

The Alan Turing Institute

Data Scientist, Defence and Security

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 Defence & Security (D&S) Programme at the Alan Turing Institute is seeking to establish a new research and innovation team to work on AI Security. The aim is to further cutting-edge research and engineering approaches to solve real-world problems in AI/ML security, working in close collaboration with Government partners such as select UK universities. Following in the footsteps of the institute's namesake, Alan Turing, the team operates at the intersection of mathematics, engineering and computing and works in close collaboration with the Turing's National Security partners.

As a team, we bring together cutting-edge research and motivating mission challenges, using our data science, software engineering and stakeholder management skills to create next generation capabilities for our partners. Day to day, we collaborate with technical and subject matter experts from our partner organisations as well as academics, software engineers, and data scientists from across the Turing's research community. We present our work to a range of audiences including research colleagues, senior decision makers and non-technical stakeholders. We work with state-of-the-art cluster and cloud platforms to realise our collaborators' data science and artificial intelligence research at scale.

We are a cross-disciplinary team and encourage applications from both generalists and specialists including those who self-identify as software engineers, computer scientists, machine learning practitioners, mathematicians, statisticians or more widely as data scientists or data engineers. In particular, applicants focussed predominantly on either applied research or software engineering are most welcome as well as applicants interested in operating at the intersection.

The team practices an agile, experiment-driven approach and values a positive, supportive, and collaborative environment in which 'radical candour' and 'lifelong learning' are encouraged. We embrace failure as a learning opportunity and necessary precursor to success.

Eligibility for Security Check (SC) clearance is a requirement for this role. Eligibility criteria and further information on the process can be found on the UK Government security vetting [website](#).

IDEAL CANDIDATE

The ideal candidate would have a breadth of data science experience, ranging from the mathematical to the engineering, and who has a passion for, or experience in delivering real world impact via machine learning applications. Experience in some of; deep learning, geometry, differential privacy, manifold learning, topology or fully homomorphic encryption are desirable but not essential. The role could suit:

- A Mathematician, wanting to solve problems of value to our partners.
- A Data Scientist, looking a recreating the academic literature on datasets of interest.

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- A Software Engineer with a passion for productionising research data science in a scalable and performant manner.

DUTIES AND RESPONSIBILITIES

- Understand the problems of the Turing's partners and develop appropriate approaches to solving these problems.
- Perform experiments and develop capabilities, which might include building and deploying machine learning models; applying data science, statistical and algorithmic techniques to data; building microservices, data processing/engineering systems and platforms or developing user interfaces and/or visualisations.
- Develop, implement and adapt state-of-the-art and novel data science and artificial intelligence techniques emerging from the Institute and elsewhere to problems faced by the Turing's partners.
- Present, disseminate and explain our work including Documenting capabilities, processes, and systems for effective and efficient reuse across multiple domains; Presentation at Defence and Security programme events including monthly meetups and wider Turing events; Presentation at Partner reading groups, conferences and to Partner stakeholders; Publication, support and maintenance of research/prototype software.
- Work at pace, in a highly collaborative environment, using industry standard tooling for testing, version control and collaboration to create software artifacts that can be shared with Turing's partners.
- Contribute to a culture of technical excellence within the Institute, for example by leading sessions for internal reading groups.

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	Essential (E) Desirable (D)	Tested at application (A) Tested at interview (I)
Post holders will be expected to demonstrate the following		
Education/Qualification		
A PhD degree or equivalent professional experience in a field with significant use of both computer programming and advanced algorithmic, statistical or numerical techniques.	E	A
Undergraduate-level degree or higher in computer science, data science, mathematics, statistics, software engineering or a related-discipline.	E	A
Knowledge and Experience		
Professional experience in a field or sector with significant use of both computer programming and advanced algorithmic, statistical or numerical techniques.	E	A/I
Fluency in one or more modern programming languages used in data science. We predominantly work in Python, but demonstrable use of other programming languages (e.g. modern C++/C#, Java, Scala, Julia, R, Javascript, Rust, Go) together with a facility for learning new languages.	E	A/I
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).	E	A/I
Experience working with customers to identify, understand and refine problems, scoping data science work to solve them.	E	A/I
Experience conducting and publishing research to a wide audience.	E	A/I
Experience managing, structuring, and analysing research data as well as experience managing and organising the parameters and results of computational experiments.	E	I
Designs and uses data gathering and analytical methods appropriate for each investigation, conducting robust analysis, questioning assumptions and existing knowledge.	E	I
Direct experience developing and deploying technologies in support of Defence and National Security organisations.	D	A/I
Experience machine learning, including with one or more established software libraries (e.g. Tensorflow, Keras, PyTorch, scikit-learn).	D	A/I
Experience working with (relational and non-relational) databases and APIs to access data programmatically using query languages (e.g. SQL, Elastic Query DSL, GraphQL).	D	A/I
Experience of developing analytics suited to large-scale data processing (e.g. Spark).	D	A/I
Experience of deploying and maintaining developed capabilities operationally.	D	A/I
Experience with user interface design and development with web technologies, especially for data visualisation and knowledge representation.	D	A/I
Communication		

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Excellent written and verbal communication skills, ability to explain complicated matters simply, tailoring delivery methods/media to suit the audience's needs and ensure understanding and without compromising meaning.	E	A/I
Analysis and Research		
Ability to rapidly assimilate new computational and mathematical ideas and techniques on the job, at a more than superficial level, and apply them successfully.	E	I
Ability to contribute and maintain research software projects.	D	A/I
Ability in analysis and research techniques including automated testing, software quality assurance, infrastructure-as-code and continuous integration, developing for containerised, and micro-service focussed deployment (e.g. Docker, Kubernetes).	D	A/I
Initiative and Problem Solving		
Ability to lead one's own work independently, including planning and execution, and to collaborate productively as part of a team.	E	I
Visualisation for understanding large, complex, or high-dimensional data.	D	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	I
Decision-Making Processes and Outcomes		
Works with others to make collaborative decisions that may be operational or strategic and impact immediate team or work area only.	E	I
Other Requirements		
Commitment to EDI principles and to the Organisation values.	E	I
Able to obtain and retain Security Check (SC) clearance once in post, if not already held.	E	A/I

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Our Values

EQUALITY, DIVERSITY AND INCLUSION

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
- Inclusion**
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 (maximum 3 pages, no photo) and covering letter (maximum 2 pages). If you wish to share links to blog posts, public code repositories or research papers containing work that you have made significant contribution to, please add a link to those in your cover letter.

For questions about the role and the recruiting process please get in touch with us at recruitment@turing.ac.uk. If you 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 11 AUGUST 2024 AT 23:59 (LONDON, UK BST)
We reserve the right to close this vacancy early or to interview suitable candidates before the closing date if enough applications are received.

TERMS AND CONDITIONS

This full-time post is offered on a fixed-term basis until 31 March 2026. The annual salary is £44,180 - £49,749, plus excellent benefits including flexible working and family friendly policies, <https://www.turing.ac.uk/work-turing/why-work-turing/employee-benefits>. This post requires an immediate start taking into consideration notice period.

Eligibility for Security Check (SC) clearance is a requirement for this role. Eligibility criteria and further information on the process can be found on the UK Government security vetting [website](#).

The successful candidate will be required to undergo a pre-screening check. This check will be carried out by HMG Defence and Security Partners. Please be advised, by submitting your application you are consenting to this check, and your personal details (full name, date of birth and home address) to be passed onto our HMG Defence and Security Partners to carry out this check.

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.

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.