The Alan Turing Institute

Postdoctoral Research Associate – Molecular Biology

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

The Environment and Sustainability research initiative funded through the AI for Science and Government research programme (ASG) at The Alan Turing Institute ('the Turing') is looking to recruit a Postdoctoral Research Associate (PDRA) to develop new methods to identify, extract and refine molecular structures from cryo-electron microscopy image data. The candidate will work with an interdisciplinary team at the Turing and in close collaboration with groups at the Rosalind Franklin Institute ('the Franklin'). Applications are welcome from a wide range of disciplinary backgrounds, including the biological and physical sciences, computer science, statistics, or mathematics, and particularly from candidates whose prior research has a strong computational focus.

ROLE PURPOSE

The PDRA will work as part of a team to develop computer vision and machine learning approaches to enable the intelligent sampling of cryo-electron microscopy image data. These approaches may be informed by prior knowledge and/or physical models of molecular structure, with the aim of determining molecular structures with enhanced resolution, and detail regarding dynamic states.

The PDRA will play an active part in all aspects of research from data preparation, to the development of research questions, modelling and analysis, and writing up/publication. Technical meetings will take place between the partner institutions, establishing a robust platform for developing future programmes between the biological sciences, the Turing, the Franklin and the wider scientific community. This is a collaborative research role and so it is crucial that you enjoy working with others within an interdisciplinary research environment.

DUTIES AND AREAS OF RESPONSIBILITY

- To develop ML or relevant techniques to understand, interpret, augment and extract features from experimental datasets
- Implement these techniques in a commonly used programming language, like Python
- Gather, curate and generate annotated datasets that can be used to develop ML algorithms
- To work collaboratively with researchers, senior investigators from across the Turing, the Franklin, and external partners on the project.
- Regular contact with staff internally and with the collaborators across the Franklin, STFC and Turing Institute sites
- Assist in organising and coordinating technical meetings and relevant project events as appropriate
- To attend and present research findings and papers at academic and professional conferences, and to contribute to the external visibility of the Turing and the Franklin.
- To participate in the organisation of research workshops and other events.
- To help create a friendly and approachable community of biosciences-focused experts, datasets and engineers, and facilitate integration with Turing's research programmes.

OTHER DUTIES

- Teaching may be required as part of collaboration work

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.

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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)**
Education/Qualification		
A PhD or equivalent level of experience in biological and physical sciences, computer science, statistics, or mathematics, and particularly from candidates whose prior research has a strong computational focus	E	A
Knowledge and Experience		
Demonstrable experience of coding in a language suitable for data science (e.g. python, R)	E	A/I
Familiarity with one or more machine learning toolsets (e.g. SciKit Learn, TensorFlow, PyTorch, etc.)	E	A/I
Experience in managing, structuring, and analysing research data	E	A/I
Demonstrable interest in methodological advances in biological sciences.		
Proven experience of developing statistical and computational models to address challenging research problems	E	A/I
Experience in structural biology, bioinformatics or computational biology	D	A/I
Experience in cryoEM or optical microscopy method development or application	D	A/I
Evidence of algorithm development for scientific research	D	A/I
Experience with creating dynamic websites or web API's	D	A/I
Proven track record of working with large datasets and writing scalable code	D	A/I
Experience and/or interest in scientific communication	D	A/I
Communication		

	E/D	A/I
Excellent writing skills and proven ability to communicate complex, specialist or conceptual information/research findings clearly and persuasively to diverse audiences.	E	A/I
Teamwork and Motivation		
Ability to work effectively across disciplinary boundaries, both as part of an interdisciplinary team and in close collaboration with external partners in different disciplines	E	A/I
Liaison and Networking		
Participates in networks within the organisation or externally to share knowledge and information in order develop practice or help others learn.	E	A/I
Decision Making		
Independently makes decisions which are low risk and that mainly affect themselves or a small number of people and are guided by regulation and practice.	E	**A/I**
Planning and Organising		
Ability to initiate, plan, organise, implement and deliver programmes of work to tight deadlines.	**E**	**A/I**
Initiative and Problem Solving		
Creatively solve problems, working both independently and with other team members.	E	A/I
Analysis and Research		
Ability to identify or design computational and statistical analysis approaches to address specific research questions	E	A/I
Ability to use own judgement to analyse and solve problems.	E	**A/I**
Teaching and Learning		
Teaching may be required	E	A/I
Other Requirements		
Commitment to meeting deadlines	E	I
Flexible attitude towards work	D	I
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. If you have questions about the role or would like to apply using a different format, please contact us on 020 3862 3575 or 0203 862 3340, or email recruitment@turing.ac.uk.

CLOSING DATE FOR APPLICATIONS: 23 January 2022 at 23:59

TERMS AND CONDITIONS

This full time post is offered on a fixed term basis to 31 January 2025. The annual salary is £37,000 - £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 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***.***