

Research Associate in Transport AI

Job Ref: REQ260763

School/Department summary:

Research and teaching in the School of Architecture Building and Civil Engineering is driven by 80 academic staff, 34 technical and clerical support staff, 40 contract researchers and over 120 doctoral students. The School benefits by having academic staff from a wide variety of backgrounds, with a resulting rich diversity of perspectives. The undergraduate programmes include Architecture, Civil Engineering, Construction Engineering Management, Commercial Management and Quantity Surveying, Architectural Engineering and Design Management, Air Transport Management, and Transport and Business Management. In all courses, the academic content is directly aligned to the needs of the industry and there is a high level of sponsorship in our portfolio of programmes. Our record of graduate employment is second to none and we have been ranked 1st or 2nd in the National Student Survey for the last 6 years. Further information is available at: <http://www.lboro.ac.uk/departments/abce/>

The School of Architecture, Building and Civil Engineering delivers zero-carbon, resilient buildings, infrastructure and cities in a world under pressure from rising urban populations, ageing infrastructure, resource constraints and multiple hazards. In the 2021 Research Excellence Framework, Loughborough University ranked second place for Architecture, Built Environment and Planning and the research undertaken in the School was rated 'world-leading'.

The international standing of our research is exemplified by our growing portfolio of collaborations with other leading universities and research institutes worldwide. These include: the UNSW Sydney, University of California at Berkeley, MIT, Chongqing, Hong Kong, Iowa State, Oklahoma State, RMIT, Georgia State and Penn State.

We are equally proud of our collaborations with industry such as HS2, Mace, Skanska, Aecom, Arup, Willmott Dixon, BRE, Anglia Water and many others, as well as influential organisations such as the Construction Leadership Council (CLC), Constructing Excellence, BSI and others. Built Environment research is increasingly informing government policy through, for example, the Department for Business, Energy and Industrial Strategy and The Committee on Climate Change, and working with for organisations such as the NHS, HS2, Network Rail and others. For more on our research go to: <http://www.lboro.ac.uk/departments/abce/research/>

Project Description: This project focuses on the development of advanced modelling and machine learning methodologies to improve the planning, management, and operation of transport systems.

The successful candidate will undertake methodologically driven research at the intersection of data science, artificial intelligence, and transport systems, with a particular emphasis on model development using real-world mobility data. The role is suited to a candidate with a strong quantitative background and a clear interest in advancing data and AI research methods, from problem formulation and algorithm design to validation and deployment. The Research Associate will join a multidisciplinary research team at Loughborough University, contributing to translating methodological advances into robust, real-world applications for smart and sustainable mobility.

Job Description

Job Family and Grade: Specialist and Supporting Academic Grade 6

Job Purpose

To develop advanced modelling and artificial intelligence techniques for planning, management, and operation of transport systems.

Job Duties

- Design and develop advanced modelling and artificial intelligence techniques for transport.
- Formulate research problems at the intersection of AI, data science, and transport systems, and translate domain requirements into quantitative models.
- Contribute to the integration of AI-driven models into decision-support tools and applied smart mobility solutions.
- Formulate detailed plans for the project based on broad guidance from the project team.
- Feed back to the project team on progress, to make recommendations for next steps.
- Publish high-quality research outputs in leading journals and conferences.
- Write up regular progress reports and present outcomes to all Investigators and Collaborators.
- Support the project team in writing funding proposals and other administrative work.
- Travel to attend meetings and make presentations both within the project partners working group and to external stakeholders.
- Support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- Contribute to project promotion and public engagement events.
- Contribute ideas for new research and enterprise directions.
- Maintain confidentiality at all times and ensure that intellectual property (IPR) agreements are not violated.
- 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 Dr Haitao He

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 at Application

3 – Interview

Essential Criteria:

Area	Criteria	Stage
Experience	Developing advance simulation and AI models for transport	1,3
	Authoring original work for academic journal papers, conference papers or technical reports	1
Skills and abilities	Computer programming and code skills	1
	Excellent written and oral communication skills	1,3
	Self-motivated with ability to meet deadlines	1,3
	Excellent interpersonal, and organisational skills	3
	Working knowledge of software packages	1,3
	Working knowledge of specific methods AI	1,3
	Ability to write technical project reports	1
	Ability to 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
Qualifications	A PhD degree in a relevant subject.	1
Other	Demonstrate an ability to behave in a way that adheres to equitable and inclusive working practices, while respecting diversity of thought and supporting freedom of speech and expression.	1,3

Desirable Criteria

Area	Criteria	Stage
Experience	Working in a high-quality academic research environment	1,3
Skills and abilities	Authoring original work, in the highest quality academic journals and/or AI conferences	1,3
	A strong publication track record	1
Other	Ability to travel across the UK	1,3

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.
- Support and contribute to the University's commitment to principles of equity, diversity and inclusion (EDI) while carrying out all duties, behaving in a manner that treats others with dignity and respect and upholds every person's right to lawful freedom of expression, freedom of speech and academic freedom. Further information about EDI at Loughborough and our strategic aims is available on our website.

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 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.



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 themselves with a disability, provided they meet the essential criteria for a role. 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 place of safety, solidarity and empowerment for people seeking sanctuary.

Disclosure and Barring Service Check: This post is subject to the Rehabilitation of Offenders Act (Exceptions Order) 1975 and as such it will be necessary for a submission for a Disclosure to be made to the Disclosure and Barring Service (formerly known as CRB) to check for any previous criminal convictions.

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.