

The Alan Turing Institute

Senior Research Associate / Research Associate – 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 300 researchers, a rapidly growing team of in-house research software engineers and data scientists and a business team.

BACKGROUND

The Turing Institute focuses on world-class science and innovation, generating internationally leading research and translating it into real-world impact and deployment. The Institute is developing research in key strategic mission areas in Environment, Sustainability, Health, Defence & National Security and Fundamental Research in AI.

We are looking for a Senior Research Associate or Research Associate to join the Fundamental Research (FR) team to develop and deploy cutting-edge AI techniques, centred around our mission to develop **AI for Physical Systems**. We are developing foundational theory, methods and tools to advance the state-of-the-art of the use of AI to model, predict and control physical systems. We work closely with the Science and Innovation priorities to operationalize the technologies developed to create substantial real-world impact.

The role holder will have expertise across one or more areas of fundamental AI, including generative AI, statistical AI, spatio-temporal modelling, physics-informed AI, AI for science, geometric AI, and/or with experience in modelling physical systems.

ROLE PURPOSE

The primary purpose of the role is to conduct internationally leading research, and the postholder will be part of the Turing Institute's Fundamental Research (FR) strategic priority area. The Senior Research Associate / Research Associate will be part of a collaborative, multidisciplinary team of researchers and research engineers, and will be expected to engage with internal and external stakeholders and collaborators to support delivery of an ambitious research programme. The postholder will lead on and work closely with other researchers and team members on various Fundamental Research activities, and more broadly in support of other Science and Innovation priorities at the Turing.

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HOW YOU WILL MAKE AN IMPACT

- Publish and disseminate high-quality research papers and publications detailing research outputs and project case-studies.
- Communicate or present research outputs to diverse stakeholders, through conferences, events, meetings, and press opportunities as appropriate.
- Adhere to and promote principles of reproducible and ethical data science and ensure secure handling of data and health and safety in all aspects of work.
- Undertake high-quality research, actively contributing to the research aims of the AI for Physical Systems Mission and the broader Fundamental Research area.
- Contribute to software development including planning, writing code, package release and management
- Engage with stakeholders to ensure that research outcomes can be deployed in the real world.
- Support the preparation of proposals, applications and reports to external bodies, e.g., for funding and contractual purposes.
- Present, disseminate and explain our work at meetings/events and contribute to both the internal and external visibility of the Institute.

Additional duties for Senior Research Associate level

- Provide technical project management and leadership for research projects, ensuring successful outcomes
- Define the research direction in collaboration with Principal Investigators (PIs).
- Be a point of contact, supporting PIs in engaging with stakeholders regarding projects and deputising in meetings where necessary.
- Take the lead on writing up findings as they emerge, producing and developing reports, and developing publications in peer reviewed journals, in collaboration with the research team.
- Lead on the preparation of proposals and applications to external bodies, e.g., for funding and contractual purposes.
- Take responsibility for driving collaboration with academic experts and broader research partners from across the Turing, and the wider Turing and external community.
- Manage and/or provide leadership and mentorship of junior team members, such as PhD students, interns or other early-career members of the team.
- Play a leading role in undertaking high-quality independent research, actively contributing to and steering the broader research aims of the Turing Fundamental Research area and missions.
- Liaise with Turing FR mission leadership, partners and colleagues to define, understand and prioritise research direction and goals, and balance partner or stakeholders value with research outputs

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 Post holders will be expected to demonstrate the following:	Essential (E) Desirable (D)	Tested at application (a) Tested at interview (i)
Knowledge and Experience		
A PhD (or equivalent experience and/or qualifications) in a relevant area which will include machine learning, AI, computer science, mathematics, statistics, physics, engineering or similar inter-disciplinary subjects.	E	A
A solid background in Statistical Machine Learning and/or Scientific Machine Learning, with specific experience in one or more of the following: probabilistic and generative modelling (e.g. flow matching, denoising diffusion models), neural operators, surrogate modelling, uncertainty quantification for ML models, conformal prediction, the application of ML modelling to physical systems.	E	A I
Experience in developing research software codes and libraries (in Python or Julia), ideally with experience in writing code for GPU through frameworks such as Tensorflow, Pytorch, JAX, etc.	E	A I
Track record of the ability to initiate, develop and deliver high quality research aligned with the mission's research strategy, appropriate to career stage.	E	A I
Evidence of high-quality publication(s) in a relevant field commensurate with your career stage	E	A
Excellent written and verbal communication skills including the ability to present complex or technical information, and to communicate effectively with diverse audiences	E	A I
Ability to adapt the style of communication to the audience and ensure understanding	E	A I
Ability to work effectively both as part of a team and in cross collaboration with other teams as required by the role	E	I
Ability to take the initiative, and carry out research independently or collaboratively under the guidance of the PI	E	A/I
Ability to negotiate and influence others	E – Senior Research Associate	I
Demonstrable experience of leading research projects	E – Senior Research Associate	A/I
Ability to carry out research independently and take the lead on writing up findings as they emerge	E – Senior Research Associate	A I
Ability to take the lead on research direction in collaboration with the PIs	E – Senior Research Associate	I
Previous experience overseeing, supervising or mentoring more junior colleagues' work	E – Senior Research Associate	A I
Experience in scoping and investigating independent research questions within a given overarching theme	D	A I
Ability to seek opportunities to make improvements and be proactive in identifying sources of funding/income	D	I
Other requirements		
Commitment to EDI principles and to the Organisation values (outlined below)	E	I

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APPLICATION PROCEDURE

If you are interested in this opportunity, please click the apply button on our careers website. 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 at recruitment@turing.ac.uk.

The covering letter (Max. 2 pages) should address:

- Which role you are applying for and why you are applying for this position
- How you qualify for this position (see criteria under “Person Specification”)
- Publication list (if not covered in CV, can be in addition to the 2-page cover letter)

TERMS AND CONDITIONS

This full-time post is offered on a fixed term basis for 2 years (possibility of extension, dependent on funding).

The annual salary range is £45,505 - £51,465 for Research Associate level / £57,000 - £58,482 for Senior Research Associate level. Our offers include the excellent benefits, including flexible working and family friendly policies, [Employee-only benefits guide | The Alan Turing Institute](#)

Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant at a salary of £42,593 per annum.

The Alan Turing Institute is based at the British Library, in the heart of London’s Knowledge Quarter. We expect staff to come to our office at least 4 days per month. Some roles may require more days in the office; the hiring manager will be able to confirm this during the interview.

EQUALITY, DIVERSITY AND INCLUSION

The Alan Turing Institute is committed to creating an environment where diversity is valued and everyone is treated fairly. We value diversity of background, experience, and perspective, and are proud to be an inclusive employer. We warmly encourage applications from all backgrounds, particularly from groups currently under-represented in our sector. If you feel passionate about this role but don’t meet every single requirement, please apply — we recognise that great candidates may bring strengths beyond the criteria listed.

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 recruitment@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.

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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