Loughborough University

Research Associate in Human Computer Interaction / Data Visualisation and Dashboard design (NIHR-funded Research Project: DECODE) Full time until 30 September 2024

Mapping the challenges and requirements for **D**ata-driven, machin**E** learning aided stratification and management of multiple long-term **CO**nditions in adults with intellectual **D**isabiliti**E**s - **DECODE**

Job Ref: REQ221133

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

School/Department summary

The School of Design and Creative Arts (SDCA) is an internationally renowned school. The School has a strong, internationally recognised research community. Our research strengths are in the areas of safety, digital fabrication, human factors and experience design. All of our research is underpinned by responsible design. Our world-leading research enables us to discover, explore and develop new ideas, concepts, methods, tools, services and products that contribute to a healthier, safer, more productive, sustainable and equitable world. Annually we attract over £4 million in funding from a wide variety of research councils, governments, charities and businesses enabling us deliver research projects that have real and lasting impact on the world around us.

Project Description

DECODE is a 30-month research project funded by the NIHR Artificial Intelligence for Multiple Long-Term Conditions (AIM) Programme. This project is led by Loughborough University (PI: Dr Gyuchan Thomas Jun, Reader in Sociotechnical System Design) jointly with Leicestershire Partnership NHS Trust (joint PI: Dr Satheesh Gangadharan, Consultant Psychiatrist). Overall, the project team consists of fifteen co-investigators with expertise in the field of intellectual disabilities, neuropsychiatry, epidemiology, health data science, machine learning, data visualisation, human factors, qualitative research and ethics from eight institutions.

The co-investigators include Dr Georgina Cosma (AI and data science) and Dr Panos Balatsoukas (UX design) at Loughborough University, Dr Francesco Zaccardi (epidemiology), Dr Michelle O'Reilly (qualitative research) and Prof Kamlesh Khunti (primary care) at the University of Leicester, Ashley Akbari (data science) and Prof Simon Ellwood-Thompson (health informatics) at Swansea University, Dr Vasa Curcin (AI) at King's College London, Prof Rohit Shankar (neuropsychiatry) at the University of Plymouth, Dr Reza Kiani (intellectual disabilities) at Leicestershire Partnership NHS Trust, Dr Neil Sinclair (ethics) at the University of Nottingham, Dr Chris Knifton (nursing) at De Montfort University, and Gillian Huddleston (PPI lead).

The DECODE project aims to improve the health and wellbeing of people with intellectual disabilities (also known as learning disabilities) by developing actionable insights to support a model of effective care coordination using machine learning aided analysis of multiple long-term conditions in people with intellectual disabilities.

The *Research Associate in Human Computer Interaction / Data visualisation and Dashboard design* will join a team of researchers with clinical expertise who will assist them in the interpretation and validity of the results from a clinical perspective. The DECODE team at Loughborough university consists of five research associates and 3 co-investigators. The Loughborough team is spread across two Schools, the School of Design and Creative Arts and the School of Computer Science. The Research Associate will join the DECODE team and based at Loughborough University's Design School.

The Research Associate will be supervised by Dr Panagiotis Balatsoukas who has expertise in Human Computer Interaction and experience design research in the context of digital health.

Job Description

Job Grade: Specialist and Supporting Academic Grade 6

FTE: 1.0 FTE
Term: From 1 October 2022 until 30 September 2024

Job Purpose
To empirically design (front-end), evaluate and deploy data visualisation dashboards that will allow health care professionals to view, understand, explore and interrogate various types of clinical data and decisions made by AI algorithms about the presence of multiple long-term conditions in people with intellectual disabilities. For example, typical examples of information displayed in the dashboard include temporal clusters of multiple long-term conditions, trajectories of the most dominant clusters and their interactions with risk factors and outcomes, personalised patient trajectory predictions, combinations of risk factors for predicting key events in trajectories. Designing dashboards that will allow interaction with and visualisation of the aforementioned types of information for use by clinicians, who do not necessarily have knowledge of data science or AI, is challenging and therefore the post holder will conduct a critical piece of research in the area of user-centred data visualisation and dashboard design.

The job does not involve the statistical analysis of datasets or the development of AI algorithms. The focus is on the design of a dashboard that will visualise this information (outputs of statistical analysis and AI algorithms) in a way that clinicians can make sense of and interact with. To achieve this objective the post holder will work closely with a team of clinical experts, health data scientists and AI researchers who are based at Loughborough University but also other partnering institutions.

Job Duties
- To undertake a literature review on the effectiveness of existing methods for visualising healthcare insights.
- To apply participatory and co-design approaches to the design of the DECODE's dashboard.
- To design the front-end of the DECODE dashboard using python-enabled tools like Dash, or HTML/CSS and javascripts.
- To iteratively evaluate the usability, accessibility and user experience of the DECODE dashboard using methods and techniques such as usability tests, interviews and/or questionnaires.
- To apply theory of human cognition and perception to the design of the DECODE dashboard.
- To deploy the dashboard in a local network and/or a cloud environment (e.g. azure or aws)
- To Create publications and presentations that are of high quality and contribute to dissemination activities (such as publications in top conferences and journals).
- To identify and involve relevant stakeholders (e.g. healthcare professionals) in the design and evaluation of the DECODE dashboard.
- To engage in training programmes in the University, which are consistent with your needs and aspirations and those of the project team.
- To undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.
- To contribute to required project documentation (such as writing of technical reports, research protocols for the iterative design and evaluation of the dashboard)
- To collaborate closely with the clinical, data science and AI teams of the DECODE project.

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to: Dr Panagiotis Balatsoukas (P.Balatsoukas@lboro.ac.uk)

Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Experience in conducting research in Data Visualisation and dashboard design	1,2,3
	Practical experience in the design of dashboards and data visualisations	1,3
	Experience of conducting literature reviews	1,3
	Experience in qualitative research methods, such as focus groups, interviews or co-design/participatory workshops	
	Practical experience in deploying dashboards or apps in local networks or the cloud	1,3
Skills and abilities	Ability to undertake the duties and responsibilities of the post listed in the job description.	1,3
	Ability to do research in a collaborative environment and engage with colleagues from different disciplines.	1,2,3
	Excellent written and oral communication skills	1,3
	Self-motivated with ability to meet deadlines	3
	Excellent interpersonal, and organisational skills	3
	Ability to write technical reports, academic papers and presentations	1,3
Training	Willingness to undertake appropriate further training and to adopt new procedures as and when required.	1
Qualifications	First degree and/or a masters in Computer Science or a discipline allied to computer science or strong computational background.	1
	PhD, or to be near completion, relevant to the job purpose and duties for this role.	
Other	Commitment to observing the University's Equal Opportunities policy at all times.	1,3

Desirable Criteria

Area	Criteria	Stage
Experience	Experience in conducting research in the context of health care, specifically health and biomedical informatics.	1,3
Skills and abilities	Knowledge about how the NHS works	1,3
	Knowledge about intellectual disabilities	1,3
Qualifications	Completed or near-completed PhD (or equivalent experience) in subjects related to Data visualisation and dashboard design	1

Conditions of Service

The position is FULL TIME and FIXED TERM until 30 September 2024. Salary will be on Specialist and Supporting Academic Grade 6 (£31,406 – £40,927 per annum), at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff/Operational and Administrative staff, details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of familyfriendly policies which are available at http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure--page.html.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcareinformation---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements.
We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see
http://www.lboro.ac.uk/services/hr/athena-swan/