

The Alan Turing Institute

The Science of Cities and Regions: Group Leader in Digital Twins

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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 Cities and Regions 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, develop a technology platform that enables the delivery of the missions, and 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 urban data are continuing to grow explosively and the need to make sense of them only grows in order to address the real world challenges and opportunities in creating cities which are healthier, better to live in, and environmentally friendly and sustainable. Both governments and businesses are crying out for tools and approaches in support of policy design and evaluation for massive investments in infrastructure, management of behavioural change and adaptation which improve 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 Alan Turing Institute will coordinate the work to consolidate and grow a national community of academia, government, and industry partners and stakeholders in the Science of Cities and Regions. Each of our missions will also engage and promote a suitable international agenda, and will contribute actively to the development and deployment of capability in the Turing's Cities and Regions Technology Platform. The community and research team comprises domain specialists, data scientists, and practitioners who are working together to co-produce globally outstanding research and transformational innovations in the applications of data science and AI to real world problems of cities and regions.

This next phase of development in the Science of Cities and Regions aligns with the Institute's broader development of its priorities through the strategy for Turing 2.0, including delivering research aligned to national priorities, growing the community and taking national leadership to improve skills and understanding of AI.

ROLE PURPOSE

We are recruiting a **Group Leader** who will help us to continue to refine the vision for the Digital Twins Mission within the Science of Cities and Region programme. The framing of this mission asserts that "Digital Twins are a mature paradigm

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for the evaluation and implementation of urban policies". A key objective of your appointment will be to develop new strategies, partnerships and funding agreements leading to growth in the research base. Funding for the post is available up to 0.8 FTE until March 2025 in the first instance. It is our expectation that successful development of this mission will lead to longer-term continuation of the Group Leader role.

This is an outstanding opportunity for an established and successful academic with an entrepreneurial mind-set and the ambition to build their influence on a global stage, working through a national institute and with exceptional peer support and research management infrastructure. The specific purpose of the Group Leader role is to leverage the core resources of the Science of Cities and Regions programme to develop research in Digital Twins of Cities and Regions at the Turing to its full potential.

Our preferred candidate will have an established track record of research leadership in the science of cities and regions and who is familiar with simulation, mathematical modelling or related approaches in supporting planning, policy-making or urban analytics.

The resources available to you will include:

- **Research capacity** – starting with a compact base of two PDRAs in the Digital Twins mission for Cities and Regions, we are looking for someone with the ability to grow this to a team of 8-10 in the next phase of our development
- **Partners** – you will work with a network of university partners and research organisations, as well as stakeholders in business, government and the third sector, to articulate and secure funding for new projects which bolster growth in line with the strategic ambitions of the Institute and the Cities and Regions programme. You will work especially closely with research leaders in the Turing's Research and Innovation Centre for Digital Twins (DT-TRIC). The DT-TRIC is looking at Digital Twins much more broadly across the Turing and the wider scientific landscape.
- **Technology** – you will draw from established resources, including software engineering, and oversee contributions to growth and development of the Cities and Regions Technology Platform including e.g. code, data products, model designs, tools, and algorithms for AI and geographic data science.
- **Social infrastructure** – you will work closely with a large number of national and globally outstanding research teams with which whom excellent relationships already exist. You will work with other members of the Programme Leadership team to maintain and further enhance these relationships, and work to create and exploit new opportunities with specific relevance for Digital Twins of Cities and Regions.
- **Management capability** – you will benefit from the expertise and encouragement of an experienced programme director – to whom you will report – and working alongside other research leaders and a well-resourced support team who will assist in the administration of budgets, dissemination, impact realisation, human resource management, project planning, partnership development and all fundamentals in the creation and smooth operation of an outstanding research group in Digital Twins of Cities and Regions.

DUTIES AND AREAS OF RESPONSIBILITY

The Group Leader will work closely with other leaders at the Turing and external partners to:

- Develop and oversee the delivery of an ambitious programme of research and innovation in Digital Twins of Cities and Regions. You will take a high level of personal responsibility for articulation of the priorities and strategic direction of this work, in alignment with the broader ambitions and constraints of ATI strategy and with due regard to evolving national trends and to the views of the programme stakeholders
- Identify, initiate and nurture partnerships with relevant institutes, government departments, industry, and researchers across the UK and internationally to help deliver compelling outputs, build a community of researchers and practitioners, and improve skills
- Develop, deliver, and coordinate the strategic ambitions of the mission with the wider Cities and Regions programme and institutional goals, ensuring strategic links between other research groups and partner organisations

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- Build capabilities in the relevant areas and contribute to the development of the Turing Cities and Regions programme, including identifying and establishing connections from the Digital Twins of Cities and Regions mission to other research missions, technologies and social infrastructure in the programme
- Disseminate findings at industry, academic and practitioner conferences and meetings, and through a portfolio of articles in high impact peer-reviewed academic journals
- Work with the Cities and Regions programme team, university members, partners and staff to maximise opportunities for translation and exploitation of methods and ideas.
- Leverage resources and secure further funding for collaborative research in the Science of Cities and Regions from appropriate sponsors (e.g., research councils, government, industry, EU, charities, etc.)
- Inform and make decisions on appropriate use of funds within the Digital Twins of Cities and Regions mission, in line with Programme processes and guidance
- Provide line management for early career post-doctoral researchers working on the Digital Twins of Cities and Regions mission. Contribute to the skills and career development for the community of early career post-doctoral researchers on the Cities and Regions Programme through supporting processes of informal knowledge exchange

Please note that job descriptions cannot be exhaustive, and the postholder 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.

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| PERSON SPECIFICATION | | |
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| 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/Qualification | | |
| A PhD or equivalent research experience in a discipline relevant to the Science of Cities and Regions. | E | A |
| Knowledge and Experience | | |
| A proven and substantial record of research income generation. | E | A |
| An excellent record of high quality internationally significant publications. | E | A |
| Record of excellence and significant research experience in urban analytics, for example in mathematical modelling or simulation and applications to planning or policy-making. | E | A |
| Experience in managing and leading multi-disciplinary teams. | D | A/I |
| Familiarity with algorithms in AI and data science, and their existing or potential applications in the context of cities and regions. | D | A/I |
| Leadership and strategic vision skills, especially as required in a complex, research-intensive collaboration with academic and external stakeholders. | E | A/I |
| Ability to create and promote a collegiate and collaborative approach to research partnership activities. | E | A/I |
| Ability to build and develop effective working relationships with external partner organisations (academia, commercial, public and third sectors), and working with a diverse set of stakeholders. | E | A/I |
| Evidence of a personal network that crosses research disciplines or domain applications. | D | A |
| Experience communicating complex outputs to a variety of audiences through a number of channels. | E | A/I |
| Ability to identify opportunities for research collaborations beyond the applicant's own academic specialism. | E | A/I |
| Able to make strategic decisions which have significant programmatic impact, ensuring processes are robust and decisions are challenged appropriately. | E | I |
| Previous experience in a similar role. | D | A |
| Communication | | |
| Excellent communication, negotiation and influencing skills at all levels | E | I |
| Able to present complex information in an audience-appropriate format | E | I |
| Planning and Organising | | |
| Experience of effectively managing budgets, setting performance standards and regularly monitoring and reviewing them | E | A/I |

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| Undertake medium-term resource planning in-line with programmatic objectives. | D | A/I |
| Initiative and Problem Solving | | |
| Ability to use own initiative to resolve problems and identify the impact of resolving problems in the selected manner | E | A/I |
| Analysis and Research | | |
| Able to develop new ideas to explore and revolutionise existing knowledge | E | AI |
| Able to identify solutions that bring wider and longer-term benefits for the programme and its stakeholders. | D | A/I |
| Ability to bridge both fundamental and applied research. | E | I |
| Team Development | | |
| Ability to monitor and manage the performance of team members | E | A |
| Ability to coach and mentor others | E | I |
| Knowledge and ability to carry out performance reviews and appraisals | E | I |
| Other Requirements | | |
| Commitment to EDI principles and to the Organisation values. | E | I |
| Service Delivery | | |
| Be aware of external factors impacting on workload and monitor resourcing requirements to continuously provide a quality service | E | I |

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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 3970 2148 or 0203 862 3340, or email recruitment@turing.ac.uk.

CLOSING DATE FOR APPLICATIONS: 16 April 2023 at 23:59

TERMS AND CONDITIONS

This part-time (0.8 FTE) post is offered on a fixed term basis until March 2025. This role sits within band 7 in the Turing's salary structure (£80,000 - £95,000) plus excellent benefits, including flexible working and family friendly policies, <https://www.turing.ac.uk/work-turing/why-work-turing/employee-benefits>.

Individuals who are earning a salary higher than band 7 will be compensated through the secondment at their current rate.

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.

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

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.