

The Alan Turing Institute

Research Associate

THE ALAN TURING INSTITUTE

The Alan Turing Institute (the Turing) is the national centre for data science and artificial intelligence, established in 2015 with the mission to make great leaps in transformational data science research that will have positive real-world impacts.

The Institute has cross-disciplinarity at its core; we bring researchers in mathematics and theoretical computer science, statistics and machine learning, algorithms for data analytics and distributed computing, computational social science and data ethics, software engineers and industry partners, to work together in an open and collaborative environment with a shared goal to generate world-class research in data science and artificial intelligence.

The Institute is motivated by driving impact, both through theoretical development and application to real-world problems. In our first year, we have identified six priority domains to focus our translational research: data-centric engineering; defence and security; urban analytics; computing technology; financial services; and health, with artificial intelligence informing work across the Institute.

We have attracted strategic partnerships with a broad range of data science users including the Lloyd's Register Foundation, Intel, the UK Government Defence and Security sector and HSBC. We have already announced a collaboration with the Office of National Statistics (ONS) Data Science Campus and are actively developing partnerships with other government departments.

Our researchers are motivated by driving impact, both through theoretical development and application to real-world problems. In our first year we have identified eight challenge areas to focus our translational research:

- Fostering Government Innovation;
- Supercharging research in science and humanities;
- Designing computers for the next generation of algorithms;
- Making algorithmic systems fair, transparent and ethical;
- Shining a light on our economy;
- Managing security in an insecure world;
- Delivering safer, smarter engineering;
- Revolutionising Healthcare.

We invite you to join us as we grow our research community, supporting our goal to develop the next generation of data science leaders, shape the public conversation, and push the boundaries of this new science for the public good.

The Institute is headquartered at The British Library, and brings together researchers from a range of disciplines – mathematics, statistics, computer science, engineering and social sciences, – from thirteen leading universities and industry partners.

THE ROLE

As a Post-Doctoral Research Associate (RA) you will work closely with PIs on projects across applied areas of data science and artificial intelligence. We are looking for those who have a clearly indicated interest in Health, Urban Analytics, Complex Engineering Systems, and Policy (including the research priorities of government departments, such as the Home Office or Ministry of Justice).

DUTIES AND RESPONSIBILITIES

- Contribute statistical and machine learning skills to the various elements of the project.
- Working closely with the PI, Co-Is and domain experts to develop a good understanding of the challenges in this domain and potential solutions.
- Support the Principal Investigator and research group in the design and development of the research programme.
- Conduct studies of related literature and research to support the design and implementation of projects and development of reports, ensuring conceptual relevance, comprehensiveness, and currency of information.
- Conduct a specified programme of research to advance the aims of the project under the supervision and direction of a Principal Investigator, working with the Institute team, including research assistants, research associates, software engineers, data scientists and PhD students.
- Engage in appropriate training and professional development opportunities as required by the Principal Investigator.
- Write and publish articles in peer-reviewed journals/digests that highlight findings from research ensuring consistency with the highest standards of academic publication and showcasing the Institute's research leadership.
- Develop collaborative links with research personnel in related programme areas to gain exposure to, and build knowledge on research activities and approaches, to subsequently improve conceptual development and implementation of existing programmes.
- Communicate to Programme/Project team developments/progress and results of research activities ensuring that relevant information and issues in the implementation of projects/experiments are captured in as comprehensive and timely manner as possible.
- Carry out administrative and management work associated with the programme of research.
- Provide regular updates on progress to the team.

We welcome candidates who can start within the next month or two, including those who will submit their PhD thesis in the near future.

PERSON SPECIFICATION

ESSENTIAL

Candidates must be able to demonstrate, through examples, the below capabilities:

- A PhD degree or equivalent professional experience in a field with significant use of both computer programming and advanced statistical or numerical methods.
- Experience managing, structuring, and analysing research data.
- Experience managing and evaluating the ethical implications of a project.
- Experience managing and organising the parameters and results of computational experiments.
- Fluency in one or more modern programming languages used in research in data science and artificial intelligence. (We particularly work in R, Python, and modern C++, but demonstrable use of other programming languages for research, together with a facility for learning new languages, is most welcome.)
- An understanding of the importance of good practices for producing reliable software and reproducible analyses (e.g. version control, issue tracking, automated testing, package management, literate analysis tools such as Jupyter and Rmarkdown)
- Demonstrated enthusiasm and ability to rapidly assimilate new computational and mathematical ideas and techniques on the job, at a more than superficial level, and apply them successfully.

- Excellent written and verbal communication skills, including experience in the visual representation of quantitative data, the authoring of research papers or technical reports, and giving presentations or classes on technical subjects.
- Ability to lead one's own work independently, including planning and execution, and to collaborate productively as part of a team.

DESIRABLE

- Machine learning.
- Mathematical and computational modelling of complex systems.
- Computational statistics, particularly Bayesian modelling.
- Logic, planning, verification, and automated reasoning.
- User interface design and development with web technologies, especially for data visualisation and knowledge representation.
- Experience working with confidential and sensitive data for research.
- Working with databases and APIs for the acquisition of parameter information for models.
- Exposure to mixed or qualitative research methods.
- Experience using graphical methods and non-parametric tests.
- Topological data analysis.
- Hypergraph theory.
- Information system design.

CONTRACT TYPE

Fixed term up until 2023 for part time for those pursuing a part-time PhD, with possibility for extension (funding permitting); fixed term up until 2021 for full time, with possibility for extension (funding permitting).

SELECTION PROCEDURE

Application

Along with a CV and covering letter, please submit a research output to support your application, for us to read before the interview. This might be a link to a selected research or technical paper, a technical blog post or a chapter of a thesis or dissertation, but we particularly encourage applicants to submit a link to a public version control tool such as GitHub containing an example analysis script or research software library they have made a significant contribution to. You will be asked questions on this output as part of the interview.

Interview

Candidates will be expected to, as part of their interview:

- Prepare a presentation on what you would bring to a project in one of the four areas (health, urban analytics, complex systems engineering, and policy).
- Answer a challenging question on data analysis for research, using a whiteboard and pen to sketch their understanding of a proposed data challenge.

HOW TO APPLY

If you are interested in this opportunity, please send your CV, with contact details for your referees and a covering letter to jobs@turing.ac.uk. We encourage applications from those who are able to commence the post as soon as possible.

If you have questions or would like to discuss the role further with a member of the Institute's HR Team, please contact them on 0203 862 3375 or email jobs@turing.ac.uk.

CLOSING DATE: Rolling recruitment. Applications reviewed regularly

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, gender reassignment, marital and civil partnership status, pregnancy, religion or belief or sexual orientation. Reasonable adjustments to the interview process can also be made for any candidates with a disability.

Please note all offers of employment are subject to continuous eligibility 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.