# The Alan Turing Institute

**RESEARCH ASSOCIATES – THE SCIENCE OF CITIES AND REGIONS**

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 THE SCIENCE OF CITIES AND REGIONS**

The Programme seeks to advance its four core missions (mobility, land use, liveability, and digital twins) which are of fundamental importance to the Grand Challenges of the Institute; to develop a technology platform that enables the delivery of the missions; and to build social infrastructure around the Science of Cities and Regions. These goals are only possible by building further capacity at the Turing; increasing its relevance to stakeholders and university partners; consolidating its connectivity to other Turing programmes and activities; and producing world-leading applied research and innovation.

Massive volumes of big data are continuing to grow explosively within urban areas and need to be appropriated in order to address the real world challenges and opportunities in creating cities which are healthier, more prosperous and environmentally friendly & sustainable. Both governments and business are crying out for tools in support of policy design and evaluation for massive investments in infrastructure, management of behavioural change and adaptation which improves the lives of citizens. The global marketplace for smart city technology is expected to grow to $2.8 trillion by 2026, with compound annual growth in excess of 20%[1]. The UK has established a world-leading position in this domain, which can be consolidated and extended through deep embedding of AI and data science technologies and through advancing the Science of Cities and Regions.

The Programme combines four missions with a cross-cutting technology platform and a series of community building activities within the UK. The missions are as follows:

1. New forms of data propel sustainability, equity and efficiency in all forms of Urban Mobility. Development of innovative new methods and software solutions to enable faster, more evidence-based and more effective sustainable transport planning interventions
2. AI is instrumental to the Land-Use Planning process for buildings, cities and landscapes
3. Pervasive data are leveraged for healthy, sustainable, and prosperous cities and their populations
4. Digital Twins are a mature paradigm for the evaluation and implementation of urban policies

The technology platform includes data, designs and a growing ecosystem of open source projects in a variety of modern programming languages such as R, Python, Rust or JavaScript.

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[1] www.researchandmarkets.com/reports/3633914

**ROLE PURPOSE**

We are looking for several researchers with the capability and appetite to develop and execute research ideas through geographic data science and AI in one or more of the missions, leveraging existing components of the technology platform, and adding functionality where possible.

You will report to Professor Mark Birkin as Director and to a Group Leader within the Turing's Science of Cities and Regions programme.

We expect he successful applicants to engage with stakeholders in business and government, and to look for opportunities to focus on specific datasets and problems e.g. working with partners to discover the novel added value of the application of these approaches to inform interventions and policy planning decisions. As part of this role, we expect to be able to offer unique opportunities to work with the Data and Digital teams in government and other national and local agencies with a strong social impact agenda e.g. in relation to net zero or levelling up communities. For suitable candidates this might also provide key professional experiences in the rapidly expanding Data, Digital and Technology (DDaT) profession in the Civil Service, and a clear pathways to impact for your work.

**DUTIES AND AREAS OF RESPONSIBILITY**

The core responsibilities of the role are as follows:

- To develop and implement models of mobility, land use, population behaviour and change.

- To undertake analysis of large and complex social and spatial datasets, deploying contemporary machine learning approaches where appropriate.

- To work with other members of the research team and external collaborators to design 'what if' scenarios underpinned by Digital Twin technology, creating solutions to inform future plans and policy interventions.

- Work with the other postdoctoral research associates and data scientists across the Science of Cities and Regions programme to embed new methods within specific research initiatives.

- Contribute new functionality to the growing ecosystem of open source technology fostered by the Science of Cities and Regions.

- Collaborate with software developers and data scientists in stakeholder organisations to augment parts of the planning process and make it more data driven

- To process datasets representing roads and active travel infrastructure such as pavements and cycleways, using machine learning to simulate and evaluate changes for maximum public benefit

# The Alan Turing Institute

| PERSON SPECIFICATION | | |
|---|---|---|
| **Skills and Requirements**<br><br>Post holders will be expected to demonstrate the following: | **Essential (E)<br>Desirable (D)** | **Tested at application (a)**<br><br>**Tested at interview (i)** |
| **Education/Qualification** | | |
| PhD or equivalent level of professional experience in geography 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 | AI |
| Evidence of the ability to explore and understand social phenomena through the interrogation of quantitative spatial | E | AI |
| Knowledge of data science: data visualisation, machine learning, statistical modelling | E | AI |
| Strong computational skills (e.g., proficient at coding in chosen language(s)) | E | AI |
| Knowledge of topics and theories in geography, regional science and spatial analysis | D | I |
| Knowledge/understanding of the UK government and policy-making landscape | D | I |
| **Communication** | | |
| Ability to communicate complex, specialist or conceptual information clearly and persuasively to diverse audiences | E | AI |
| **Teamwork and Motivation** | | |
| Ability to work with others, especially postdocs, data scientists, and PhD students. | E | AI |
| **Liaison and Networking** | | |
| A proven ability to collaborate successfully in a multidisciplinary environment and to manage delivery of projects | E | AI |
| Experience in interacting with policy-makers and translating data-driven findings into meaningful insights and policy-focused reports | D | AI |
| **Planning and Organising** | | |
| Ability to organise and prioritise own work with minimal supervision | E | AI |
| **Analysis and Research** | | |
| Ability to carry out original research and to produce published research papers | E | AI |
| Ability to identify, develop and apply new concepts, techniques and methods | E | AI |
| **Other Requirements** | | |
| 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.



**Our values**

**Trust**
We create an environment where we have trust and can be trusted

**Inclusivity**
We expect our Turing community to contribute to a culture that is inclusive and free of barriers

**Respect**
We all have different roles, priorities and challenges but our shared purpose is the same

**Leadership**
Leadership is everyone's business; Turing leaders set the right tone and lead by example

**Transparency**
Everyone should understand the how and the why of our decisions and actions

**Integrity**
We are all ambassadors for the Turing's mission of changing the world for the better

**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 and covering letter. If you have questions about the role or would like to apply using a different format, please contact us on 020 3862 3533 or 0203 862 3516, or email recruitment@turing.ac.uk.

**CLOSING DATE FOR APPLICATIONS:  12th April 2023 at 23:59**

**TERMS AND CONDITIONS**

This full time post is offered on a fixed term basis until 31 March 2025. The annual salary is £40,850 to £46,200 plus excellent benefits, including flexible working and family friendly policies, https://www.turing.ac.uk/workturing/why-work-turing/employee-benefits

Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant at a salary of £38,236 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 team to reflect this. We therefore welcome applications from the broadest spectrum of backgrounds.

We are committed to making sure our recruitment process is accessible and inclusive. This includes making reasonable adjustments for candidates who have a disability or long-term condition. Please contact us at adjustments@turing.ac.uk to find out how we can assist you.

***Please note all offers of employment are subject to obtaining and retaining the right 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***.***