

## Research Associate - Healthcare Technology

### Project Title: I'M-ACTIVE: Intelligent Multimodal Assessment and Coaching Through Identification of Vulnerabilities in older People

Job Ref: REQ220955

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

#### Project Description

Ageing is associated with an increased risk of comorbidities, poor physical functions, and cognitive decline, which in most cases leads to frailty. Frail older adults are twice as likely to need long-term hospitalisation and increased social care provision. An active lifestyle can significantly reduce the risk of frailty, but the age-related physical and cognitive decline often limits motivation and ability to engage in purposeful activities/exercise. Encouraging frail older adults to be active daily using personalised feedback and prompts is extremely difficult, often because there is limited staff availability for therapeutic support and a lack of objective measurement of their daily activities to encourage them to keep being active and exercising.

This project is funded by the EPSRC with the overall purpose to objectively assess home-based functional parameters to support self-management of the risk of frailty in older adults; to monitor physical, cognitive and social dimensions within the same instrument, combined with user preferences on data collection and sharing. This feasibility study with older adults at risk of frailty will validate the acceptability and usability of the prototype in realistic scenarios and gather evidence on how a robotic platform can solicit users to obtain and maintain an active and successful healthy lifestyle.

#### Job Description

**Job Grade:** Specialist and Supporting Academic Grade 6

#### Job Purpose

The role presents the opportunity to make a real difference to the life of elderly people living with frailty. While based in the Sports Technology Institute at Loughborough University, the Research Associate will work closely with external partners in Sheffield and Nottingham to ensure the successful delivery of the project. The Research and Development (R&D) activities will be undertaken under a predefined set of milestones and deliverables as per contractual obligations. There is also a clear expectation to publish the outcomes in relevant journals. The expertise gained and networking opportunities, are expected to position the Research Associate effectively for a future career in either industry or academia.

## **Job Duties**

### **Research**

- To conduct research and to be responsible for the development of the measurement tools and their use for the measurement and assessment of functional parameters related to frailty;
- To be responsible for conducting the day to day running of the project.
- To collaborate with the research partners for the integration of the developed systems into the I'M-ACTIVE Platform
- To support the primary data collection and to analyse the collected data.
- To feed back to the project team on progress, to make recommendations for next steps.
- To support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To write research papers suitable for publication in relevant high quality academic journals.
- To contribute ideas for new research and enterprise directions
- To contribute to the development of proposals for funding from external agencies.
- To maintain confidentiality at all times and ensure that intellectual property (IPR) agreements are not violated.
- To travel to attend meetings and present both within the project partners working group and to external stakeholders.

### **Teaching**

- Teaching is not the primary purpose of this post and teaching load will be small relative to the typical load of a member of academic staff in the School. However, the Research Associate will be expected to assist the academic staff in the project team with the supervision of undergraduate MSc and PhD project work and day-to-day supervision and support of other researchers, and to contribute to taught programmes, at any level, if appropriate and if requested to do so.

### **Other related Activities and Functions**

- To engage in training programmes in the University (e.g. through Professional Development) and elsewhere as required.
- To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.
- To contribute to project promotion and public engagement events.

## **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 the Principal Investigator on the project.

## 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	Background in Electrical Engineering, Mechatronics, Robotics or similar disciplines	1
	Doctoral expertise in sensor development, data processing and data fusion	1, 2, 3
	Authoring original work for academic journal papers, conference papers or technical reports	1, 2, 3
Skills and abilities	Demonstration of excellent technical ability in the development of: <ul style="list-style-type: none"> <li>- hardware (sensors for IoT or similar),</li> <li>- firmware (ARM-based microcontrollers or similar)</li> <li>- software (mobile phone app and PC-based software).</li> </ul>	1, 2, 3
	Ability to work accurately and precisely on specific engineering problems	1, 3
	Excellent written and oral communication skills	1, 3
	Self-motivated with ability to meet deadlines	1, 3
	Excellent interpersonal and organisational skills	1, 3
	Ability to write project reports and make technical presentations to industrial and academic research groups	1, 3
	Knowledge of relevant Health & Safety issues	1, 3
Training	Demonstrate evidence of having undertaken further training	1, 3
	A willingness to undertake further training as appropriate and to adopt new procedures as and when required.	3
Qualifications	PhD (or near completion) in a relevant engineering area or a Masters alongside relevant industrial experience.	1, 3
Other	Evidence of a good working knowledge of equal opportunities and understanding of diversity in the workplace.	1, 3
	Willingness to travel nationally	1, 3
	Demonstration of suitability for the specific position being advertised.	1

### Desirable Criteria

Area	Criteria	Stage
Experience	Post-Doctoral research experience in wearable and nearable sensor development	1, 2, 3
	Research experience in experimental testing with human participants.	1, 2, 3
	Interdisciplinary research experience	1, 2, 3

	Developing proposals for funding from external agencies	1, 2, 3
	Experience of teaching and / or supervision of students in relevant areas	1, 3
Skills and abilities	Authoring original work, in the highest quality refereed academic journals	1
	A strong publication track record	1
	Further project specific skills	
Qualifications	PhD (or near completion) in sensor development for the assessment of human skills and abilities.	
Other	Willingness to travel nationally and internationally	1, 3

## Conditions of Service

The position is FULL TIME and FIXED TERM for 15 months, starting on 1 February 2023. Salary will be on Specialist and Supporting Academic Research (SSA6), Grade 6, £32,348 - £42,155 per annum depending on experience, at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's 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 family-friendly policies which can be found [here](#).

The University offers a wide range of employee benefits which can be found [here](#).

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/childcare-information---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/>