School of Architecture, Building and Civil Engineering

Research Assistant in AI-Enabled Energy Analytics for NHS Estates (VITALS)

Job Ref: REQ260822

School/Department summary:

The School of Architecture, Building and Civil Engineering at Loughborough University brings together research and teaching across sustainable buildings, infrastructure and digital technologies. Our collaborative research environment connects engineering and data-driven methods with industry and public-sector partners, including healthcare estates, to address energy efficiency, resilience and net-zero challenges.

Job Description

Job Family and Grade: Specialist and Supporting Academic (SSA), Grade 5

Job Purpose

To support the VITALS research team in preparing and analysing hospital energy datasets, applying agreed computational methods and documenting robust, reproducible results. Working under the direction of the Principal Investigator, the postholder will assist with technical reports and stakeholder-facing outputs that inform NHS estates research.

Job Duties

- Assist the research team with project mobilisation, data-access procedures and secure handling of safeguarded SENSE hospital energy data in accordance with relevant permissions and training.
- Prepare, clean, organise and quality-check half-hourly energy-consumption data from participating NHS Trusts; record missing data, anomalies and limits on data coverage.
- Assist with identifying, preparing and integrating approved contextual datasets, including weather, calendar and relevant NHS operational or activity indicators, subject to data availability, access permissions and suitability for analysis.
- Carry out exploratory data analysis and clustering of energy-load profiles using established procedures and scripts agreed with the research team.
- Assist with implementing, testing and comparing baseline statistical and machine-learning approaches, including relevant uncertainty-aware methods, under the guidance of the PI and project researchers.
- Support supervised model evaluation and validation using available reference indicators, undertake agreed comparative analyses across NHS Trusts, and assist with transfer-learning experiments where feasible, documenting performance, uncertainty and limitations.
- Assist with converting reviewed analytical results into clear plots, tables and evidence-linked summaries for NHS estates stakeholders, including checks of AI-assisted narrative outputs when used.
- Maintain reproducible analytical scripts, version-controlled files, data dictionaries and technical documentation, and assist the research team with preparing derived datasets and reusable code for permitted sharing through the SENSE platform, in accordance with applicable data licences and University requirements.
- Contribute to progress updates, technical reports, project case studies, presentations and dissemination materials, with research interpretation and publication decisions remaining the responsibility of the academic research team.

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- Attend project and partner meetings, communicate progress and issues promptly, undertake relevant training and perform other duties appropriate to the grade under agreed supervision.

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: Dr Kambiz Rakhshanbabanari, Principal Investigator, VITALS (Lecturer in Construction Engineering and Management).
Direct Reports: N/A
Budget Responsibilities: N/A

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 Criteria:

Area	Criteria	Stage
Experience	Experience preparing, organising or analysing numerical or time-series datasets and identifying data-quality issues.	1,3
	Experience using Python or an equivalent programming language to prepare and analyse numerical or time-series datasets, including implementing and evaluating established statistical or machine-learning methods.	1,2
	Experience contributing to technical records, analysis notes, reports or other research/engineering documentation.	1, 3
Skills and abilities	Ability to follow agreed analysis procedures, carry out allocated technical tasks and seek guidance when results are uncertain.	2,3
	Ability to assess data quality, identify missing or inconsistent data, interpret analytical and model outputs, and document findings and limitations accurately under appropriate supervision.	2,3
	Good written and oral communication skills and ability to work cooperatively with academic colleagues and external partners.	1,3
	Ability to organise assigned work, maintain accurate records and meet deadlines with appropriate supervision.	3
Training	Willingness to undertake required training in research methods, information security and relevant software.	3

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Area	Criteria	Stage
Qualifications	A degree in data science, computer science, engineering, applied mathematics, energy, the built environment or a closely related discipline (or equivalent relevant professional experience).	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
	Commitment to confidentiality, information security, research integrity and compliance with applicable data-access conditions.	3

Desirable Criteria:

Area	Criteria	Stage
Experience	Experience analysing energy-consumption, building-services, healthcare-estates or other operational time-series datasets, including the use of contextual information such as weather or operational schedules.	1,3
	Experience handling access-controlled, confidential or licensed research data.	3
Skills and abilities	Familiarity with time-series clustering, machine-learning model evaluation, uncertainty quantification, transfer learning or related data-driven analytical methods.	2,3
	Awareness of reproducible coding practices, version control or AI-supported evidence-linked reporting.	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 Equity, Diversity, and Inclusion (EDI), while carrying out all duties in a way that respects these principles and upholds the right to free expression. 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**.

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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.

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.

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