



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Agent-based Modelling, Faculty of Environment



Salary: Grade 7 (£39,105 – £46,485 p.a. depending on experience)

Reporting to: Professor Ed Manley

Reference: ENVGE1258

Fixed term for 48 months to complete specific time limited work

Location: University of Leeds

We are open to discussing flexible working arrangements

Research Fellow in Agent-based Modelling, School of Geography, Faculty of Environment

Overview of the Role

Would you like to be part of a major collaborative research programme to help tackle transport's contribution to the climate crisis? Are you looking to apply your research skills to design transitions towards sustainable mobility systems? Do you thrive on working in an exciting and creative environment committed to making a difference?

Inspiring Futures for Zero Carbon Mobility ([INFUZE](#)) is a major £7.8m five-year research grant funded by the Engineering and Physical Sciences Research Council. Working across the Universities of Leeds, Lancaster and the Royal College of Art INFUZE is seeking to achieve transformative change in how transport works, addressing the climate challenge whilst improving fairness and quality of life. INFUZE is an exciting new collaboration which will work with citizens and businesses to re-imagine our transport systems. The programme will build an increasingly ambitious suite of real-world trials with communities, transport providers and government partners.

We are looking to recruit a passionate and committed researcher to drive forward our work on simulating possible transitions away from individualised car ownership. This work will seek to understand the social conditions under which large-scale changes in norms and behaviours around accessing 'mobility on demand' emerge. Our models will consider factors relating to social influence, technology acceptance, and household context, as well as the effect of changes to urban space and design. The outputs will feed into whole life-cycle carbon assessments which will help evaluate future scenarios. Candidates will require some expertise in agent-based modelling, although a prior application to transportation is not a pre-requisite. The models we build will have a direct interface with community stakeholders and mobility service providers, so we are particularly seeking applicants who are comfortable in working with others and able to support co-creation.

This role will be located in the School of Geography's [Institute for Spatial Data Science \(ISDS\)](#), as part of the [Mobility Science Lab](#). As well as working closely with Prof Ed Manley and Dr Roger Beecham, and the wider INFUZE team, there will be



opportunities to engage and contribute to research activities within ISDS, the Institute for Transport Studies (ITS) and the Leeds Institute for Data Analytics (LIDA).

Main duties and responsibilities

- Development of agent-based models of behaviour change and norm emergence, based on theories of social change;
- Leading on implementing and building an interface with existing MATSim transport models;
- Development of interfaces that enable external stakeholders to inspect model outputs and propose new design solutions during facilitated workshops;
- Participate in co-creation activities to develop the research direction, test and receive feedback;
- 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;
- 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 papers for publication in leading international journals and disseminating research results through other recognised forms of output;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- 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.



Qualifications and skills

Essential

- A PhD or near completion - i.e. the initial thesis needs to have been handed in at the point of application in geography, transportation, social science, agent-based modelling, computer science, or relevant technical discipline, with a significant component of programming and/or data science;
- Experience in the development of agent-based models within spatial and/or social contexts;
- Prior application and understanding of theories and models of human behaviour and decision making;
- Strong knowledge of a programming language appropriate for the development of agent-based models;
- Experience of multidisciplinary working, and proven ability and interest in working across traditional disciplinary boundaries;
- Knowledge of modern software development processes to support multisite / multiuser code contributions and open science;
- A clear personal motivation for the goals of the project;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

Desirable

- A proven track record of peer-reviewed publications in high impact factor journals;
- Knowledge of transportation modelling and activity-based modelling methods;
- Experience in the development of models using the MATSim framework.

Additional information

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.



Please note that due to Home Office visa requirements, this role may only be suitable for first-time Skilled Worker visa applicants if they are eligible for salary concessions. For more information please visit: www.gov.uk/skilled-worker-visa

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information please visit: <https://www.gov.uk/global-talent>

Find out more about the [Faculty of Environment](#)

Find out more about the [School of Geography](#)

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

Find out more about [equality](#) in the Faculty

Our University

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Environment we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Environment has received a prestigious Athena SWAN silver 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

We are a campus based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit 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

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.

