

Third Workshop on Multimodal AI

16-17 September 2025

Social Media: #MultimodalAI25, #UKOMAIN

LinkedIn: @UK Open Multimodal AI Network (UKOMAIN)

Venue: Barbican Centre, Silk St., Barbican, London EC2Y 8DS ([direction](#))

Programme

Workshop Day 1 – 16th Sep 2025	
Time	Event
08:30 - 09:00	Registration, coffee/tea, and biscuits
09:00 - 09:10	Welcome address: Aimie Chapple, Vice-President, University College London
09:10 - 09:30	Opening talk: Haiping Lu, Director, UK Open Multimodal AI Network
09:30 - 10:10	Keynote 1: Tian Xie, Principal Research Manager, Microsoft Research AI4Science Accelerating materials design with AI emulators and generators
10:10 - 10:45	Community talks 1
10:45 - 11:00	Group photos
11:00 - 11:30	Coffee/tea, biscuits, and posters
11:30 - 12:10	Keynote 2: Maria Luciana Axente, CEO, Responsible Intelligence Beyond single-track thinking: governing the ethical complexity of multimodal AI
12:10 - 12:40	Community talks 2
12:40 - 13:50	Lunch and posters
13:50 - 14:30	Keynote 3: Rebecca Croasdale-Wood, Senior Director, Global MLAB Lead, AstraZeneca Integrating AI into biologics discovery workflows
14:30 - 15:00	Community talks 3
15:00 - 15:30	Coffee/tea, biscuits, and posters
15:30 - 16:10	Keynote 4: Thomas Gorochowski, Professor of Biological Engineering, University of Bristol Data-centric approaches to biological design and engineering
16:10 - 17:00	Conducting impactful research (panel discussion 1)
17:00 - 17:30	Exploring barbican
Networking Reception	
17:30 - 18:00	Arrival and networking
18:00 - 19:30	Nibbles with leaders
Parallel	Fireside chat with journal editors
Parallel	OMAIB Q&A and connections
19:30 - 20:30	Networking

Workshop Day 2 – 17th Sep 2025

Time	Event
08:30 - 09:00	Registration, coffee/tea, and biscuits
09:00 - 09:20	Invited talk: EPSRC and Tomorrow's Engineering Research Challenges, Simon Crook
09:20 - 09:40	Open Multimodal AI Benchmark (OMAIB) - Haiping Lu
09:40 - 10:20	Keynote 5: Anna Barnes, Director of the King's Technology Evaluation Centre, King's College London AI in health and care — helping developers to think more critically about deployment, integration, and evidence generation
10:20 - 10:50	Community talks 4
10:50 - 11:20	Coffee/tea, biscuits, and posters
11:20 - 12:00	Keynote 6: Ronghui Liu, Professor of Networks and Transport Operations, University of Leeds Smart mobility: AI and data science powering the future of multimodal transport
12:00 - 12:30	Community talks 5
12:30 - 13:40	Lunch and posters
13:40 - 14:20	Keynote 7: Ampea Karikari-Boateng, Principal R&D Engineer, Offshore Renewable Energy Catapult AI-renewed: transforming offshore renewables with multimodal intelligence
14:20 - 14:30	Invited talk: Multimodal AI for solar forecasting and future grid balance, Yupeng Wu
14:30 - 15:00	Learning from experience: career reflections (panel discussion 2)
15:00 - 15:30	Coffee/tea, biscuits, and posters
15:30 - 16:10	Keynote 8: Emine Yilmaz, Professor and ELLIS Fellow, University College London Using large language models for evaluation: opportunities and limitations
16:10 - 16:25	Prize winner announcement
16:25 - 16:30	Next steps of UKOMAIN

Community talks 1 (Day 1 | 10:10 – 10:45)

Short Talks (5 mins each)

Name	Title
Jiin Woei Lee	Interpretable Multimodal AI for Predicting Early Biological Cell Responses to Biomaterial Implant Coatings
Stephan Goerttler	Stochastic Graph Heat Modelling for Cross-Modal Connectivity Estimation
Hegel Pedroza & Iran R. Roman	Guitar-TECHS: A Multimodal Dataset for Cross-Modal Guitar Performance Analysis
Jason Lo	From Data to Concepts via Wiring Diagrams

Pitches (1 min each)

Name	Title
Kewei Zhu	ReadMOF: Structure-Free Semantic Embeddings from Systematic MOF Nomenclature for Machine Learning Applications
Zainab Almugbel	Multi-modal MAML: Revisiting Features Fusion for Discriminative Generalization and Class Distribution
Misbah Rafique	Realistic Galaxy Images Through Generative Adversarial Network
Gaoyun Fang	Understanding Multimodal Fusion through Cross-Modal Interaction
Emmanouil Benetos	Multimodal Music Understanding

Community talks 2 (Day 1 | 12:10 – 12:40)

Short Talks (5 mins each)

Name	Title
Enrico Parisini	Concept-Based Modelling for Multimodal Clinical Flows
Konstantin Georgiev	MM-HealthFair: A Novel Framework for Quantifying and Mitigating Healthcare Biases in Multimodal AI Algorithms for Risk Prediction
Adam Wynn	Semi-supervised Speech Confidence Detection using Whisper Embeddings
Li Zhang	Integrating Heterogeneous Data Sources to Enhance Trading Strategies in Commodity Futures Markets

Pitches (1 min each)

Name	Title
Sedat Dogan	Early Prediction of Multimodal Cross-Lingual Meme Virality
Angeline Wang	Neural Substrates of Affective Empathy: Interactions between ACC and InC
Mohammad Aadil Minhaz	Multimodal AI Security: Mitigating Prompt Attacks on AI Models using AI-Gateway
Rahul Singh Maharjan	Improving Open-Vocabulary Object Detection via Feature Modulation
Jessica Fan	Tiered Vibe Mapping (TVM): A Feature-Space Decomposition for Aesthetic Modeling
Harry Findlay	Multimodal Perception and Representation Learning in Human Behaviour Modelling
Awais Rauf	Efficient 3D-Aware Facial Image Editing via Attribute-Specific Prompt Learning
Wenjing Zhao	Safety-critical Scenario Generation for Testing Planning with Multimodal AI

Community talks 3 (Day 1 | 14:30 – 15:00)

Short Talks (5 mins each)

Name	Title
Ruby Wood	Multimodal AI for Prediction of Response to Immunotherapy in Cancer Patients
Sina Tabakhi	Missing-Modality-Aware Graph Neural Network for Cancer Classification
Munib Mesinovic	MM-GraphSurv: Interpretable Multi-Modal Graph for Survival Prediction with Electronic Health Records
Harshith Yerraguntla	Multimodal Glucose Forecasting with Physics-Informed Neural Networks for Type 1 Diabetes
Daniel Onah	Benchmarking Machine Learning Ensemble Algorithms for a Classification Task

Pitches (1 min each)

Name	Title
Hanwen Xing	Multiomics Integration with Neighbourhood-aware Distributions
Tianyi Jiang	Multi-Modal Representation Learning for Molecular Property Prediction: Sequence, Graph, Geometry
Noor UI Ain Zahra	AI-Driven Validation: Predicting NMR Spectra to Assess the Fidelity of AlphaFold Structures
Hanya Tamer Ahmed	Bridging Species with AI: A Cross-Species Deep Learning Model for Fracture Detection and Beyond

Community talks 4 (Day 2 | 10:20 – 10:50)

Short Talks (5 mins each)

Name	Title
Chen Chen	Advancing Cardiac Care through Multi-Modal Data Integration for Precise Scar Mapping
Farheen Ramzan	CLAIM: Clinically-Guided LGE Augmentation for Realistic and Diverse Myocardial Scar Synthesis and Segmentation
Siyi Du	STiL: Semi-supervised Tabular-Image Learning for Comprehensive Task-Relevant Information Exploration in Multimodal Classification
Hazrat Ali	From Pixels to Procedures: Structured Surgical Scene Understanding via Multimodal Large Language Models
David Western	Fusion of a Priori Clinical Text Enhances Abnormal EEG Classification

Pitches (1 min each)

Name	Title
Mohammad Suvon	Multimodal Latent Fusion of ECG Leads for Early Assessment of Pulmonary Hypertension
Chenqi Li	Multi-Teacher Distillation for Biosignal Foundation Models

Community talks 5 (Day 2 | 12:00 – 12:30)

Short Talks (5 mins each)

Name	Title
Awais Rauf	Bridging Domain Gaps in Specialized Fields: Multimodal Foundation Models for Sustainable Agriculture
Ziming Liu	A City-Scale Multimodal Dataset and Benchmark Suite for AI-Driven Radio Resource Control in Wireless Networks
Fan Guo	Multimodal-Aware Graph-Based Negotiation Policies for Autonomous Driving
Qifan Fu	Gesture Space Quantized Mixture of Experts

Pitches (1 min each)

Name	Title
Vincentius Versandy Wijaya	AI-Powered Noncausal Control for Offshore Renewable Energy Systems
Yutong Song	Proactive Multi-Agent Reinforcement Learning for Search and Rescue in Stochastic Ocean Environment
Teng Gao	Non-causal Economic Model Predictive Control for Wave Energy Converter
Minoru Dhananjaya Jayakody Arachchige	Multimodal Inspection of End-of-Life Components
Zixuan Huang	Multimodal RL-Diffusion Framework for Automated Generation of High-Risk Scenarios in Autonomous Vehicle Safety Testing
Boyu Chen	Robust Multimodal Autonomous Driving Perception under Occlusions
Jingzhi Ruan	Efficient Visuo-Tactile Learning via Fine-Grained Representation Alignment and Importance-Aware Token Retention
Carolina Scarton	AI-TRACE: AI-driven multImodal and tempoRal disinformAtion analysis models in Continuous data strEams

Keynotes



Keynote 1: Tian Xie, Principal Research Manager, Microsoft Research AI4Science

Title: Accelerating materials design with AI emulators and generators

Date and Time: 16 Sep 2025, 09:30 – 10:10

Abstract: The design of novel materials has been a cornerstone of technological progress, driving transformative innovations such as the adoption of electric vehicles, the development of highly efficient solar cells, and the widespread use of superconductors in magnetic resonance imaging (MRI) systems. At Microsoft Research, we develop two foundational artificial intelligence (AI) models to accelerate the materials discovery process. The first model, MatterGen, is an AI generator that proposes novel materials candidates given prompts of required properties. The second model, MatterSim, is an AI emulator that then simulates the properties of the generated candidates for the target application. The two models work together as a flywheel to drive the discovery of novel materials for broad applications. This presentation will provide a comprehensive overview of the architecture MatterSim and MatterGen, as well as how they can be used to deliver real-world impact in materials design.



Keynote 2: Maria Luciana Axente, CEO, Responsible Intelligence

Title: Beyond single-track thinking: governing the ethical complexity of multimodal AI

Date and Time: 16 Sep 2025, 11:30 – 12:10

Abstract: Given the emergence of these unique AI systems, our current governance frameworks must evolve, addressing the urgent ethical dilemmas they raise and enabling a robust, proportionate risk management approach tailored to their complexity and requirements.



Keynote 3: Rebecca Croasdale-Wood, Senior Director, Global MLAB Lead, AstraZeneca

Title: Integrating AI into biologics discovery workflows

Date and Time: 16 Sep 2025, 13:50 – 14:30

Abstract: The biologics landscape is rapidly changing with the number of AI-enabled biologics in pre-clinical and clinical stages increasing, this change is driven by the increase in enterprise software solutions to capture and store data, augmented discovery workflows, improvements in machine learning technology and advances in computing power. Augmented biologics discovery has the potential to revolutionize biologics discovery we will present current in silico biologics design and optimisation technologies, with a focus on our internal efforts to benchmark the impact of combining novel in silico technologies with our existing biologics discovery platforms.



Keynote 4: Thomas Gorochowski, Professor of Biological Engineering, University of Bristol

Title: Data-centric approaches to biological design and engineering

Date and Time: 16 Sep 2025, 15:30 – 16:10

Abstract: High-throughput multi-modal experiments are revolutionising our understanding of biological complexity and offer a rich foundation on which to establish data-centric and mechanistic models of living cells. In this talk, I will present some of the sequencing methodologies my group has been developing to aid in the reprogramming of cells, providing broad and detailed information about diverse cellular processes and some of the insights this type of data has provided. I will also discuss some of the major challenges associated with the design of these experiments, showing how simulation can help; the challenges of working with heterogeneous data for biological design; and our efforts to improve data interoperability and safety across the field of engineering biology.



Keynote 5: Anna Barnes, Director of the King's Technology Evaluation Centre, King's College London

Title: AI in health and care – helping developers to think more critically about deployment, integration, and evidence generation

Date and Time: 17 Sep 2025, 09:40 – 10:20

Abstract: King's College Technology Evaluation Centre (KiTEC) was commissioned by NHS England in 2020 to support the evaluation of AI tools for healthcare service provision. This talk provides an overview of the methodology, a description of the evaluation criteria in terms of clinical and economic effectiveness and the lessons learned during the evaluation process.



Keynote 6: Ronghui Liu, Professor of Networks and Transport Operations, University of Leeds

Title: Smart mobility: AI and data science powering the future of multimodal transport

Date and Time: 17 Sep 2025, 11:20 – 12:00

Abstract: This presentation explores how artificial intelligence and data science are reshaping multimodal transport systems - including public transport, ridesharing, cycling, and walking – into more intelligent, efficient, and equitable forms of mobility. By leveraging diverse data sources—such as GPS trajectories, sensors, video and mobile applications—AI enables the analysis and inference of travel patterns and user needs across socio-economic groups, while also supporting real-time decision-making, route optimisation, and predictive maintenance of transport infrastructure. Cloud-computing provides the architecture for scalable solutions, including digital twins for infrastructure monitoring and reinforcement learning for dynamic scheduling. Case studies are presented to illustrate how these technologies can address challenges like congestion, system upkeep, and last-mile connectivity. The talk concludes with a call for cross-sector collaboration among academia, industry, and public agencies, to advance inclusive and sustainable mobility through continued innovation in AI and data science.



Keynote 7: Ampea Karikari-Boateng, Principal R&D Engineer, Offshore Renewable Energy Catapult

Title: AI-renewed: transforming offshore renewables with multimodal intelligence

Date and Time: 17 Sep 2025, 13:40 – 14:20

Abstract: The offshore renewable energy industry is entering a new era where artificial intelligence (AI) is not just a tool, but a transformative force across the entire lifecycle of renewable energy assets. From enhancing device design, accelerating consenting of new developments, to streamlining operations and maintenance, AI is reshaping how we plan, operate, and advance offshore infrastructure. Here, we explore how AI has impacted wind energy by tracking its evolution from unimodal machine learning models, used in condition monitoring and document intelligence, to the emerging frontier of multimodal AI. These next-generation systems aim to extract deeper insights by combining diverse data sources such as sensor streams, geospatial imagery, and operational documentation. Through real-world examples and visionary use cases, we'll uncover how multimodal AI is helping accelerate environmental monitoring to achieve faster regulatory approvals, enhance predictive maintenance and autonomous inspection, and enable holistic lifecycle planning and circularity in offshore assets.



Keynote 8: Emine Yilmaz, Professor and ELLIS Fellow, University College London

Title: Using large language models for evaluation: opportunities and limitations

Date and Time: 17 Sep 2025, 15:30 – 16:10

Abstract: Large Language Models (LLMs) have shown significant promise as tools for automated evaluation across diverse domains. While using LLMs for evaluation come with significant advantages potentially alleviating the reliance on costly and subjective human assessments, the adoption of LLM-based evaluation is not without challenges. In this talk we discuss about the transformative potential and the inherent constraints of using LLMs for evaluation tasks. In particular, we describe some of the challenges that come with LLM-based evaluation, such as biases and variability in judgment. We further discuss how LLMs can augment traditional evaluation practices while acknowledging the need for cautious and informed integration.

Posters

Day 1

Name	Title
Enrico Parisini	Concept-Based Modelling for Multimodal Clinical Flows
Fiona Young	Turing-Roche Partnership: Open Questions in Multimodal Learning from Oncology Data
Gaoyun Fang	Understanding Multimodal Fusion through Cross-Modal Interaction
Hanwen Xing	Multiomics Integration with Neighbourhood-aware Distributions
Haolin Wang	Benchmarking Band Gap Prediction For Semiconductor Materials Using Multimodal And Multi-fidelity Data
Harry Findlay	Multimodal Perception and Representation Learning in Human Behaviour Modelling
Jason Lo	From Data to Concepts via Wiring Diagrams
Jessica Fan	Tiered Vibe Mapping (TVM): A Feature-Space Decomposition for Aesthetic Modeling
Kewei Zhu	ReadMOF: Structure-Free Semantic Embeddings from Systematic MOF Nomenclature for Machine Learning Applications
Konstantin Georgiev	MM-HealthFair: A Novel Framework for Quantifying and Mitigating Healthcare Biases in Multimodal AI Algorithms for Risk Prediction
L. M. Riza Rizky	Interpretable Multimodal Machine Learning for Identifying Drug Treatment Response Biomarkers in Neuropathic Pain
Lu Gan	A Lightweight Multimodal Audio Scene Classification Framework via Knowledge Distillation
Misbah Rafique	Realistic Galaxy Images Through Generative Adversarial Network
Mohammad Aadil Minhaz	Multimodal AI Security: Mitigating Prompt Attacks on AI Models using AI-Gateway
Munib Mesinovic	MM-GraphSurv: Interpretable Multi-Modal Graph for Survival Prediction with Electronic Health Records
Nasim Mohamed Ismail	Addressing Systematic Bias in Multimodal Integration for Alzheimer's Disease Classification
Noor UI Ain Zahra	AI-Driven Validation: Predicting NMR Spectra to Assess the Fidelity of AlphaFold Structures
Rahul Singh Maharjan	Improving Open-Vocabulary Object Detection via Feature Modulation
Ruby Wood	Multimodal AI for Prediction of Response to Immunotherapy in Cancer Patients
Sneha Roychowdhury	Evaluating Explanations in Multimodal AI: Balancing Faithfulness, Usability,

	and Human Trust in Healthcare
Tianyi Jiang	Multi-Modal Representation Learning for Molecular Property Prediction: Sequence, Graph, Geometry
Wenjing Zhao	Safety-critical Scenario Generation for Testing Planning with Multimodal AI
Xianyuan Liu	Towards Deployment-centric Multimodal AI Beyond Vision and Language
Xinxing Ren	SimuGen: Multi-modal Agentic Framework for Constructing Block Diagram-Based Simulation Models

Day 2

Name	Title
Boyu Chen	Robust Multimodal Autonomous Driving Perception under Occlusions
Chenqi Li	BioX-Bridge: Model Bridging for Unsupervised Cross-Modal Knowledge Transfer across Biosignals
David Western	Fusion of a Priori Clinical Text Enhances Abnormal EEG Classification
Fan Guo	Multimodal-Aware Graph-Based Negotiation Policies for Autonomous Driving
Farheen Ramzan	CLAIM: Clinically-Guided LGE Augmentation for Realistic and Diverse Myocardial Scar Synthesis and Segmentation
Halimat Afolabi	Examining Modality-Dependent Explanations and Reasoning Shifts in Closed Multimodal LLMs for Emotion Recognition
Hazrat Ali	From Pixels to Procedures: Structured Surgical Scene Understanding via Multimodal Large Language Models
Jingzhi Ruan	Efficient Visuo-Tactile Learning via Fine-Grained Representation Alignment and Importance-Aware Token Retention
Junxi Zhang	Decoding Ambiguity: A Multimodal Dataset for Ambiguous Actions in Manufacturing
Lu Gan	Digital Twins and Multimodal AI for Net Zero Housing
Luigi A. Moretti	A Multimodal Affective Computing Pipeline for Correlating Physiological and Subjective Data Streams in Anxiety Disorders Management
Mingcheng Zhu	From Byte Pair to Token Pair: Efficient Prompt Compression for Large Language Models in Clinical Prediction
Mingrui Ye	Can MLLMs be Art Mentors? A Multi-Dimensional Benchmark for Pedagogical Assessment and Feedback
Minoru Dhananjaya Jayakody Arachchige	Multimodal Inspection of End-of-Life Components
Qifan Fu	Gesture Space Quantized Mixture of Experts
Shibo Li	A Unified Multi-modal Foundation Model for Medical Imaging Synthesis and Diagnosis
Tadiyos Hailemichael Mamo	Causal Learning for Enhanced Chronic Disease Management and Interventions
Teng Gao	Non-causal Economic Model Predictive Control for Wave Energy Converter
Vincentius Versandy Wijaya	AI-Powered Noncausal Control for Offshore Renewable Energy Systems
Wenrui Fan	Foundation-Model-Boosted Multimodal Learning for fMRI-based Neuropathic Pain Drug Response Prediction
Xianyuan Liu	Geometry-aware Line Graph Transformer Pre-training for Molecular

	Property Prediction
Yutong Song	Proactive Multi-Agent Reinforcement Learning for Search and Rescue in Stochastic Ocean Environment
Ziming Liu	A City-Scale Multimodal Dataset and Benchmark Suite for AI-Driven Radio Resource Control in Wireless Networks

Panel Discussion 1 (Day 1 | 16:10 – 17:00)

Conducting impactful research

Panel Members	Questions
<ul style="list-style-type: none">• Tian Xie• Rebecca Croasdale-Wood• Thomas Gorochowski• Bradley Max Segal• Chen Chen• Marta Varela• Tapabrata Rohan Chakraborty	<ol style="list-style-type: none">1. What does “impact” mean in your field, and how is it best measured — particularly in terms of real-world deployment and adoption?2. Where are the most significant opportunities for multimodal AI to achieve societal benefit in the next five years, and what barriers must we overcome to reach deployment?

Panel Discussion 2 (Day 2 | 14:30 – 15:00)

Learning from experience: career reflections

Panel Members	Questions
<ul style="list-style-type: none">• Emine Yilmaz• Ampea Karikari-Boateng• Ronghui Liu• Anna Barnes	<ol style="list-style-type: none">1. If you could give one piece of advice to your younger self as an early-career researcher, what would it be — especially about pursuing impactful and sustainable research?2. What unexpected opportunities or setbacks have most shaped your career, and how did you turn them into progress?

Event Guide

Venue Information

The Barbican is easily accessible by public transport, with nearby tube, train, and bus connections. For more details, please see [Map & Directions](#). Parking is also available for those travelling by car and can be [reserved in advance](#).



Exterior of the Barbican Centre



Interior of the Barbican Centre



Garden Room & Conservatory



Conservatory Terrace



Frobisher Auditorium 1



Frobisher Auditorium 1

On-site Locations

All event activities will take place within the Barbican; locations are as follows:

- **Registration, refreshments, lunch, and posters:** Garden Room & Conservatory (Level 3)
- **Talks:** Auditorium 1 (Level 4)
- **Networking reception:** Conservatory Terrace (Level 4)

Who to ask for help on site

If you have any questions or need assistance during the workshop, please look for individuals wearing blue polo shirts with the **UKOMAIN** logo. They are available to provide support and help make your experience enjoyable.

Accessing the Internet

Complimentary Wi-Fi is available throughout the venue. Connect using

Network Name: **Barbican Event**

Password: **BARBICAN5123**

Catering

Coffee, tea, water, and biscuits will be available during the coffee breaks. A Fork Buffet will be provided for lunch. If you have specific dietary needs or catering questions, please speak to our team at the registration desk for assistance.

Filming and Photography

Please be advised that there will be media coverage, including filming and photography, during the workshop. The images and videos taken may be used for promotional purposes on the UK Open Multimodal AI Network website, social media, or YouTube channel. If you do not wish to appear in any videos or photographs, please inform the organisers via the contact ukomain-mmai25@googlegroups.com, or at the registration desk or speak to the photographer/videographer.

Accessibility Information

Please contact the organisers at ukomain-mmai25@googlegroups.com if you have any accessibility requirements that you would like to discuss, and we will endeavour to meet your requirements.

Partners

This workshop is hosted by the [UK Open Multimodal AI Network \(UKOMAIN\)](#), a national initiative funded by the Engineering and Physical Sciences Research Council (EPSRC) and led by the University of Sheffield, University College London, and the University of Glasgow. This workshop is also supported by the Alan Turing Institute's Interest Group on [Meta-learning for Multimodal Data](#) (welcome to [sign-up and join](#)).



**University of
Sheffield**



**University
of Glasgow**

**The
Alan Turing
Institute**

Sponsors

We gratefully acknowledge the support of our sponsors, whose generosity has ensured the success of this workshop. Their contributions have been valuable in enabling students and researchers to attend and present their work.



**Engineering and
Physical Sciences
Research Council**

H E N R Y : : :
R O Y C E : : :
I N S T I T U T E

Floor Plan

The floor plan below shows the locations of catering points, poster boards, poseur tables, and other facilities for the workshop in the Garden Room of the Barbican Centre.

GARDEN ROOM – LEVEL 3

