

UKRI AI Centre for Doctoral Training
in Biomedical Innovation

**Biomedical AI
Cross-Sector
Forum**

10 March 2025



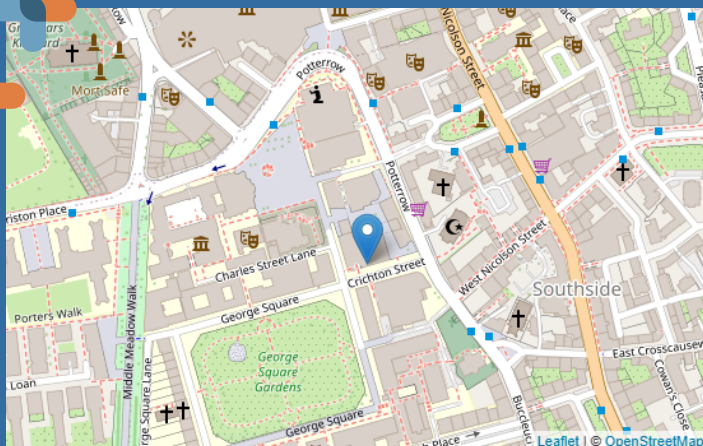
THE UNIVERSITY OF EDINBURGH INFORMATICS FORUM

How to get here

10 Crichton Street, Edinburgh, EH8 9AB

The School of Informatics is based in the heart of Edinburgh, in a close vicinity to George Square and Bristo Square.

It is located within walking distance from Waverley train station and is well served by the local bus service.



Event agenda

9.30-10.00	Registration and refreshments
10.00-12.30	Scene setting: insights from industry and academics on emerging research and challenges.
10.00	Harnessing e-health records and biobanks for collaborative research with industry, Helen Colhoun
10.20	Challenges of AI Adoption in the Global Market, Sandy Weir
10.40	AI in Health: A Medical Imaging Perspective, Miguel Bernabeu
11.00	Refreshment break
11.30	Médecins Sans Frontières' Experience in the Creation, Design, Development, and Scale-up of an AI-Powered Diagnostic Test, Nada Malou
11.50	Opportunities and Challenges of AI in Hepatology, Jonathan Fallowfield
12.10	How is NICE approaching AI for the evaluation of technologies, Stephen Duffield

12.30–13.30	Networking lunch and poster session.
13.30–15.00	Facilitated cross-sector discussions focused on translating research into practice, including: <ul style="list-style-type: none">• Data Quality, Availability, and Diversity• Real-World Validation and Post-Adoption Monitoring of AI Models• Regulatory Trends and Pathways• Explainability of AI Models to Different Stakeholders• Cross-Disciplinary and Cross-Sector Collaboration Dynamics
15.15	Expert panel session

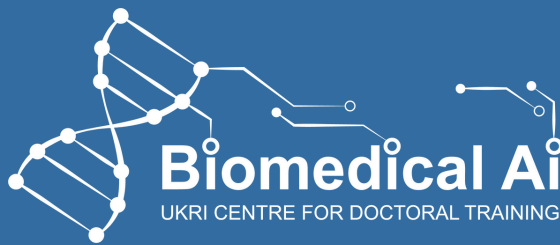




Guided by real-world healthcare needs, the programme focuses on translating AI research into responsible innovation in the private and public sectors. We will support 5 interdisciplinary cohorts of top-calibre doctoral researchers in developing and implementing ethical AI solutions to improve global healthcare systems and patient outcomes.

The new CDT programme is co-developed with our external partners across different sectors, and centred on our research strengths in biomedical artificial intelligence.

Well-rounded training and development, collaboration and engagement opportunities provided to the students through our programme will turn them into highly competent, sought-after researchers suitable for a variety of careers both inside and outside of academia.



The UKRI Centre for Doctoral Training in Biomedical Artificial Intelligence grew from the realisation that AI technologies will play a central role leveraging data to transform our understanding and practice of biomedicine. Between 2019 and 2023, the CDT recruited 57 students on a 4-year interdisciplinary training programme covering technical AI skills, biomedical foundations and social aspects of Biomedical AI. Our first cohort of graduates now hold diverse roles across the private and public sector.

The CDT builds on a long history of collaboration between several centres of excellence within the University. These institutes provide a unique breadth and depth of expertise, and state-of-the-art computational and experimental facilities. Additionally, leading clinical, industrial and international academic partners provide opportunities or hands-on application in a broad variety of contexts.

Parallel Session – Career Insights

This session is targeted at PhD students. The talks will focus on the speakers' career trajectories.

13.30

Victoria Pereira, Goldman Sachs

14.00

Di Zhang, Teva Pharmaceuticals

14.30

Florian Klimm, Novo Nordisk

15.00

Oriol Canela Xandri, Omecu

15.30

Olivier Labayle Pabet, University of Edinburgh



Harnessing e-health records and biobanks for collaborative research with industry



The extensive e-health records system in Scotland affords important opportunities for real world evidence generation, some of which is benefitted by industrial collaboration. Biobanks linked to e-health records are an important source of drug target discovery, also benefitting from industrial collaboration. Prof. Colhoun will discuss work using the national diabetes research platform that her team has built and will discuss research platforms bringing together e-health records with omics data for drug target discovery, as well as future opportunities and challenges involved in developing a successful collaboration.





Helen Colhoun

Chair of Medical Informatics and Epidemiology, Institute of Genetics and Cancer, University of Edinburgh



Helen leads the Diabetes Medical Informatics and Epidemiology research group, where her team harnesses the increasing availability of electronic healthcare records and uses large scale population-based approaches to further our understanding of the pathogenesis and means of prevention of diabetes and associated complications. Helen has led the formation and development of the national diabetes research platform in Scotland, and is the principal investigator of the Scottish Diabetes Research Network Type 1 Bioresource (SDRNT1BIO) study. Her research has impacted on and been cited in clinical guidelines internationally and in national policy for diabetes.

Challenges of AI Adoption in the Global Market



Sandy Weir

Global HIT-R Solutions
Senior Program
Manager, Canon
Medical Research
Europe

Duncan Simpson

R&D Partnerships and
Projects Manager,
Canon Medical
Research Europe



AI in Health: A Medical Imaging Perspective



Recent advances in Computer Vision and Machine Learning promise to revolutionise medical image interpretation. In the words of Prof. Geoff Hinton, a Turing Awardee in 2018 and Nobel Laureate in 2024, it is "quite obvious that we should stop training radiologists", radiologists are "the coyote already over the edge of the cliff who hasn't yet looked down". Unsurprisingly, radiologists, amongst others, have strongly disputed such statements and current data does not support any reduction in radiology job openings. In this talk, Miguel will argue that while Computer Vision has taken a strong foothold in the area of medical image interpretation, successful translation of recent advances to clinical practice require a sophisticated interplay of multiple disciplines. Considerations around data quality, implementation, and evaluation are as relevant as model development, typically the area making the headlines.




Miguel Bernabeu

Professor of
Computational Medicine,
Usher Institute,
University of Edinburgh



Originally trained as a computer scientist, Miguel holds a DPhil in Computational Biology from the University of Oxford and postdoctoral experience at University College London. His research concerns the development of computational approaches capable of answering open questions in biomedicine and healthcare, including: a) the development of automated methods for eye and systemic disease diagnosis in retinal scans, b) the evaluation of AI systems supporting healthcare delivery in real clinical settings, c) the study of how the structural properties of tumour vasculature affect oxygen/drug transport, and d) the investigation of vascular remodelling during angiogenesis.

MSF's Experience in the Creation, Design, Development, and Scale-up of an AI-Powered Diagnostic Test



Based on its field experience, Médecins Sans Frontières (MSF) has developed and scaled up a diagnostic tool integrating AI to address a critical healthcare need. This presentation will explore the key lessons learned throughout the process. It will also highlight the challenges of balancing technological innovation with the urgency of making diagnostics available to patients. Regulatory considerations have played a crucial role in this journey and navigating these requirements while ensuring timely access to essential diagnostics remains a significant challenge.

While AI can enhance healthcare delivery, its implementation must carefully consider potential delays, ethical considerations, regulatory constraints, and sustainability to ensure that technology serves the needs of both healthcare providers and the populations they support.



Nada Malou

Antibiogo Program
Manager & Scientific
Lead, Medecins sans
Frontieres



Nada Malou is a PhD in Infectious and tropical diseases with 15 years' experience in Médecins Sans Frontiers (MSF) supporting access to diagnostic in LMIC (low and middle income countries) to tackle antimicrobial resistance. After several years in the field from Mali to Jordan, Yemen and Uganda, she joined MSF's medical department as a diagnostic and antimicrobial resistance advisor. Through her experience, she developed the idea of a smartphone based diagnostic tool that can supports LMIC laboratories in their interpretation of Antimicrobial Susceptibility Testing. Today the tool, called Antibiogo, is the first CE marked (2022) software as medical device developed by and for LMIC.

Opportunities and Challenges of AI in Hepatology



Metabolic dysfunction-associated steatotic liver disease (MASLD) affects 38% of adults worldwide, often leading to liver scarring, cancer, and failure. Despite its prevalence, it's difficult to identify high-risk patients early enough for intervention. To address this, SteatoSITE was created—a multimodal MASLD database integrating liver pathology, gene expression, and electronic health record data. The project leverages AI-based tools for patient stratification, aiming to identify those most at risk for disease progression. This presentation explores initial AI applications in MASLD and discusses broader opportunities and challenges of using AI in hepatology.





Jonathan Fallowfield

Chair of Translational
Liver Research, University
of Edinburgh & Honorary
Consultant Hepatologist,
Royal Infirmary of
Edinburgh

With over 25 years of hepatology research experience that spans basic science to clinical trials, Jonathan has a multifaceted view of chronic liver disease. He was the Clinical Lead for a £1.7M Innovate UK precision medicine project: 'SteatoSITE: An Integrated Gene-To-Patient Data Commons for NAFLD Research'. SteatoSITE is a Scottish cohort of 940 MASLD patients, combining digital pathology, RNA-sequencing, and extensive health record data. It aims to develop AI tools for patient stratification, identifying those at highest risk for adverse clinical outcomes.

How is NICE approaching AI for the evaluation of technologies (and beyond)



In this this talk, Dr. Stephen Duffield will explore the challenges the National Institute for Health and Clinical Excellence is facing in the evaluation of AI-enabled technologies that direct patient care. He will cover NICE's Statement of Intent and Position Statement on the use of AI and how new health technology assessment processes can help us to promote innovation while also ensuring robust evidence generation. The talk will include case studies and finish by outlining some future challenges posed by AI and how we will work with system partners to tackle them.





Stephen Duffield

Associate Director –
real-world evidence
methods, National
Institute for Health and
Care Excellence

Stephen's role involves the continuing development of NICE's real-world evidence (RWE) framework, collaboration on RWE demonstration projects, and helping to transform NICE's use of real-world data across guidance products. He is also involved with leadership in NICE's AI strategy and contributes to upskilling individuals within and externally to the organisation, contributing to training workshops and technical forums. Stephen has a degree in Medicine and a PhD in Public Health.



Poster Session

Aryo Gema - DeCoRe: Decoding by Contrasting Retrieval Heads to Mitigate Hallucinations

Dominic Phillips - Molecular Enhanced Sampling with Continuous Generative Flow Networks

Stefi Tirkova - Stratification of individuals with Autism Spectrum Disorder using Patient Similarity Networks

Hans-Christof Gasser - Tuning ProteinMPNN to reduce protein visibility via MHC Class I through direct preference optimization

Leonardo Castorina - Flexible & Accessible Protein Sequence Design

Wolf De Wulf & Bryan Li - Dynamic VI response prediction with a video Transformer

Fiona Smith - A Scoping Review of Reporting Standards for Artificial Intelligence Research using Clinical Image Datasets

Matúš Falis - Can GPT-3.5 Generate and Code Discharge Summaries?

Ke Wang - DEPFold: RNA Secondary Structure Prediction as Dependency Parsing

Marcin Kedziera – Rapid antimicrobial susceptibility testing using AI

Maria Dolak – Gene-Phenotype Modelling to Aid Patient Stratification for Autism Spectrum Disorders

Luwei Wang – Nonparametric Bayesian Multi-Facet Clustering for Longitudinal Data

Achille Fraisse – Representation learning as a new way to analyze time series data from microfluidic experiments

Michal Kobiela – Optimization of genetic circuits under uncertainty

Kendig Sham – Advancing Methods for Identifying Causal Mechanisms in Spatiotemporal Data

Salvatore Esposito – CrossSDF: 3D Reconstruction of thin structures from cross-sections

Junkai Yang – What Does the Mouse See? Reconstructing Visual Stimuli from VI Calcium Imaging

Sebestyén Kamp – Graph Neural Networks for Novel SFARI Gene Prediction in Autism Spectrum Disorder

Career Insights

13.30

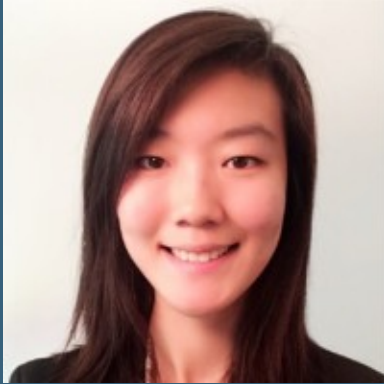


Victoria Pereira

Private Equity Data
Science Lead and Value
Accelerator Operating
Advisor, Goldman Sachs

Tori has over 10 years of experience driving commercial value through applied mathematics and data science across industries. Tori partners with Goldman Sachs' deal teams and portfolio companies to identify and execute on value creation through data and AI across the investment lifecycle. Prior to her current role, Tori was a Research Associate at the University of Oxford's Mathematical Institute and a Data Science Fellow at Faculty AI. Tori holds an MSc and PhD in Applied Mathematics from the University of Oxford.

14:00 (via Zoom)



Di Zhang

Associate Director, RWE
Statistics Lead, Teva
Pharmaceuticals

Before joining Teva, Di was a statistical reviewer at the U.S. Food and Drug Administration (FDA), specializing in post-market drug safety and effectiveness. Prior to FDA, she worked as a statistician at the University of Pittsburgh Medical Center. Di also serves as an Associate Editor for the ASA Biopharmaceutical Report and is a member of the ASA ML/AI scientific working group. Di will share her career journey, transitioning from an academic setting to roles in regulation and industry. She will delve into the unique aspects of working in these environments, highlighting the key milestones and decisions that shaped her path.

14:30



Florian Klimm

Senior Scientist, Novo
Nordisk Research Centre
at the University of
Oxford

Originally, a physicist, Florian has a DPhil in Systems Biology from the University of Oxford and post-doctoral experiences at Imperial College London, the University of Cambridge, and the Max Planck Institute for Molecular Biology in Berlin. His research explores how network-based machine learning approaches can increase our understanding of disease and aid the drug-discovery process.

In this talk, Florian will delve into the crucial aspects of transitioning from a PhD program to a successful career in the industry. Drawing from first-hand experience, he will explore the strategies and insights necessary to secure a job in the industry, offering valuable advice on navigating the job search process and excelling in interviews. This session aims to empower Biomed AI students with the tools and knowledge to navigate this transition successfully, ensuring they are well-prepared to seize the abundant opportunities available beyond academia.



15:00



Oriol Canela-Xandri

Chief Technology

Officer, Omecu



The challenge of extracting value from genetic data is growing due to the increasing volume of available data. Organizations face difficulties simplifying data access while maintaining control and trust. At Omecu, a novel platform has been developed with key features such as rapid on-demand analysis of large datasets and full data protection. The platform aims to create an international data hub that democratizes data access, changing how data is accessed and analyzed, while reducing costs for both data users and holders. Through the ICURe program by InnovateUK, the platform spun out from the University of Edinburgh and is in the process of commercialization.

15:30



Olivier Labayle Pabet

PhD Student, Biomedical
AI CDT, University of
Edinburgh

Olivier is a recently graduated PhD student in the Biomedical AI CDT program at the University of Edinburgh. His work involved leveraging the framework of Targeted Learning to uncover the mechanics of diseases using biobank scale data.



Connect with us



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