

# MEDTECH LINKS

AI, Machine Learning Systems and  
Devices with Autonomy



# MEDTECH LINKS

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## Event Details

Monday 24th March 2025  
13:00 - 18:30

RSM 2.28 // RSM 3.01 (C, D, E)  
Royal School of Mines  
Imperial College London  
South Kensington

## Overview

Artificial Intelligence and Machine Learning systems have the potential to create devices which can act autonomously without human intervention. This event explores Imperial's research and work that aims to reach this goal. We will explore Imperial innovations in personalised and precision medicine, in human / machine robotics and in synthetic biology.

Our event welcomes colleagues from business and industry as well as Imperial's clinicians and researchers.





# PROGRAMME

## Registration, Lunch and Exhibition

13:00 - 14:00

RSM 3.01 (C, D, E)

## Introduction & Keynote

RSM 2.28

**Dr Hutan Ashrafian** “From pixels to paradigms: How next-gen AI is reshaping science.”

14:00 - 14:15

**Professor Aldo Faisal** “AI for treatment: Towards real world AI clinicians.”

14:15 - 14:30

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## Session 1: Precision Medicine

14:30 - 15:30

RSM 2.28

**Professor Anthony Gordon** “The AI clinician for sepsis.”

14:30 - 14:45

**Professor Zoltan Takats** Talk title TBC

14:45 - 15:00

**Dr Rui Pinto** “Increasing statistical power and annotation capability in untargeted LC-MS metabolomics using machine learning.”

15:00 - 15:15



# PROGRAMME

## **Session 1 : Precision Medicine (continued)**

14:30 - 15:30

RSM 2.28

**Professor Payam Barnaghi & Louise Rigney**, “EHR-Driven Machine Learning for Precision Medicine in Paediatric Care”

15:15 - 15:30

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## **Break and Exhibition**

15:30 - 16:00

RSM 3.01 (C, D, E)

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## **Session 2 : Enabling Technologies**

16:00 - 17:00

RSM 2.28

**Professor Dario Farina** “The impact of AI in semi-autonomous wearable devices.”

16:00 - 16:15

**William Bolton** “AI Decision Support for Antimicrobial Stewardship: Navigating Clinical Translation”

16:15 - 16:30



# PROGRAMME

## **Session 2 : Enabling Technologies (continued)**

16:00 - 17:00

RSM 2.28

**Dr Joram Matthias Posma** “A medical image is worth less than a thousand words: Computer-assisted diagnosis with automated report generation.”

16:30 - 16:45

**Dr Dandan Zhang** “AI-based robotic dexterous micromanipulation for biomedical applications.”

16:45 - 17:00

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## **Reception and Exhibition**

17:00 - 18:30

RSM 3.01 (C, D, E)

# SPEAKERS



## Dr Hutan Ashrafian

Honorary Surgical Research Fellow, Dept of Cancer & Surgery

Hutan Ashrafian is a clinician-scientist and active surgeon translating novel technologies and therapeutics in healthcare and policy. He is the current Lead for Applied Artificial Intelligence (AI) and Big Data at the Institute of Global Health Innovation, and Chief Scientific Officer of Preemptive Health at the largest global venture incubator – Flagship Pioneering. He has over 20 years of translational clinical, computational physiology, robotic surgery, digital and AI trial and product development experience.



## Professor Aldo Faisal

Professor of AI & Neuroscience, Dept of Bioengineering

Aldo is the Founding Director of the UKRI Centre for Doctoral Training in AI for Healthcare, aiming to transform AI for Healthcare research and pioneer training PhD and Clinical PhD Fellows. He also holds a Chair in Digital Health at the University of Bayreuth (Germany). In his two departments, Aldo leads the Brain & Behaviour Lab focusing on AI & Neuroscience, and the Behaviour Analytics Lab at the Data Science Institute. He is Associate Investigator at the MRC London Institute of Medical Sciences and is affiliated faculty at the Gatsby Computational Neuroscience Unit (University College London).



## Professor Anthony Gordon

Chair in Anaesthesia & Critical Care, Dept of Surgery & Cancer

Professor Anthony Gordon is the Head of Division of Anaesthetics, Pain Medicine & Intensive Care at Imperial and is a Consultant in Intensive Care Medicine based at St Mary's Hospital. His research interests are focused on translational studies in sepsis using innovative research to improve & individualise care of acutely ill patients. He leads several multi-centre clinical trials and his multi-disciplinary team is developing "Personalised Medicine for Sepsis" using multiple -omic techniques, as well as AI.

# SPEAKERS



## Professor Zoltan Takats

Professor of Analytical Chemistry, Dept of Metabolism, Digestion & Reproduction

Professor Takats has pursued pioneering research in mass spectrometry and is one of the founders of the field of 'Ambient Mass Spectrometry'. He is the primary inventor of six mass spectrometric ionization techniques and was the recipient of the prestigious Mattauch-Herzog Award of the German Mass Spectrometry Society, and the Hungarian Star Award for Outstanding Innovators. He is the founder of Prosolia Inc, Medimass Ltd and Massprom Ltd, all companies pursuing analytical and medical device development.



## Dr Rui Pinto

Research Associate in Chemometrics & Metabolomics, School of Public Health

Dr Pinto's research is focused on metabolomics data processing and analysis. His current work is on the large Combibio and Airwave LC-MS datasets, aiming to achieve the best data quality possible, and analyzing it for multiple projects, including cardiovascular disease, ageing and dementia. Dr Pinto has also been developing a method to match metabolomic features in multiple peak-picked untargeted LC-MS datasets.



## Professor Payam Barnaghi

Chair in Machine Intelligence Applied to Medicine, Dept of Brain Sciences

Prof Barnaghi's main research goal is to develop AI and machine learning solutions for healthcare and create affordable and scalable digital systems that can be applied across a range of health conditions. He is also Great Ormond Street Hospital's / Royal Academy of Engineering Research's Chair in Machine Intelligence for Medicine, Co-Director of the School of Convergence Science in Human and Artificial Intelligence, and Deputy Head of the Division of Neurology in the Department of Brain Sciences at Imperial.



# SPEAKERS



## Louise Rigney

PhD Candidate in Machine Intelligence Applied to Medicine, Dept of Brain Sciences

Louise Rigney is a Data Scientist at Great Ormond Street Hospital's Data Research, Innovation, and Virtual Environments (GOSH DRIVE) and a PhD candidate in Machine Intelligence for Medicine at Imperial. She specialises in developing AI-driven clinical decision support tools for paediatric care, using electronic health records and real-time patient data.

With experience in machine learning applications for healthcare, Louise's interests lie in translating data-driven innovations into practical solutions that improve patient outcomes and clinical decision-making. She works closely with clinicians, researchers, and technologists to bridge the gap between AI research and real-world healthcare impact.



## Professor Dario Farina

Chair in Neurorehabilitation Engineering, Dept of Bioengineering

Prof Farina founded and directed the Institute of Neurorehabilitation Systems (2010-2016) until he moved to Imperial College London as Chair in Neurorehabilitation Engineering. His research focuses on biomedical signal processing, neurorehabilitation technology, and neural control of movement.



## Dr William Bolton

Research Assistant, Dept of Electrical & Electronic Engineering

Dr Bolton's work focuses on creating artificial intelligence (AI) based clinical decision support systems (CDSS), that utilise routinely collected electronic health record (EHR) data and co-morbidity information to improve the management of infectious diseases in complex multimorbid patients. The work additionally aims to discern the bias within any data used, and subsequently take appropriate action by adapting algorithms to make CDSS fair and un-biased.



# SPEAKERS



## Dr Joram Matthias Posma

Senior Lecturer in Biomedical Informatics, Dept of Metabolism, Digestion & Reproduction

Dr Posma's work focuses on adaptive information recovery, robust data fusion and immersive data visualisation of omics data, with a close focus on applications in biomedicine (cardiometabolic diseases, cancer, nutrition) including biomedical natural language processing.

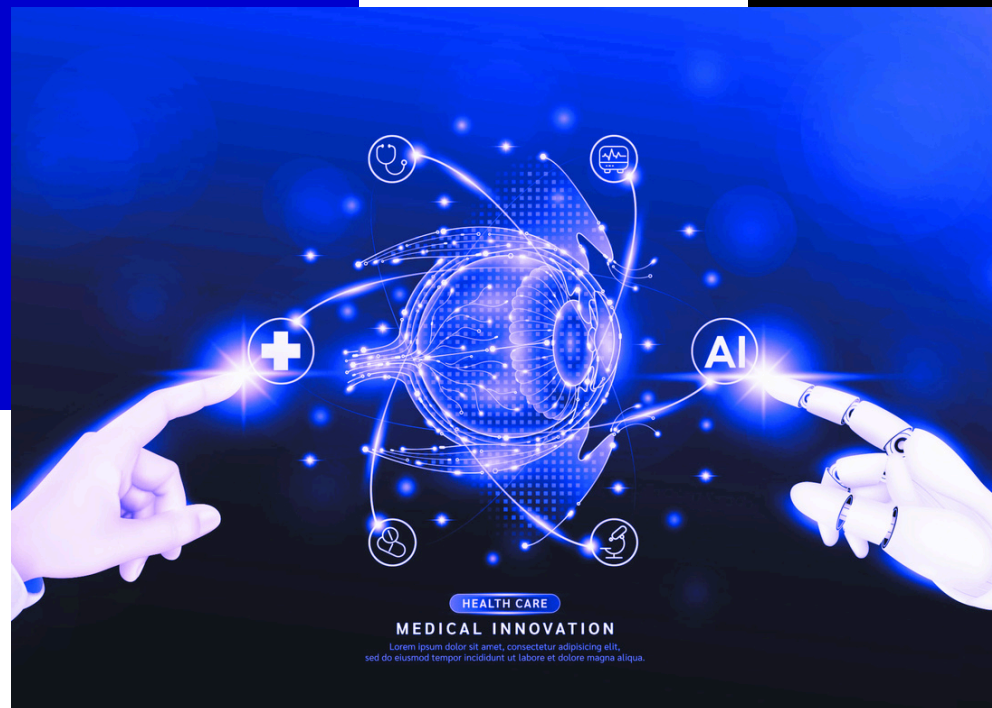


## Dr Dandan Zhang

Lecturer in Artificial Intelligence & Machine Learning, Dept of Bioengineering

Dr. Zhang is a Lecturer in Medical Robotics in the Department of Bioengineering, and a Lecturer in Artificial Intelligence and Machine Learning in the I-X initiative at Imperial College London. She is the Director of the Multi-Scale Embodied Intelligence Laboratory.

She has cross-disciplinary interests in robotics, biomedicine, and AI. Her current focus is on dexterous manipulation integrated with multi-modality sensor fusion and intelligence, and micro-robotics for biomedical engineering. She aims to enhance the level of autonomy for multi-scale robotic systems. The ultimate goal is to develop next-generation robots empowered by artificial general intelligence with super-human capabilities.



## CONTACT INFO



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