

The Alan Turing Institute

MISSION LEAD, FUNDAMENTAL RESEARCH IN AI FOR PHYSICAL SYSTEMS

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 purpose is to make great leaps in data science and AI research to change the world for the better. Its goals are to advance world-class research and apply it to national and global challenges, build skills for the future by contributing to training people across sectors and career stages, and drive an informed public conversation by providing balanced and evidence-based views on data science and AI.

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

Join us as we define a new era for The Alan Turing Institute. With renewed energy and focus, we will pursue our purpose to make great leaps in data science and AI in order to change the world for the better.

We have three ambitious interconnected goals:

- Advance world-class research and apply it to national and global challenges.
- Build skills for the future.
- Drive an informed public conversation.

We will take a grand challenge-led approach to science and innovation, harnessing the power of data science and AI to make lasting impact on the following three of the world's most pressing societal issues:

1. Environment and sustainability. To address the climate and biodiversity crisis and the need for greater sustainability.
2. Defence and national security. To protect the UK, its people and the places they inhabit.
3. Transformation of health. To transform health and enable better outcomes for all.

Our Grand Challenges provide a common focus, mandate to prioritise and inspiration for diverse communities and capabilities to come together. They are underpinned by our work on Fundamental data science and AI research and supported by our Core Capabilities and Emerging Priorities. Beneath each Grand Challenge, Missions constitute targeted problems which require portfolios of activity to be achieved.

We are now looking for ambitious and inspirational scientific leaders, to drive the first mission within the Fundamental Research in AI and Data Science Priority Area: **AI for Physical Systems** (see details below). Reporting to the Science and Innovation Director for Fundamental Research in Data Science and Artificial Intelligence, this role will form part of the Grand Challenge leadership team and be responsible for the leadership and delivery of a multi-million programme of directed activity.

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FUNDAMENTAL RESEARCH IN AI AND DATA SCIENCE GRAND CHALLENGE

Supporting the GCs is the cross-cutting Fundamental Research in Data Science and Artificial Intelligence (FR) priority area. Through agile, targeted research initiatives, FR will explore, design, and develop new methodology aimed at super-charging the AI capabilities within the Grand Challenges, enabling them to push beyond the state of the art through fundamentally novel approaches.

The aim of our AI for Physical Systems mission is to develop the next generation of fundamental ML and AI methods, tools and theory to enable modelling, prediction and control of physical systems. To achieve this, we are creating a multi-disciplinary, mission-driven team which will collaborate with national & international centres of excellence to achieve its goals. Initially, we will be focusing on three strands.

Strand 1: Probabilistic and Generative Models for modelling & prediction of Physical Systems.

Strand 2: Bridging the divide between data-driven & mechanistic models.

Strand 3: Accelerating large-scale computational simulations through machine learning.

The role is ideally suited to candidates who are leading researchers in data science and machine learning with an outstanding track record in collaborative research across related disciplines (AI, mathematical sciences, statistics, computing sciences), with deep interests in data-driven methods and/or approaches for tackling real-world problems, and a passion, entrepreneurial flair, and ambition to directly deliver impact where it is needed most.

To find out more about the Fundamental Research in AI and Data Science priority area click here [Fundamental research in data science and AI | The Alan Turing Institute](#)

ROLE PURPOSE

We now seek to recruit a mission lead for the AI for Physical Systems mission.

The Mission Lead will be key to delivering internationally leading research in machine learning for the first mission within the Turing's Fundamental Research priority area – AI for Physical systems. This post holder will be reporting to the Science and Innovation Director and will work closely with other researchers and business team colleagues within this priority area and across the Turing Grand Challenges. You will be expected to manage a small group of Research and/or Project Leads under the mission, as well as actively contribute to continual scoping, shaping and development of the mission. You will be expected to engage with stakeholders, coordinate funding applications, and monitor and report on mission progress.

DUTIES AND AREAS OF RESPONSIBILITY

Core responsibilities

Scientific Leadership and Team Management

- Develop the strategy and scope of the AI for Physical Systems mission for the Fundamental Research in AI and Data Science priority area in support of the Institute's objectives.
- Break down the mission's vision into strategic and financial planning with ambitious and measurable goals
- Lead the delivery of the mission, ensuring delivery against objectives within allocated budgets and timeframes.
- Manage, lead and inspire a team of researchers and professional staff across the mission to produce, deliver and deploy high-quality, high-impact research, building a cutting-edge science and innovation research programme in the area of AI for Physical Systems.
- Create a sense of cohesion and unity across the mission.

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Communication and Networking

- Convene Institute partners to maximise opportunities for translation and exploitation of the algorithms, software, methods, theories and tools developed through the mission.
- Cultivate strong relationships with internal stakeholders, liaising with the Institute's Programme Management team and associated delivery partners across the Institute and its wider network to oversee the management of the mission.
- Encourage the Institute's and the UK's wider research community within the area of AI for Physical Systems to work together to make a global impact and engage with wider academic and industrial research sectors.
- Help grow relationships with current and prospective funders and partners within mission-relevant areas to form sustainable and mutually beneficial collaborations, working closely with the Director of Science and Innovation as well as relevant directorates such as Turing Partnerships and International.
- Contribute to the writing and development of documents and materials leading the public conversation and influencing policy in the relevant area (e.g., position papers, policy recommendations, etc).

Entrepreneurialism

- Ensure that potential for real-world application is embedded in the design and delivery of the mission's research, and develop and lead initiatives promoting the dissemination, translation, deployment and adoption of the mission's findings and outcomes.
- Create impact through efficient management of resources
- Lead and contribute to efforts of generating mission funding through a diverse range of sources

Additional Responsibilities

As part of the Turing leadership team, you will be expected to support and take part in the following:

- Collaborate with other mission and project leads to maximise delivery efficiencies and impact across domains.
- Act as a public face of the Institute, promoting its science and innovation within the mission area, nationally and internationally, and ensuring that its reputation as the UK's national centre for data science and AI is enhanced.
- Instil and promote a tenacious drive for capability across resources by promoting growth and performance.
- Contribute to securing large-scale investments (via grants, philanthropy and others) to support the Turing strategy and the national research agenda

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		
Skills and Requirements	Essential (E) Desirable (D)	Tested at application (a) Tested at interview (i)
Post holders will be expected to demonstrate the following:		
Education/Qualification		
PhD or equivalent level of professional qualifications and/or experience in data science (broadly defined to include mathematics, statistics, computer science pure or applied) or related quantitative discipline	E	A
Knowledge and Experience		
Record of research excellence in an academic, government and/or industrial setting in the area of AI for Physical Systems	E	A
In depth understanding of the national data science and AI landscape, in the context of AI for Physical Systems	E	A/I
Demonstrable experience of income generation for large scale research initiatives	E	A/I
Demonstrable ability and vision to develop and deliver large strategic initiatives	E	A/I
Demonstrable ability to build and develop effective working relationships with partner organisations and working with a diverse set of stakeholders	E	A/I
Experience of line management, and/or matrix management	E	I
Knowledge of the UK higher education sector and/or a strong understanding of current academic and commercial research in data science and AI	D	A
Communication		
Communicates complex, specialist or conceptual information clearly and persuasively, presenting compelling arguments to influence and/or negotiate satisfactory outcomes	E	A/I
Clear and effective communication skills, with and to a wide range of people and audiences at all levels (e.g., Academics, Scientists, Professional services staff, general public and others)	E	A/I
Leadership and Team Development		
Ability to provide leadership to a diverse team of scientists and engineers	E	A/I
Ability to assess and manage performance	E	A/I
Ability to work collaboratively as part of diverse multi-disciplinary teams	E	A/I
Self-motivated and impact driven	E	I
Project Management & Delivery)		
Ability to actively define, promote and monitor progress in an area of work to ensure organisational objectives and standards are met	E	I

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Demonstrable ability to plan and deliver large-scale collaborative research projects or programmes	E	A/I
Ability to lead collaborative research initiatives and manage multi-disciplinary research teams	E	A/I
Decision Making		
Ability to make long term effective strategic decisions relevant to an area of work	E	I
Ability to work in uncertainty, and to map out risks/benefits of potential solutions to problems arising	E	I
Analysis and Research		
Ability to communicate, translate and champion research findings, for optimal results to relevant stakeholders	E	A/I
Ability to develop new hypotheses and concepts for testing to expand or extend existing body of knowledge	E	A
Ability to challenge the status quo and provide approaches to explore new possibilities or explanations	E	A/I
Ability to bridge both fundamental and applied research	E	A/I
Other Requirements		
Commitment to EDI principles and to the Organisation values	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. The covering letter should address:

- Why you are applying for this position
- How you qualify for this position (see criteria under “Person Specification”)
- A statement of what area within the scope of “AI for Physical Systems” you would like to see at Turing and why (max. 2 pages plus references)
- Publication list (if not covered in CV)

If you have questions about the role or would like to apply using a different format, please contact us on 020 3862 3536, or email recruitment@turing.ac.uk

CLOSING DATE FOR APPLICATIONS: SUNDAY 20 OCTOBER 2024 AT 23:59 (LONDON, UK BST)

TERMS AND CONDITIONS

This role will be appointed on a full-time, fixed term basis for 3 years (with the possibility of extension). Part-time applications can be considered (0.5 FTE minimum) and will be discussed further with the successful applicant.

If taking the position on a part-time basis, you must be willing to commit at least 50% of your time to the Turing with a maximum of 50% of your time working on non-conflicting activities at your home organisation.

Secondments can be considered, while not preferred, and this will be discussed with the successful applicant.

The annual salary is from £89,598 with excellent benefits, including flexible working and family friendly policies, [Employee-only benefits guide | The Alan Turing Institute](#).

The Institute is headquartered in Kings Cross, London and so while we operate a hybrid working model you will be expected to spend time there each month to connect to your peer group and to work with teams across the Institute.

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.