

Research Associate in Transport Data and AI

Job Ref: REQ260126

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.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

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

The rapid growth of large-scale transport datasets—driven by advances in sensing technologies, communication networks, and digital infrastructure—has created new opportunities for data-driven modelling and AI-enabled decision-making in transport systems. This project focuses on the development of advanced big data analytics and machine learning methodologies to improve the planning, management, and operation of urban mobility 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 Grade: Specialist and Supporting Academic Grade 6

Job Purpose

To develop big data analytics and artificial intelligence techniques for advancing data-driven planning, management, and operation of urban transport systems.

Job Duties

- Design and develop advanced big data analytics, and artificial intelligence techniques for transport.
- Formulate research problems at the intersection of AI, data science, and urban mobility, and translate domain requirements into quantitative models.
- Conduct rigorous model validation, performance evaluation, and uncertainty analysis using real-world transport data.
- 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.
- To support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To 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 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 Haitao He

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 big data analytics and artificial intelligence	1,2,3
	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	1,2,3
	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	1,2,3
	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	Commitment to observing the University's Equal Opportunities policy at all times.	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 refereed 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 for STAFF GRADES 6 AND ABOVE, 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 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 academic career. For further information on Athena SWAN see <http://www.lboro.ac.uk/services/hr/athena-swan/>