

RESEARCH ASSOCIATE (BREATHING PATTERN ASSESSMENT APP DEVELOPER)

Job Ref: REQ260342

The **School of Sport Exercise and Health Sciences (SSEHS)** is a multi-disciplinary school committed to fostering a diverse and inclusive academic community. It upholds the highest standards of excellence in research, innovation, and pedagogy across the full spectrum of disciplines within sport, exercise, health and wellbeing.

Internationally recognised for its contribution to the study of sport, exercise and health, the school has wide-ranging expertise, encompassing such diverse areas as biomechanics, medicine, molecular and cellular biology, nutrition, pedagogy, psychology, physiology, sociology, economics and sport management.

The School is extremely proud to hold an [Athena Swan Silver Award](#) since 2012, recognising the commitment and work of the School in addressing gender inequalities in Science and to improving career progress for female academics. The School is committed to ensuring that female students and staff are able to achieve their full potential; and provides a flexible and open working culture to enable staff to maintain a work-life balance.

Research and Innovation

Research and Innovation within the School is characterised by excellence and breadth, and its quality was recognised in the 2021 Research Excellence Framework where Loughborough University ranked top for research power (GPA x volume) in Sport and Exercise Sciences, Leisure and Tourism. Loughborough University has also placed Number 1 in the QS world ranking for sport-related subjects for ten consecutive years (2017-2026, every year since the category was introduced). A broad range of social and natural sciences contribute to the School's research and innovation activity which is organised within three overlapping themes:

- **Sport Research and Innovation theme** utilises several disciplines to understand how sport engages individuals, communities and organisations and supports the enhancement of athletes' performance in competitive sport.
- **Health Research and Innovation theme** brings together research from multiple disciplines with the shared goal of enhancing health, promoting healthy living, and improving wellbeing across all stages of life and all communities.

The school's research and Innovation (R&I) themes articulate with the Universities core strategic themes: Sport, Health and Wellbeing; Vibrant and Inclusive Communities; and Climate Change and Net Zero. [Strategic themes | Creating Better Futures. Together | Loughborough University](#)

Project Summary

Breathing pattern disorder is a common cause of activity limiting breathlessness that is difficult to diagnose and monitor but which can be treated with breathing pattern rehabilitation and retraining. The Non-Invasive Respiratory Assessment (NIRA) smartphone app will support identification and monitoring of breathing patterns for rapid and effective treatment. By using a standard phone camera, NIRA has the potential to bring objective assessment into community settings, enabling faster identification, earlier referral, and better targeted rehabilitation.

The role holder will create the NIRA interface, and the breathing pattern classification hierarchy, while ensuring the system reflects the needs of patients, carers, and clinicians.

Job Description

Job Family and Grade: Specialist and Supporting Academic Grade 6

Job Purpose: The role holder will work with clinician and patient input to develop a prototype app that will use features extracted from patient videos to classify and report on breathing patterns.

Job Duties

- To write code to develop the NIRA mobile device application for video data collection, data protection, classification and reporting.
- To investigate and develop classification models and algorithms based on extracted video features.
- To engage with end users and stakeholders to improve functionality and accuracy.
- To formulate detailed plans for the project based on broad guidance from the project team.
- To feed back to the project team on progress and make recommendations for next steps.
- To write up regular progress reports and present outcomes for the project team, and to meet funder requirements.
- Travel to attend meetings with, and present to, collaborators, public and patient contributors, external stakeholders and events specified by the funder.
- To write research papers suitable for publication in high quality academic journals.
- To contribute to project promotion and public engagement events.
- To maintain confidential information and ensure that intellectual property is protected.
- To engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and those of the Department.
- To undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

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 outlined in the document.

Organisational Responsibility

Reports to the: Principal Investigator, Dr Sam Winter

Person Specification

Your application will be assessed based on the essential and desirable criteria listed below.

Applicants are strongly encouraged to explicitly demonstrate how they meet each essential (and desirable) criteria at the application stage. The criteria that you need to demonstrate in your application will be listed as Stage 1 in the table below.

Stages of assessment are as follows:

- 1 – Criteria measured within the Application
- 2 – Criteria measured at Test/Assessment Centre/Presentation
- 3 – Criteria measured at Interview

Essential

Area	Criteria	Stage
Experience	Research background in a relevant area of computer science	1, 2
	Familiarity with qualitative research methods	1, 2, 3
	Experience of image feature extraction and classification	1, 2, 3
	Experience of mobile device application development including user interface design	1, 2, 3
	Experience of refining software deliverables	1, 3
Skills and abilities	Ability to programme in Python and / or Kotlin	1, 2, 3
	Ability to write clear documentation	1, 2, 3
	Ability to write project reports and make presentations to community and academic research groups.	1, 2, 3
	Ability to work to deadlines proactively and independently	1, 3
	Well-organised with experience of good record keeping	1, 3
	Ability to engage with the requirements of a Quality Management System	1, 3
	Ability to comply with relevant Good Clinical Practice and Human Research Ethics Requirements and with Health and Safety and Data Protection requirements of the project	1, 3
	Ability to present technical design ideas to non-specialists	1, 2, 3
	Strong analytical skills	1, 2, 3
	Ability to engage with Patient and Public contributors to understand and incorporate feedback	1, 3
Training	Ability to work collaboratively with other researchers and clinicians	1, 3
	Willingness to undertake appropriate further training and to adopt new procedures as and when required	1, 2
Qualifications	A PhD in a computational discipline such as artificial intelligence or data science	1
	A first degree in Computer Science and an MSc in a computational subject such as Artificial Intelligence or Data Science	1
Other	Commitment to observing University policies and procedures	1, 2, 3
	Willingness to occasionally travel within the East Midlands for meetings and data collection	1, 3

	Uphold and actively contribute to the University's commitment to Equity, Diversity and Inclusion	3
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Desirable Criteria: These are skills, experience and competencies that are additional extras that may be used to narrow the pool down if we receive a high volume of applications that meet the essential criteria.

Area	Criteria	Stage
Experience	Experience of working in a relevant Quality Management System	1, 3
	Experience of deep learning, LLM model architecture, foundational models, transfer learning	1,3
	Experience of gaining ethical permission for research involving human participants	1,3
Skills and abilities	Ability to present to funders	1, 2, 3

Conditions of Service

The appointment will be subject to the [University's Terms and Conditions of Employment](#) relevant to the job grade.

Shared University Responsibilities

As a member of the Loughborough community, you are expected to:

- Take reasonable care of yourself, others and the environment, and to prevent harm by your acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Sustainability Policies & Procedures.
- Uphold and actively contribute to the [University's commitment to Equity, Diversity, and Inclusion](#), ensuring that all duties are carried out in alignment with this.

Our Purpose, Vision, and Values

Our purpose, Vision and Values underpin all that we do and shape how we work together at Loughborough.

We're proud to promote our values: **Adventurous, Collaborative, Creative, Authentic** and **Responsible**. Our people bring these values to life every day, and they are central to the positive and supportive culture that makes Loughborough unique.

If you join us, you'll be encouraged to bring these values to life in your own work and contribute to the positive, supportive culture that makes Loughborough unique.

Read more about our [vision and values](#).

Our Accreditations



We are proud to be a [Race Equality Charter Member](#). The Charter aims to improve the representation, progression and success of all minority ethnic staff and students within higher education and address issues of racism within higher education institutions (HEIs).



We are proud to be a Disability Confident Employer and have adopted a proactive approach to employing disabled people and to creating a more diverse workforce. We ensure that our recruitment processes are inclusive and accessible. We guarantee to offer an interview to all applicants who have declared a disability, provided that the essential criteria for the role are met. We proactively anticipate and provide reasonable adjustments and support existing employees who acquire a disability or long-term condition to thrive in the workplace.



We are a real living wage employer, and our Living Wage Employer Mark shows our commitment to paying our staff according to the cost of living.



We are proud supporters of the [City of Sanctuary movement](#) and delighted to be recognised as a University of Sanctuary. This national network brings together, university staff, lecturers, academics, and students, who together work to make Higher Education institutions places of safety, solidarity and empowerment for people seeking sanctuary.



We are committed to addressing gender inequalities in science and to improving career progression for female academics. The School of Sport, Exercise and Health Sciences holds a [Silver Athena SWAN award](#) which recognises the importance of support for women at all stages of their career.

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.