metallic Glass Paschal Ubi *Cranfield University*
15:50-16:10	Developing a Remanufacturing Feasibility Index for Medical Devices Using a Hybrid AHP-FIS Framework Khizar Abbas *Aston University*	Application of acoustic emission sensorization to plasma spray deposition David Miller *University of Sheffield*	Improvement of wear and corrosion performance of ductile iron with deep cryo-heat treatment Andre Batako *Liverpool John Moores University*
16:10-16:30	Remanufacturing in the Oil and Gas Industry: A Qualitative Study of Stakeholder Perceptions Fatima Abbas *University of Strathclyde*	Making digital work: practitioner-driven framework development for food SMEs Frank Ndiata *University of Strathclyde*	Microstructure and mechanical properties relationships in A357 aluminium castings for aerospace applications Anish Gajendra Premanand *Cranfield University*
16.30-16:50	Human robot collaboration enabled dynamic task allocation in sustainable and adaptive remanufacturing of electric vehicle batteries Haseeb Khan *Aston University*	Comparative Study and Optimization of Machine Learning Models for Porosity Prediction in Laser Powder Bed Fusion Peiran Lei *University of Birmingham*	Development of techniques for improving the layer adhesion of Fused Filament Fabrication 3D prints Gokula Vasantha *Edinburgh Napier University*

16:50-17:15	**Refreshment Break**

Plenary Session 4	
17:15-17:50	**Keynote Presentation 4** ***Intelligent Optimisation with the Bees Algorithm*** Professor Duc Truong Pham, Chance Professor of Engineering, University of Birmingham Chair: Dr. Mozafar Saadat
17:50-17:55	**Day 1 Closing Remarks**

19:45-22:30	**Conference Dinner** (Ticket Holders Only) - Council House, Victoria Square, Birmingham City Centre

Thursday 11 September 2025 - Teaching and Learning Building	
08:30-09:00	Registration and Refreshments

Plenary Session 5	
09:00-09:05	**Day 2 Welcome** Dr. Mozafar Saadat, ICMR 2025 General Chair School of Engineering, University of Birmingham
09:05-09:40	**Keynote Presentation 5** ***Manufacturing as the enabler of competitively advantaged companies, products and services*** Mr. Neil Mantle, Director, Manufacturing Engineering and Materials, Rolls Royce Chair: Professor Brian Robb

Parallel Sessions 4			
	Session 4A - Lecture Theatre 2 **Digital Modelling and Monitoring**	**Session 4B - Room 109** **Remanufacturing - 2**	**Session 4C - Room 118** **Smart Systems**
09:45-10:05	Low-cost digital solutions in manufacturing: asset monitoring preferences and the challenges of deployment in UK SMEs Duvan Pineda *University of Cambridge*	Enhancing Engine Remanufacturing with Deep Learning-Based Disassembly Automation Muftooh Siddiqi *Aston University*	Millimetre-wave NDT of Multilayer Dielectrics via Deep Learning Soravi Charoenwijitkul *University of Sheffield*
10:05-10:25	Quality Control for Smart Manufacturing Using an AI-powered Inspection System Mrs Ghayda Diabat *University of Greenwich*	Human-Robot Collaborative Disassembly Sequence Planning and Task Allocation using the Single-Parameter Bees Algorithm Hamid Furkan Suluova *University of Birmingham*	Unlocking Efficiency and Intelligence in Manufacturing Optimisation: A Novel Fusion of the Bees Algorithm and Large Language Models Hang Yang *Wuhan University of Technology*

10:25-10:45	Cyber Threat Simulation and Modeling in Cyber-Physical Production Systems Yeaba Astha *City, St. Georges, University of London*	A rapid adaptation framework for instance-level object detection models in data-scarce robotic disassembly Yongjing Wang *Hubei University of Technology*	GPT-Manual Generator: A Knowledge Transformation Architecture for Maintenance Procedure Externalisation Ali Alsayegh *University of Strathclyde*
10:45-11:05	MetaManufacturing: Leveraging the Metaverse for Engineering Education at Higher Education. Andrea Bezzina *University of Malta*	Robotic Disassembly Sequence Planning with Learning Bees Algorithm Considering Disassembly Time and CO2 Emission Fatih Mehmet Eker *University of Birmingham*	Overcoming challenges in customer-driven repair of smart home appliances through digital twins Minhal Mahmood *City St Georges, University of London*

11:05-11:30	**Refreshment Break**

Plenary Session 6	
11:30-12:05	**Keynote Presentation 6** ***The Future of Digital Manufacturing: To AI or Not to AI?*** Professor Aydin Nassehi, Chair in Production Systems, University of Bristol Chair: Dr. Mozafar Saadat

Parallel Sessions 5			
	Session 5A - Lecture Theatre 2 **Artificial Intelligence and ML in Manufacturing**	**Session 5B - Room 109** **Manufacturing Optimisation**	**Session 5C - Room 118** **Sustainable Systems in Manufacturing - 2**
12:10-12:30	Intelligent Fault Diagnosis in Industrial Rotating Machinery Using Reconstructed Phase Space and Deep Convolutional Networks Majid Sorouri *Maynooth University*	Optimising Purchasing and Production Supply Chain Strategies in the UK Textile Industry Miss Samina Komal *Sheffield Hallam University*	Building resilience from disruptions: A strategic framework embedding UN SDGs for sustainable aerospace supply chains Ranjika Mestiyage Don *Sheffield Hallam University*
12:30-12:50	Deformable linear object modelling through the use of synthetic image data Michael Farnsworth *University of Sheffield*	An Adaptive Fibonacci Bees Algorithm for Reverse Logistics Natalia Hartono *University of Exeter*	EcoLid: A Sustainable Lid Solution Using Bio-Waste and User-Centred Design for Circular Disposal David Butler *University of Birmingham*

12:50-13:10	Automated Geometric Qualification of 3D-Printed Products Qiang Huang *University of Southern California*	Predicting cold-strip finish rolling thickness using explainable machine learning Xiangchen Wang *University of Science and Technology Beijing*	Understanding Consumer Choices in Sustainable Last-Mile Delivery: An S-O-R Model Approach in Vietnam Alireza Pakgohar *Sheffield Hallam University*
13:10-13:30	Emotion-driven AI for smart manufacturing: integrating real-time sentiment into demand forecasting and production decisions Murouj Aljamaeen *University of Staffordshire*	A Disassembly Sequence Optimisation Method Using Single-Parameter Bees Algorithm for End-of-Life Electric Vehicle Batteries Jun Huang *Wuhan University of Technology*	Comparative Analysis of Surface Roughness in High and Low Speed Micromilling of Inconel 718 Superalloy with Coated Tools Waqar Tahami/Syed Jaffery *National University of Sciences and Technology/Birmingham City University*

13:30-14:25	**Lunch**

Plenary Session 7	
14:25-15:00	Keynote Presentation 7 ***Product Realisaton in a Changing World - Why Collaboration is More Important Than Ever*** Mr. Nigel Pearce, Director, Collaborative Product Realisation Ltd Chair: Professor Brian Robb

Parallel Sessions 6			
	Session 6A - Lecture Theatre 2 **Machining Processes and Advanced Materials**	**Session 6B - Room 109** **Automation, Flexible Assembly, and Sensors**	**Session 6C - Room 118** **Additive and Hybrid Manufacturing - 2**
15.05-15.25	Jet technology integration in biomachining for superhydrophobic surface fabrication and parameter optimisation Jingyu Song *Huaqiao University*	GPS Shadowing: A review/analysis of solutions for continuous positioning for autonomous vehicles navigation Uchenna Onyema *University of Derby*	A study of pure tungsten in directed energy deposition through analysis of single lines Nina Eva Adler *University of Birmingham*
15.25-15.45	Advanced Cooling and Lubrication Strategies for Machining Difficult-to-Cut Metal Matrix Composites: A Comprehensive Review Muhammad Jamil, Nanjing *University of Aeronautics and Astronautics*	Design and Prototyping of a 6-SPS Parallel Manipulator for Precision Assembly Fazair Nizar Siraj *University of Sheffield*	An investigation into the secondary stage creep behaviour of ABS thin-walled additive manufactured specimens Robert Benham *University of Chichester*

15.45-16.05	Influences of standoff distance and traverse speed on dimensional accuracy and quality of waterjet and abrasive waterjet drilled holes of carbon FRP composites Sikiru Ismail *University of Hertfordshire*	Additively Manufactured Thermal Sensor for Local Temperature Monitoring: Experimental and Numerical Validation Dimitrios Nikolaos Pagonis *University of West Attica*	Simulation-Based Optimisation for 3D Printing Interlaced Structures Thomas Flechon *University of Exeter*
16.05-16.25	Developing Medium Entropy Alloys with Low Elastic Modulus for Biomedical Applications Jiacheng Zhang *Cranfield University*	Design of a CAD-based Flexible Assembly System Utilising Predefined Connection Interfaces Nathan Espley-Plumb *University of Sheffield*	Data-driven multi-objective optimisation of build orientation of parts with internal channels manufactured by laser powder bed fusion Yuchu Qin *University of Huddersfield*

16:25-16:50	**Refreshment Break**

Plenary Session 8	
16:50-17:10	**Awards Ceremony** Sponsored Awards Presentations by Springer Nature, CIRP, COMEH
17:10-17:15	**Conference Closing Remarks**

Friday 12 September 2025 - Industrial Visit	
08:45-09:00	**Registration**
09:00-13:00	Industrial Visit to BMW Hams Hall Plant (Meet at the North Gate, University of Birmingham - prebooked places only)
10:00-11:00	Virtual Presentation by Spirax Sarco - Teaching and Learning Building - Room 202