

**THE UNIVERSITY OF MANCHESTER**  
**PARTICULARS OF APPOINTMENT**  
**FACULTY OF BIOLOGY, MEDICINE AND HEALTH**  
**SCHOOL OF HEALTH SCIENCES**  
**DIVISION OF INFORMATICS, IMAGING AND DATA SCIENCE**  
**CHAIR IN DIGITAL HEALTH**  
**VACANCY REF: BMH-023885**

Salary: Commensurate with the professorial scale  
Hours: Full-Time  
Duration: Permanent  
Location: Oxford Road, Manchester

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**Enquiries about the vacancy, shortlisting and interviews:**

Manager: Georgina Moulton

Email: [Georgina.moulton@manchester.ac.uk](mailto:Georgina.moulton@manchester.ac.uk)

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**Background**

The University of Manchester, celebrating its 200<sup>th</sup> anniversary in 2024, seeks to appoint a Chair in Digital Health to develop their research programme in Manchester, building on our existing research strengths. This post is part of the Division of Informatics, Imaging and Data Science, a thriving academic department with world class research and teaching. Our research strengths include applied machine learning, prediction modelling, medical image analysis, computational biology for health, digital mental health, statistics, epidemiology, and multi-modal data including smartphone and wearable data. We provide postgraduate education in health informatics, health data science and medical imaging and offer a range of courses for the continuing development of health care professionals. The Division has a strong ethos of translation of research into practice both through direct implementation into the Greater Manchester health system and the creation of spinout companies. We have excellent links with the GM Health and Care system via the Integrated Care Board, Manchester Academic Health Science Centre, Health Innovation Manchester, and NHS Trusts. We play an active role in the Greater Manchester Secure Data Environment, enabling research ready data from electronic health records on 3 million citizens in Greater Manchester. The University has significant NIHR Infrastructure including the Manchester Biomedical Research Centre and the Greater Manchester Applied Research Collaboration, both of which have dedicate themes for Digital Health. The Division comprises of leading academics in research and teaching and specialist in software engineering, research platforms, information governance and medical devices.

The successful candidate will be ambitious individual with the potential to be an international leader in their field, undertaking research of the highest quality, and with a passion for developing the next generation of researchers. You will have an established research profile in either

health informatics, health data science or AI for healthcare. You will be skilled educator able to pass on your knowledge to a diverse cohort of students. You will have the opportunity to collaborate with colleagues across the university and the GM health system, and to take advantage of a unique research infrastructure. You will join an academic health system with an established route to translate research into practice and the ethos to innovate in digital health to make a real difference to population.

### **About the University of Manchester**

In 2021, the University of Manchester has been ranked as 1<sup>st</sup> in the world for Impact by the Times Higher Education Supplement. This reflects the rich and diverse landscape of research, innovation and teaching which is undertaken at the Institution. The Faculty of Biology, Medicine and Health, home to over 3,200 members of staff, has an annual research income in the region of £150 million, funding a breadth of cutting-edge research and innovation activity that can be matched by few universities.

The Faculty's three core priorities are:

- conducting outstanding, world leading research in the biomedical and health sciences;
- development and delivery of the highest quality education and training for scientists and healthcare professionals;
- social responsibility: making a contribution to the greater good.

To address these priorities, our high-quality research and teaching activities are organised into three Schools (Biological, Medical and Health Sciences) each with six Divisions. This scale, breadth and structure provide outstanding opportunities for biomedical research discoveries to be rapidly translated into effective new therapies with a strong emphasis on knowledge transfer and partnerships with industry.

The opportunities are further enhanced by strong links to our partner Faculties (Humanities, and Science and Engineering) and the NHS. We are an integral part of Health Innovation Manchester (HInM), bringing together the Manchester Academic Health Science Centre (MAHSC) and Greater Manchester Academic Health Science Network (GM AHSN), also representing Greater Manchester's (GM) wider Research and Innovation System. HInM exists to facilitate the discovery, development and deployment of new healthcare solutions at pace and at scale, for the benefit of the GM's population. This, coupled with our £28m NIHR Biomedical Research Centre and the Manchester Centre for Cancer Research are instrumental in enabling us to take full advantage of the unique funding opportunities presented by health devolution, which has allowed Greater Manchester to take control of its £6 billion annual budget for health and social care.

### **About the Division of Informatics, Imaging and Data Sciences**

The Division of Informatics, Imaging and Data Science in the School of Health Sciences, in the faculty of Biology Medicine and Health, led by Professor John Ainsworth, brings together innovative multi-disciplinary research and education in health data science, image computing, health informatics and computational biology for health. This post will be hosted in the Centre of Health Informatics that has a long track record and international reputation for addressing key healthcare delivery challenges through the collection and analysis of health data, and the application of new technologies to address hard problems in healthcare and translating research into practice. We are interested in a range of methods and technology to enable digital

phenotyping, digital biomarkers, and new computational approaches to explore all forms of health data. Our vision is to develop technology enabled healthcare that is personalised, preventative, predictive and participatory. We are engaged in the [Christabel Pankhurst Institute for Healthcare Technologies](#) and collaborate closely with the Faculty of Science and Engineering, various NHS Hospitals in Greater Manchester, and Health Innovation Manchester. We play a key role in developing NHS data for research through the [Greater Manchester Secure Data Environment](#), and the Northwest is home to one of four subnational Secure Data Environments. We combine solid foundations in health data science with an interdisciplinary understanding and clear purposes driven by societal, regulatory, and industry needs in healthcare. We have strong links with the UK and international industry in medical devices, computational modelling and simulation, and national and international regulators. We collaborate closely with our NHS partners (University Manchester NHS Foundation Trust, Northern Care Alliance NHS Foundation Trust, The Christie NHS Foundation Trust, Greater Manchester Mental Health NHS Foundation Trust) and industry to apply our research and deliver impact.

Our Division has a thriving and well-established teaching culture providing education for both postgraduate masters and doctoral students. Within the division we host an MSc in Medical Imaging Science, the UK-first MSc in Health Data Science, and a joint MSc in Health Informatics in partnership with University College London that underpins NHS-education in the field. In addition, we offer a PGCert in Clinical Data Science. Accredited short courses, a MOOC in Clinical Bioinformatics and commissioned programmes for industry and the public sector. We have a vibrant international community of postgraduate research students who are supported by awards from funding councils, NIHR, HDRUK, international scholarships and other funders. The Division also plays a key role in the International Centre for Translational Digital Health, a [partnership between the University of Manchester, the University of Toronto, and the University of Melbourne](#).

**The Division is active in many areas, including:**

- Electronic Health Records including prediction modelling and methodological development in causal inference (Dr Glen Martin, Dr Matthew Sperrin)
- Clinical decision and knowledge support systems (Prof Tjeerd van Staa)
- Digital epidemiology (Prof Tjeerd van Staa, Prof Evan Kontopantelis, Prof William Dixon)
- Capacity building and pedagogic innovation (Prof Georgina Moulton and Prof Angela Davies)
- Digital mental health (Prof John Ainsworth and Dr Pauline Whelan)
- Patient generated data including smartphones and wearables (Prof William Dixon, Dr Sabine van der Veer, Prof John Ainsworth)
- Multi-modal data and enabling platforms (Prof Alex Frangi, Prof John Ainsworth, Dr Philip Couch)
- Medical imaging analysis (Prof Tim Cootes, Prof Chris Taylor, Prof Susan Astley, Prof Alex Fangi)
- Regulatory science and in-silico trials (Prof Alex Frangi)
- AI for health (Prof Magnus Rattray, Prof Alex Fangi)
- Computational Biology for Health (Prof Magnus Rattray)

**Some of our current research projects are:**

- [REMORA](#)
- [CONNECT](#)
- [eLab Health Data Science Workbench](#)
- [Cystic Fibrosis Health Hub](#)

- [The spatiotemporal gene expression dynamics underpinning robust embryonic patterning](#)

**A series of unique initiatives are important to describe in greater detail:**

The **Greater Manchester Secure Data Environment (SDE)** is a single shared care record for all Greater Manchester's 3.0m citizens that was deployed in 2020 and subsequently made available for secondary uses including research. It integrates patient-level data from: 437 general practices, 9 acute trusts, 1 specialist trust, 7 community care providers, 4 mental health providers, and 10 councils. Authorised researchers can access bespoke subsets of the GM SDE database via a secure public cloud data platform. The GM SDE holds demographic information for each patient (year of birth, sex, socioeconomic status and ethnicity), and their complete coded medical history from primary care including: diagnoses, medications, procedures, observations, and symptoms. This includes all COVID tests and vaccinations coded in the primary care record. From secondary care, it holds dates and times of inpatient admissions and discharges, whether admissions were planned or unplanned, and emergency department visits. Unique features are the fact that the database includes data from everyone registered with a GP within Greater Manchester; the ability to link data from GM cohort studies or other health data; our strong relationship with technology provider (Graphnet); and the ability to feedback information to NHS providers via the direct care record.

The **Christabel Pankhurst Institute** for Health Technology Research and Innovation (<https://www.pankhurst.manchester.ac.uk/>) is a £25m partnership with the NHS, local government, and industry partners, that capitalises on our academic excellence in AI, digital health technologies and advanced materials. It catalyses research and innovation to meet real healthcare needs and accelerate translation into practice through whole lifecycle support.

**UK Biobank** is one of the world's premier biomedical databases and research resources containing in-depth data from 500,000 individuals. UoM is entering a strategic partnership with UK Biobank with its advanced, funded plans to relocate its enterprise onto the UoM campus to take advantage of the unique opportunities for academic partnership in Manchester. Amongst these, data science and specifically, artificial intelligence, has been identified as a priority theme where cutting-edge research-led approaches can be applied to the wealth of existing UK Biobank data. This is a tremendous, unique opportunity for the right applicant to deliver ground-breaking advances alongside other UoM and UK Biobank colleagues in novel, collaborative ways.

The University's **Institute for Data Science and Artificial Intelligence (IDSAI)** (<https://www.idsai.manchester.ac.uk/>) coordinates the University's activity in data science and artificial intelligence. UoM has an engaged data science community of over 600 investigators, with methodologists embedded in Schools across the University addressing problems in extracting meaning from data, managing data volume, the variety of data used in analyses, the velocity with which it is produced and the veracity of those data. Data science has a home in all three of the University's faculties (Science and Engineering; Humanities; Biology, Medicine & Health Sciences). UoM's expertise covers the complete data science life-cycle: from information management, through analytics, to practical applications. A key feature of

the UoM approach is very close coupling between methodologists and translational scientists, drawing on strength-in- depth in real-world applications of data science. This creates a virtuous circle, where challenging real-world problems inspire the methodology research agenda, whilst providing a natural route to exploiting new algorithms and methods. We believe this deeply multidisciplinary approach is one of the distinctive features of data science and artificial intelligence at Manchester.

The University is also a partner of the **Alan Turing Institute** (<https://www.turing.ac.uk/>), the national institute for data science and artificial intelligence. The Turing collaborates with universities, businesses and public and third sector organisations to apply this research to real-world problems, with lasting effects for science, the economy, and the world we live in. The Turing's mission is to make great leaps in data science and artificial intelligence research, to change the world for the better. Research excellence is the foundation of the Institute: the sharpest minds from the AI and data science community investigating the hardest questions. UoM has over 40 Turing-affiliated researchers, including two recipients of prestigious Turing AI awards, and we coordinate a lively programme of Turing activities through IDSAI.

### **Key Responsibilities, Accountabilities or Duties**

In general, these are:

- To deliver world-leading independent impactful research, evidence by publications, knowledge transfer, translation into practice, policy changes, clinical guidelines.
- To deliver outstanding teaching and learning to our undergraduate and postgraduate students through lectures, online and blended teaching, small group teaching and laboratory classes, and through supervision of individual and group research projects
- To contribute to the ongoing development of our collaborative networks across the University of Manchester, the regional and national health system, and international partners.
- To contribute to the management and development of the Division, and the wider University, helping to maintain and grow the collegiate and supportive environment we have established.

### **PERSON SPECIFICATION**

It is essential that you have:

- PhD in data science, statistics, epidemiology, computing, health informatics or related discipline to digital health;
- a distinguished track record of research publications and impact;
- a strong track record in team working with internal colleagues and external partners;
- combination of relevant technical and translational skills and experience;
- a research background in biology, medicine and/or health;
- proven ability to work across disciplines;
- significant experience in developing new areas of research leading to application and award of research funding;

- a strong track record in the supervision and development of early-to-mid career researchers as well as academic research staff;
- experience of academically leading the development, delivery and assessment of teaching and training programmes;
- be able to provide inspirational leadership in a multidisciplinary setting;
- excellent interpersonal and communication skills
- ability to communicate research to a wide range of audiences including patients and public;
- have demonstrated the ability to think strategically;
- be aware of national and international initiatives in digital health.

It is desirable that you have:

- understanding of the application of machine learning technologies to complex multi-modal data sets, including structured and unstructured data arising from large-scale biological and/or healthcare settings;
- expertise in wearables, sensing, digital biomarkers, time series data analysis;

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The above particulars are intended as a general guide to the duties of the post and the conditions of service. They do not constitute a contract of employment between the University and the person appointed. The successful applicant will, however, receive a full set of conditions of service on appointment.

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