POSTDOCTORAL RESEARCH ASSOCIATE - SPATIAL MODELLING - ASG SHOCKS AND RESILIENCE

THE ALAN TURING INSTITUTE

There has never been a more significant time to work in data science and AI. There is recognition of the importance of these technologies to our economic and social future: the so-called fourth industrial revolution. The technical challenge of keeping our data secure and private has grown in its urgency and importance. At the same time, voices from academia, industry, and government are coming together to debate how these technologies should be governed and managed.

The Alan Turing Institute, as the UK's national institute for data science and artificial intelligence, plays an important part in driving forward advances in these technologies in order to change the world for the better.

The Institute is named in honour of Alan Turing, whose pioneering work in theoretical and applied mathematics, engineering and computing is considered to have laid the foundations for modern-day data science and artificial intelligence. The Institute's goals are to undertake world-class research, apply its research to real-world problems, driving economic impact and societal good, lead the training of a new generation of scientists, and shape the public conversation around data and algorithms.

After launching in 2015 with government funding from EPSRC and five founding universities, the Institute has grown an extensive network of university partners from across the UK and launched a number of major partnerships with industry, public and third sector. Today it is home to more than 500 researchers, a rapidly growing team of in house research software engineers and data scientists and a business team.

BACKGROUND

SHOCKS AND RESILIENCE RESEARCH PROJECT

Measuring policy impact in the Covid-19 crisis and building resilience against future shocks.

The Covid-19 crisis has highlighted how vulnerable societies and governments are to shocks. This vulnerability is exacerbated by the propensity to design policy for narrow siloes relating to singular policy areas and government departments, without adequate consideration of the interdependencies between them and the interconnected nature of local and global societies. The pandemic has brought into focus that resilience in one policy area (e.g. health) can come at the cost of resilience in another (e.g. the economy). The overall aim of this large-scale, 2-year research project is to develop a better understanding of resilience in interconnected health, social, and economic systems and to use this understanding to identify robust policy measures.

The project brings together multidisciplinary expertise from across the Turing community, including in health, public policy, economics, and urban analytics. To achieve our aims, we will require reliable, consistent, real-time, fine-grained data sources, as well as integrative, highly-granular models that bring together policy areas and cross disciplinary boundaries.

The Shocks and Resilience project consists of the following five work packages, supported by nine Research Associates:

1. Modelling COVID-19

2. Learning causality and dynamics in interconnected systems

3. Spatial modelling

4. Generalised models for resilient policy-making

5. Engagement, implementation, and dissemination to policy-makers

Work package 3: Spatial modelling

The aim of this work package is to develop spatial modelling methods that can be integrated within the epidemiologic-socio-economic models in order to tackle policy questions that are relevant at the sub-national level (e.g., regional and local authorities). We are producing methodologies that offer 'what if' scenario modelling in relation to spatial variations in policy regulations, such as the local relaxation or reintroduction of social distancing rules, or local controls over business, leisure, and education.

ROLE PURPOSE

We are looking to recruit a Research Associate, Spatial Modelling to work on our [Shocks and Resilience](#) project.

This post has specific responsibility for the application of spatial analysis to produce better estimates of the spatial distribution of health outcomes and behaviours. The application of spatial modelling, in particular microsimulation models, to the challenge of health equity can help to better understand the complex relationships between health and social determinants, across space/place and time.

You will report to Professor Mark Birkin as Director of the Turing Urban Analytics programme and to Dr Alisha Davies, Health Theme lead for the AI Science and Government (ASG) programme. We expect the successful applicant to engage with stakeholders, either directly or through colleagues with responsibilities in this area, and to look for opportunities to focus on specific datasets and problems.

We envisage that the public health organisations across the UK, Local Government and the Office for National Statistics will be particularly important stakeholders. Working with partners to discover the novel added value of the application of these approaches to health to inform intervention or policy planning decisions.

DUTIES AND AREAS OF RESPONSIBILITY

- To develop and implement models of population behaviour, demographic change, mobility, consumption and the use of services.

- To undertake analysis of large and complex social and spatial datasets.

- To work with other members of the research team and external collaborators to design 'what if' scenarios and create solutions to inform future plans and policy interventions.

- Work with the nine other postdoctoral research associates across the shocks and resilience project to embed new methods within specific research initiatives.

- Collaborate with the senior academics overseeing this research project, as well as the nine other postdoctoral research associates, in pursuing the research agenda described above.

- Develop work plans to ensure timely delivery of objectives and assist with quarterly grant reports.

- Build and maintain relationships with external research groups as part of the research project's external engagement strategy.

- Prepare research outputs that are tailored to a diverse audience, ranging from statisticians, mathematicians and applied researchers, civil society, and the general public; present papers and research outputs at external conferences and events.

- Work in close coordination with the Turing's Health and Public Policy Programmes to maximise the project's influence on ongoing policy debates.

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities. This job description is written at a specific time and is subject to changes as the demands of the Institute and the role develop.

PERSON SPECIFICATION		

Skills and Requirements Post holders will be expected to demonstrate the following	**Essential (E)** **Desirable (D)**	**Tested at application(a)** **Tested at interview (i)**
Education		
Postdoctoral Research Associate level: holds a PhD or has equivalent level of professional experience in geography, demography, epidemiology, or a related discipline.	E	A
Knowledge and Experience		
Skills and experience in the analysis of spatial data and in the manipulation of spatial data	E	A I
Evidence of the ability to explore and understand social phenomena through the interrogation of quantitative spatial data	E	A I
Knowledge of data science using data analytic techniques: data visualisation, machine learning, statistical modelling, or data mining etc	E	A I
Strong computational skills (e.g. proficient at coding in chosen language(s))	E	A I
A record of scientific publication, which may include journal articles, book chapters, and scientific advisory reports/white papers, that is suitable to career stage	E	A I
Knowledge of topics and theories in health or epidemiology	D	A I
Knowledge/understanding of the UK government and policy-making landscape	D	A I
Experience in the application of AI/spatial analysis to health analytics	D	A I
Communication		
Ability to communicate complex, specialist or conceptual information clearly and persuasively to diverse audiences	E	A I
Liaison and Networking		
A proven ability to collaborate successfully in a multidisciplinary environment and to manage delivery of projects	D	A I
Experience in interacting with policy-makers and translating data-driven findings into meaningful insights and policy-focused reports	D	A I

Planning and Organising		
Ability to organise and prioritise own work with minimal supervision	E	A I
Analysis and Research		
Ability to carry out original research and to produce published research papers	**E**	**A I**
Ability to identify, develop and apply new concepts, techniques and methods	**E**	**A I**
Other Requirements		
Commitment to meeting deadlines	**E**	**I**
Flexible attitude towards work	**E**	**I**
Commitment to EDI principles and to the Organisation values	**E**	**I**

OUR VALUES

The Alan Turing Institute is committed to equality diversity and inclusion and to eliminating discrimination. All employees are expected to embrace, follow and promote our [EDI Principles](#) and Our Values.

APPLICATION PROCEDURE

If you are interested in this opportunity, please click the apply button below. You will need to register on the applicant portal and complete the application form including your CV, covering letter that outlines how you meet the job specifications. If you have questions about the role or would like to apply using a different format, please contact us on 020 3862 3546 or email recruitment@turing.ac.uk.

CLOSING DATE FOR APPLICATIONS: 20 February 2022 at 23:59

TERMS AND CONDITIONS

This full-time post is offered on a fixed-term basis until 31 March 2023. The annual salary is £37,000 to £42,000 plus excellent benefits, including flexible working and family friendly policies, https://www.turing.ac.uk/work-turing/why-work-turing/employee-benefits.

Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant with a salary range of £34,510 per annum.

EQUALITY, DIVERSITY AND INCLUSION

The Alan Turing Institute is committed to creating an environment where diversity is valued and everyone is treated fairly. In accordance with the Equality Act, we welcome applications from anyone who meets the specific criteria of the post regardless of age, disability, ethnicity, gender reassignment, marital or civil partnership status, pregnancy and maternity, religion or belief, sex and sexual orientation.

We are committed to building a diverse community and would like our leadership teal to reflect this. We therefore welcome applications from the broadest spectrum of backgrounds.

Reasonable adjustments to the interview process will be made for any candidates with a disability.

Please note all offers of employment are subject to continuous eligibility to work in the UK and satisfactory pre-employment security screening which includes a DBS Check.

Full details on the pre-employment screening process can be requested from HR@turing.ac.uk***.***