UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow for Railway System Integration and Innovation

Faculty of Engineering & Physical Sciences

Salary: Grade 7 (£33,797– £40,322 p.a.)

Reference: EPSEE1008

Closing date: 08 December 2019

Fixed-term for 3 years

We will consider flexible working arrangements

Research Fellow for Railway System Integration and Innovation, School of Electronic and Electrical Engineering,

Do you have an established research track record with the vision and drive to tackle new challenges? Are you passionate about delivering world-leading research in one of the UK's leading research-intensive Universities?

The University of Leeds along with external partners is investing around £70 Million to establish of a new high-speed rail and system integration institute. A 10-acre site is being developed as a Rail Engineering/Technology campus, primarily for high-speed rail research and including a systems integration and innovation centre in which the School of Electronics and Electrical Engineering is contributing significantly.

This 3-year post is industry-funded and the goal is to develop a three-tiered integration platform for compatibility and verification studies of railway electrification. Also, the project will investigate the innovative and optimal design and integration of power supply system and equipment, given the complex legacy infrastructure and existing power supply systems in the UK rail network. You will work closely with a Research Software Engineer within a large, multidisciplinary team.

What does the role entail?

As a Research Fellow, your main duties will include:

- Understand and analyse existing software platforms and tools used by the industrial partners for simulation of vehicle-track dynamics, power supply, traction control, as well as timetabling and path planning;
- Produce data-dependency paths and common workflows for product development and electrification in industry, focused on the software used;
- Work with a Research Software Engineer to design and develop an open platform to integrate different commonly used modelling software for vehicle-track dynamics, power supply, and traction control, to automatise workflows, minimise data duplication, and maximise data availability;
- Understand and modelling specific electrical & digital environment (power supply, traction, and command & control) at an appropriate granularity level for particular routes in collaboration with industrial partners;
- Collect suitable data, and use the developed open platform to investigate electrification challenges regarding power quality and reliability under different

operation scenarios and conditions, incorporating different rolling stocks, timetables or the modification of the OLE system, for specific routes in collaboration with industrial partners;

- Analysing and quantifying the technical and economic benefits of the integration of SFC power supplies for specific routes in collaboration with industrial partners;
- Investigate electromagnetic interferences induced by the power supply and traction systems and their impacts on the signalling and communication systems.
- Liaising with academic and industrial partners, summarising information on technology innovation and knowledge transfer aspects, report writing, research meetings and conference attendance, dissemination of results;
- Preparing papers for publication in leading international journals.;
- Mentoring less experienced colleagues as appropriate;
- Advising on the development of training and education materials for railway engineers, technicians and maintenance staff;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow you will have:

- PhD in Electrical Engineering or a closely allied discipline;
- A strong background in modelling and analysis of high-power electronic and power grid systems using simulation software;
- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure;
- Excellent written and verbal communication skills including presentation skills;
- Proven ability to manage competing demands effectively, responsibly and without close support;
- A proven ability to work well both individually and in a team;
- A strong commitment to your continuous professional development.

You may also have:

- Experience with railway systems or with electromagnetic analysis.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Prof Kang Li, Chair of Smart Energy Systems
Tel: +44 (0)113 3432045
Email: k.li1@leeds.ac.uk

Additional information

Faculty and School Information
Further information is available on the research and teaching activities of the School of School of Electronic and Electrical Engineering.

A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN Bronze or Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our equality and inclusion webpage provides more information.

Working at Leeds
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our Working at Leeds information page.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.