CANDIDATE BRIEF

Research Fellow in Agent-based Modelling for Spatial Epidemiology, Faculty of Environment

Salary: Grade 7 (£37,099 – £44,263 p.a. depending on experience)

Reporting to: Professor Ed Manley

Reference: ENVGE1241

Fixed term for up to 18 months to complete specific time limited work

Location: University of Leeds

We are open to discussing flexible working arrangements

Overview of the Role

Would you like to be part of an international collaboration to help track and treat cholera? Are you looking to apply your simulation expertise to predicting disease transmission? Do you thrive on working in an exciting and creative environment committed to making a difference?

The 'Integrated Surveillance Suite for Targeting Interventions to Cholera Outbreaks' three-year project is funded by the Wellcome Trust to develop integrated pathways for the testing, tracking, and treatment of cholera. An important part of controlling cholera relates to understanding the spatial extent of emerging outbreaks and targeting interventions to reduce their impact. In environments with sparse or delayed testing data, this means the use of predictive modelling to identify and respond to risks.

We are looking to recruit a dynamic and creative researcher to drive forward our research on the simulation of cholera outbreaks in developing countries. Working with academic partners at University of Oxford and UCL, and international partners in Bangladesh, the post holder will develop agent-based models of the activities, mobility, behaviours, and feedback loops that influence the spread of cholera epidemics. As part of this work, we will explore model interfaces with concurrent developments at Oxford around Gaussian Process modelling of disease transmission. The models will also integrate with data visualisation dashboards, developed by another researcher at Leeds, to enable exploration of future scenarios and policy interventions. Given the collaborative nature of the project, it is important that the post holder is comfortable in working within and across interdisciplinary teams.

This role will be located in the School of Geography's Institute for Spatial Data Science (ISDS). As well as working closely with Prof Ed Manley, Dr Roger Beecham and other members of the project team, there will be opportunities to network and contribute to research activities in ISDS and the Leeds Institute for Data Analytics (LIDA).

Main duties and responsibilities

- Development of agent-based models that capture the spread of cholera and explore determinant factors relating to activity, mobility, and interaction;

- Working collaboratively with project partners, identifying opportunities for integration of project components, including linkage between agent-based and Gaussian Process modelling approaches;
- Collation and integration of spatial and behavioural datasets that enable modelling of behaviours relevant to the modelled context;
- Producing reusable code, made available to the wider research community;
- 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, epidemiology, computer science, mathematics, transportation and mobility, quantitative social science, or relevant quantitative discipline;
- Extensive experience and expertise in developing agent-based models within spatial or mobility contexts, and/or spatial epidemiological models;

- Solid understanding of theories and models of human behaviour and decision-making within mobility or spatial contexts;
- Deep knowledge of a programming language appropriate for the development of agent-based models (preferably Java or Python);
- 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;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- Evidence of 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;
- Experience of building aggregate models or emulators of statistical processes.

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.

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.