



UNIVERSITY OF LEEDS

## CANDIDATE BRIEF

**Research Fellow in Design of Motion Algorithms to Test Rail Vehicle Passenger Comfort, Faculty of Environment**



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

**Reference: ENVTR1105**

**Closing date: 14 November 2019**

**Fixed-term for two years (due to external funding)**

**We will consider job share/flexible working arrangements**

# Research Fellow in Design of Motion Algorithms to Test Rail Vehicle Passenger Comfort

## Institute for Transport Studies, Faculty of Environment

**Are you an ambitious researcher looking for your next challenge? Do you have experience in passenger comfort studies, motion simulators, or human factors? Do you want to further your career in one of the UK's leading research intensive Universities?**

Working in the [Human Factors and Safety Research Group](#) you will join a unique, cross-disciplinary team and contribute to a major research project. The University of Leeds, along with external partners, are investing over £60 million in the establishment of a new high speed rail institute. A ten acre site is being developed as a Rail Engineering/Technology campus, primarily for HSR research. This post is funded by our industrial partners to develop innovative solutions. The project will specifically use motion simulation to perform ride comfort studies to assist in vehicle design as well as quantifying the impact of various track alignment parameters.

With an interest in leveraging state of the art knowledge in motion simulation, you will be responsible for developing simulator software and leading experiments to support ride comfort testing. This work will lead to the design of more cost effective rail systems and preparation of papers for scientific journals and conferences.

You will have a PhD or be near to completion (i.e. the initial thesis needs to have been handed in at the point of application) in Engineering, Transport or Computer Science, or a closely allied discipline. You will also have a strong foundation in Control Theory, Vestibular Modelling and Scientific programming.

### What does the role entail?

As a Research Fellow, your main duties will include:

- Collaborating with and supporting [Professor Richard Romano](#) on the research project, to help ensure the successful attainment of project goals;
- Interacting with vehicle industry partners to consider industrial needs when deciding what test cases and research questions to prioritise, and to maximise research impact by reporting key results back to industry;



- Engaging with relevant literature from engineering, computer science, human comfort modelling, and/or other areas (with support and training as needed) to identify and adopt useful concepts, methods, and models;
- Implementing specific motion cueing algorithms optimised for rail passenger comfort testing;
- Designing and implementing test and experimental protocols for use in the motion simulator;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work;
- Preparing presentations for conferences, papers for publication in leading international journals and disseminating research results through other recognised forms of output and writing reports;
- Working both independently and as part of the day-to-day activities of a larger team of researchers;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- 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:

- A PhD or near completion (i.e. the initial thesis needs to have been handed in at the point of application) in Engineering, Transport or Computer Science, or a closely allied discipline;
- A strong foundation in mathematics and scientific programming including experience with tools such as MATLAB and Simulink;



- Experience of conducting research;
- A strong background in motion cueing algorithms, optimal control, or model predictive control;
- 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;
- A 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 own continuous professional development.

You may also have:

- Experience of pursuing external funding to support research;
- A proven track record of peer-reviewed publications in high impact factor journals;
- Familiarity with vestibular system modelling and human participant research.

## 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 Richard Romano](#)**, Chair in Driving Simulation

Email: [r.romano@leeds.ac.uk](mailto:r.romano@leeds.ac.uk)

## Additional information

Find out more about the [Faculty](#)

Find out more about our [Institute](#).

Find out more about our [Research and associated facilities](#).



Find out more about Equality and Inclusion and Athena Swan in the [Faculty](#) and the [University](#).

### **A diverse workforce**

The Faculty of Environment has received a prestigious Athena SWAN bronze award from [Advance HE](#), the national body that promotes equality in the higher education sector. This award represents the combined efforts of all schools in the Faculty and shows the positive actions we have taken to ensure that our policies, processes and ethos all promote an equal and inclusive environment for work and study.

### **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](mailto: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.

