Research Assistant in Road Transport Air Quality Data Management

Job Ref: REQ250234

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

There is a vacancy within the Aeronautical and Automotive Department research community for a talented and enthusiastic Research Assistant with strong interests in air quality and transportation emissions measurement, with a background in digital engineering, data management, integration and analysis, and software development.

The successful applicant will be based in the Department of Aeronautical and Automotive Engineering, joining an active research community conducting impactful research, with a focus on addressing global challenges, with key areas including sustainable aviation, net-zero transportation, autonomous and intelligent systems, systems reliability and health management, mechanics and dynamics, mathematical modelling, AI, and simulation.

Project Description

Air quality is a growing global concern, driving legislative efforts such as the Green Deal. Among the major contributors to urban air pollution, road transport emissions stand out as a key challenge. This advertised position seeks to support research aimed at advancing our understanding of the environmental impact of diverse road transport technologies, including various powertrain systems via advanced modelling. Harnessing the power of data analytics and machine learning, an output of the research project is the development of an innovative air quality modelling tool. This advertised position will support the evolution of this tool where the role requires the design and development of a data-centric web portal, data analysis and data management enabling the creation of an information hub, forming the pivotal user interface.

Job Description

Job Grade: Specialist and Supporting Academic Grade 5

Job Purpose
To support research and assist in the development of the digital air quality modelling tool.

Job Duties

- To assist in the air quality modelling tool software development process enabling seamless integration of multiple endpoints into this central data hub.
- To assist in the design, development, and maintenance of a robust, scalable, and secure back-end services, to ensure high-performance functionality of the air quality modelling tool.
- To determine the most appropriate front-end frameworks to create highly interactive, responsive, and user-friendly web applications, ensuring engaging, interactive, and insightful data representations for better decision-making and enabling optimal user experience.
- Carry out data structuring and normalization processes from multiple sources to ensure consistency and usability.

- To assist in the design and implementation of automated data extraction and management techniques, alongside developing scalable and efficient data storage solutions, to efficiently mine, analyse and retrieve the most relevant information from vast records.
- Produce high quality documentation and industry standard reports/papers throughout.
- To engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project.
- To support the project team and work with collaborators as required.

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 Equity, Diversity & Inclusion policy, and procedures at all times. Duties must be carried out in accordance with relevant Equity, Diversity & Inclusion legislation, and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Belonging and Inclusion, Health & Safety, etc.

Organisational Responsibility

Reports to Senior Research Associate (named in the project team).

Person Specification

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 software development and data integration	1
	Experience of front-end website development	1
	Experience of back-end website development using JavaScript, HTML, or CSS	1
	Experience of data management and large language models	1, 3
Skills and abilities	Working knowledge of software packages [Python, Simulink, MATLAB]	1, 3
	Ability to use Google Maps API or D3.js or Chart.js for creating interactive graphs and data visualizations.	1, 3
	Ability to write project reports and make technical presentations to industrial and academic research groups	1, 3
	Self-motivated with ability to meet deadlines	1, 3
	Excellent interpersonal, and organisational skills	1, 3
	Excellent written and oral communication skills	1, 3
Qualifications	Degree in Software engineering, Computer Science, Information Technology, or related field	1
Other	Commitment to observing the University's Equal Opportunities policy at all times.	1,3

Desirable Criteria

Area	Criteria	Stage
Experience	Developing software tools for engineering applications	1,3
	Software development on Linux/Unix platforms	1,3
	Application or development of Digital twin, Machine learning and artificial intelligence for engineering applications	1,3

Conditions of Service

The position FIXED TERM for a period of 30 months. Salary will be on Grade 5, Spinal Point 20 per annum, 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 STAFF GRADES 1-5, 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/

Applications

The closing date for receipt of applications is **10TH April 2025.**

Interviews will be held **w/c 28th April 2025.**