



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Spatial Trajectory Analysis, School of Geography,
Faculty of Environment



Salary: Grade 7 (£33,797 – £40,322 p.a.) due to funding restrictions this post won't be appointed higher than spine point 31 - £34,804

Reference: ENVGE1121

Fixed-term until 30/9/2021

We will consider flexible working arrangements

Research Fellow in Spatial Trajectory Analysis, School of Geography, Faculty of Environment

Are you an ambitious researcher looking to contribute towards the COVID-19 pandemic response? Do you have an established background in data science and behavioural analysis? Do you want to further your career in one of the UKs leading research intensive Universities?

The COVID-19 pandemic has highlighted the precarious situation in which healthcare workers find themselves where treating infectious disease. The infectiousness and asymptomatic nature of COVID-19 means that healthcare workers are both at high risk of infection and of transmitting the virus to non-COVID patients within the hospital. To mitigate these risks, a better understanding of the behavioural and spatial factors affecting virus exposure and transmission is needed.

The SAFER project, funded by the Medical Research Council (MRC) on COVID-19 Rapid Response funding, aims to understand patterns of COVID-19 transmission within a hospital setting and develop optimal approaches for reducing transmission risk. To achieve this, the study will track, analyse, and subsequently model the behaviour, activities, and attitudes of a large cohort of healthcare workers at University College London Hospital (UCLH). Participating healthcare workers will furthermore submit to regular COVID-19 testing and supporting virological analysis will enable a detailed spatiotemporal analysis of transmission pathways.

The project is a collaboration between University of Leeds, University College London, and UCLH. There are two Research Fellow positions available at Leeds. The researchers appointed will be expected to work closely with colleagues at UCL to deliver the project objectives.

In this particular role, you will work on collecting and analysing the spatial trajectories of participating healthcare workers at UCLH (n ~ 500), combining data collected on COVID-19 virus testing, sequencing, and exposure, with survey insights relating to infection control measures (e.g. PPE, hand washing). Our data analyses will aim to identify transmission pathways in space and time and expose the behaviours and environments that contribute to risky behaviour. These findings will feed into agent-based modelling for future policy and behaviour change interventions.



Please note that these positions will be required to start as soon as possible, but we will consider flexible working arrangements.

What does the role entail?

As a Research Fellow on this project, your main duties will include:

- Analysing the trajectories of healthcare workers within UCLH, and their interaction with COVID-19 positive patients and staff;
- Deriving insights into virus transmission in space and time through integration of diverse datasets (e.g. trajectories, healthcare records, virology);
- Measuring the use of infection control measures in different contexts and its potential role in mitigating against virus transmission;
- Meeting with regularly and working closely with the research and clinical teams at UCL and UCLH;
- Interfacing with external groups involved in the collection of healthcare worker location data, and with UCLH data teams;
- Undertaking training in data security and ethics as required for accessing UCLH data resources;
- 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;
- 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.



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 close to completing ie the initial thesis needs to have been handed in at the point of application) in Computer Science, Geography, Epidemiology, Health or Medical Informatics, Mathematics, Transportation, Social Science, or relevant technical discipline, with a significant component of programming and/or data science;
- A strong background in spatial and/or behavioural data science, including the application of machine learning methods for generating measures and models of human behaviour;
- Good understanding of theories and models of human behaviour, decision-making, and/or activity choice within workplace, mobility, or spatial contexts;
- Deep knowledge of data science methods and processes, and strong expertise in associated programming languages (preferably Python or R);
- A proven ability to work closely with a small group of scientists and collaborate with a wider, multidisciplinary team;
- An ability to communicate effectively with other researchers, particularly those from non-quantitative backgrounds;
- An understanding of the ethical principles associated with tracking human behaviour and knowledge of appropriate data security procedures;
- An ability to think creatively when standard techniques or libraries are not suitable, in order to develop novel, innovative solutions to complex problems;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- A proven track record of peer-reviewed publications in high impact factor journals;



- 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.

You may also have:

- Expertise in virus transmission and/or nosocomial infection;
- Experience in analysing healthcare records and/or virus transmission data;
- Experience of pursuing external funding to support further 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:

Professor Ed Manley

Email: E.J.Manley@Leeds.ac.uk

Additional information

Find out more about the [Faculty of Environment](#) and [School of Geography](#).

Find out more about [Athena Swan](#) in the Faculty.

A diverse workforce

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

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

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.

