

## SENIOR RESEARCH FELLOW in Microsimulation for Sustainable, Healthy, and Resilient Cities

Job Ref: REQ260308

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 2013, 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.

We also welcome applications from those who are looking to work part-time.

### 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 nine consecutive years (2017-2025, 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

This post sits within Professor James Woodcock's microsimulation and urban modelling research programme at Loughborough University. The programme develops and applies agent-based and microsimulation models to understand how cities — including their transport systems, land use, housing, and economies — shape population health, wellbeing, and equity.

Current work includes an integrated modelling suite (SILO–MATSim) applied to Greater Manchester, the ITHIM health impact modelling framework, and a range of projects addressing physical activity, air pollution, climate resilience, housing inequalities, and the health impacts of economic shocks. The programme has active international collaborations with TU Munich, TU Graz, the University of Utrecht, ISGlobal (Barcelona), and TU Berlin, and strong links to policy at city, national, and international level.

The post holder will contribute to and help shape the direction of this growing programme, with opportunities to develop their own research agenda, build international collaborations, and supervise the next generation of researchers.

## Job Description

A Senior Research Fellow is required to plan, develop and manage collaborative and individual impactful research projects, using specialist knowledge. The post holder will act as an independent investigator and identify opportunities for the development of new research projects and establish routes to disseminate research findings that enhance knowledge, inform teaching and build the reputation of the University.

**Job Family and Grade** Specialist & Supporting Academic (Research) Grade 8

### Job Purpose

The successful candidate will develop, lead, and manage original research projects of international standing in line with the research strategy of the group, the School's research themes, and the University Research and Innovation Strategy. The core focus is the development and application of microsimulation and agent-based modelling tools to understand how urban systems — including transport, land use, housing, and the economy — shape population health, wellbeing, and equity. The work will include contributing to and extending the established SILO–MATSim integrated modelling suite currently applied to cities including Greater Manchester, and the ITHIM health impact framework, alongside developing entirely new methods and applications.

The post holder will be expected to generate income by developing and winning research grants, thereby advancing the reputation of the group and the School. Alongside undertaking high quality original research, they will contribute to the development of new modelling approaches and methodological capabilities within the programme, working across the existing portfolio of tools including integrated urban simulation and health impact modelling frameworks.

The post holder will also take a leadership role in further developing the team's analytical capability and research direction. This will involve cultivating cross-disciplinary collaborations with leading researchers at Loughborough University, international partners, and policy and practice stakeholders, along with supporting the supervision of PhD and postgraduate students within the group.

### Job Duties

#### Research and Enterprise

- Lead the development and strategic direction of the microsimulation and urban modelling research programme, working closely with Professor Woodcock to shape its scope, priorities, and long-term trajectory.
- Lead on large, funded research programmes supported by research associates, research assistants, doctoral researchers, and project students, and secure funding to support the continuation and growth of this programme.
- Develop and apply microsimulation and agent-based modelling tools — including the SILO–MATSim integrated modelling suite and ITHIM health impact framework — and develop new methods and applications where the research demands it.
- Develop research objectives and proposals, and conduct individual or collaborative research projects that demonstrate real-world impact — particularly in relation to urban systems, transport, climate mitigation and adaptation, housing, and health inequalities.
- Identify and secure external funding through research council grants, consultancy contracts, and other sources; develop and maintain networks to build internal and external partnerships for future activities.
- Take full responsibility for the management of research projects, including:
  - Coordination of activities and effective management of resources
  - Management and monitoring of research budgets, including reporting to funders
  - Participation in staff recruitment processes
  - Supervision and performance review of colleagues
  - Mentoring and coaching of less experienced staff
  - Supervision and assessment of student projects
- Extend and apply knowledge to appropriate external activities, including presenting the value and impact of research to policy partners, funders, and other key stakeholders.
- Publish as principal or co-author and disseminate research findings through papers, international conferences, and other channels to build national and international reputation.
- Contribute to consultancy and knowledge exploitation activities, maintaining confidentiality and ensuring intellectual property agreements are met.
- Contribute to quality and audit processes including the Research Excellence Framework.
- Act as an ambassador for interdisciplinary research across the University, developing effective working relationships with colleagues and external contacts and providing expert guidance as required.

### **Teaching and Researcher Development**

- Supervise, co-supervise, and examine doctoral researchers and MSc/UG project students.
- Contribute to teaching and learning programmes as appropriate, using research findings to inform curriculum development through specialist lectures, postgraduate workshops, and similar activities.
- Play a leading role in building capacity in agent-based modelling and microsimulation for policy questions, at Loughborough and more broadly.

### **Other**

- Carry out specific administrative roles and functions as reasonably required.
- Engage in training and development programmes as required.
- Undertake such 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 entailed.

### **Organisational Responsibility**

Reports to Professor James Woodcock, Professor of Public Health and Simulation.

## 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	
<b>Experience</b>	Substantial research experience (academic or industrial) with a growing portfolio in a relevant quantitative field	1,3	
	Extensive experience of selecting and implementing appropriate research methods in a modelling or simulation context	1,3	
	Experience of securing research or enterprise funding	1,3	
	Project planning and management experience, including managing budgets and reporting to funders	1,3	
	Extensive experience of conducting and reporting research in line with ethical and regulatory procedures	1,3	
<b>Skills and abilities</b>	Demonstrated expertise in agent-based modelling, microsimulation, or closely related simulation approaches	1, 3	
	Expertise in one or more of the following areas: transport modelling or travel behaviour, urban or land use planning, air quality and pollution modelling, housing, household economics, or GIS and spatial analysis	1, 3	
	Proven technical leadership skills in a relevant discipline	1, 3	
	Excellent written and verbal communication skills, including the ability to present complex research to policy and practice audiences	1, 3	
	Ability to manage research projects to deadlines and within budgets, with experience of delegating and prioritising tasks	1, 3	
	Ability to work independently on own initiative and as part of a team	1, 3	
	Proven ability to work in and lead a team environment	1, 3	
	Interpersonal skills including tact, diplomacy, and the ability to mentor and support less experienced colleagues	1, 3	
	<b>Qualifications</b>	A good first degree in a relevant subject	1
		PhD in a relevant area	1
Fellowship of the HEA, or willingness to undertake		1	
<b>Training</b>	Willingness to undertake appropriate further training and to adopt new procedures as and when required	1,3	
<b>Other</b>	Ability to demonstrate awareness of working in a diverse cultural environment and show respect for people from different backgrounds	1,3	

**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
<b>Experience</b>	Experience as PI or Co-I on successful research funding applications	1
	Experience of publishing original research of international standing	1
	Experience of working in or collaborating with policy organisations, local or national government, or international bodies	1
	Research experience in an internationally recognised research environment	1
	Experience of staff supervision, mentoring, or line management	1, 3
<b>Skills and abilities</b>	Familiarity with specific modelling platforms relevant to the programme (e.g. MATSim, SILO, ITHIM, or similar)	1
	Programming skills relevant to simulation and modelling (e.g. Java, R, Python)	1, 3
	GIS skills and experience of working with spatial data	1, 3
	Experience of knowledge exchange, consultancy, or engagement with practice partners	1, 3
<b>Qualifications</b>	Membership of an appropriate professional or learned society	1
	Recognised teaching qualification	1

## 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 strive to create a culture that supports equity 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 career.



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.**