

# The Alan Turing Institute

**Principal Data Scientist, AI Security Research**

## 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.

## ROLE PURPOSE

The Principal will take lead in forming a new research group and develop an R&D portfolio to reflect the biggest challenges in the AI security domain. These challenges, held in a 'problem book', will reflect areas where government partners are most in need of new paradigms, tools and techniques, as well as where Turing as the national AI research institute is best placed to support this agenda. The challenges could range from AI model provenance to security of compressed ML and the post-holder will be expected to shape the research direction. This is a unique opportunity to contribute to a national effort and build a world-leading group within this field.

The role is suited to candidates who are both familiar with the national security domain and the application of research to national security challenges and are themselves a researcher or engineer in data science and artificial intelligence with an outstanding track record of research or similar experience across related disciplines and with deep interests in methods and approaches for tackling real-world problems.

**DV security clearance is an essential requirement for this role. Eligibility criteria and further information on the process can be found on the UK Government security vetting [website](#).**

## DUTIES AND AREAS OF RESPONSIBILITY

Your core responsibilities will be as follows:

- Defining and maintaining the research strategy of the team, specifically providing scientific leadership on 'AI security' with responsibility for developing and delivering on the problem book. This means driving the research agenda through an applied lens, whereby the outputs are of high utility to our national security partners.
- Undertake wider approaches as necessitated to establish an effective R&D effort, i.e. more 'upstream' research to solve complex problems that are meaningful in the context of national security.
- Provide technical leadership and oversight of research development, responsible for delivering high quality outputs

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including code, technical reports, demos and papers.

- Establish an R&D team with the appropriate skills and expertise to meet research needs of the team, and line manage staff, supporting their career development aspirations.
- Prioritise and promote an iterative, experimentation-led and outcome-focused R&D culture.
- Engage key stakeholders, maintaining positive and productive relationships with required partners in Government and UK universities.
- Work collaboratively across Turing business areas to ensure the smooth running of the group and reporting to partners, including Programme Management team to ensure effective and timely reporting.
- Support appropriate governance protocols by helping to establish these and providing ongoing contributions to enable effective oversight of the group.
- Participate in the D&S Leadership Group by attending team meetings and contributing where appropriate with updates, ideas and/or technical knowledge to support the Institute's wider aims.

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:		
<b>Education/Qualification</b>		
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, engineering, data science, mathematics, statistics or a related-discipline	E	A
<b>Knowledge and Experience</b>		
Direct experience developing and deploying technologies in support of UK Defence and National Security organisations.	E	A/I
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. In particular, we predominantly work in Python, but demonstrable use of other programming languages (e.g. modern 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 in making or evaluating the case for new projects (e.g. authoring or evaluating research proposals or business cases) and leading projects from ideation, scoping including developing budgets, and delivery through to impact.	E	A/I
Experience in managing a team and setting strategic direction at a team level.	E	A/I
Experience in networking to build collaborative relationships and leading collaborative groups. Including active collaboration and promotion of collaborative achievements.	E	A/I
Experience with public cloud platforms and related technologies.	D	A/I
Experience managing, structuring, and analysing research data as well as experience managing and organising the parameters and results of computational experiments.	D	I
Machine learning, including experience with one or more established software libraries (e.g. Tensorflow, Keras, PyTorch, scikit-learn).	D	I
Working with (relational and non-relational) databases and APIs to access data programmatically using query languages (e.g. SQL, Elastic Query DSL, GraphQL).	D	I
Experience of developing analytics suited to large-scale data processing (e.g. Spark).	D	I
<b>Communication</b>		
Excellent communication, negotiation and influencing skills at all levels.	E	A
Able to present complex information in an audience-appropriate format.	E	A/I
<b>Initiative and Problem Solving</b>		

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Able to use own initiative to resolve problems and with awareness of the impact of resolving problems in the selected manner.	E	A
Able to make well-informed decisions with minimal risk in extraordinary circumstances and consider the potential wider benefits.	E	A
<b>Analysis and Research</b>		
Develops new hypotheses and concepts for testing to expand or extend existing body of knowledge.	E	A/I
Challenge the status quo and provide approaches to explore new possibilities or explanations.	E	I
Able to identify ways of improving research outcomes and programme impact.	E	A/I
<b>Team Development</b>		
Ability to lead a team including performance reviews, appraisals and monitor performance of team.	E	A/I
Experience developing and leading internal teams, developing team knowledge and improving team efficiency, coaching and mentoring where needed.	E	A
<b>Planning and Organising</b>		
Set performance standards and formulates action plans, monitoring and reviewing progress regularly.	E	A
Undertake medium-term resource planning in-line with department objectives, identifying and highlighting any potential issues as required, to influence future plans.	E	I
<b>Other Requirements</b>		
Commitment to EDI principles and to the Organisation values.	E	I
An existing UK Government security clearance holder of 'Developed Vetting' (DV).	E	A

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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 3970 2148 or 0203 862 3340, or email [recruitment@turing.ac.uk](mailto:recruitment@turing.ac.uk).

**CLOSING DATE FOR APPLICATIONS: TUESDAY 09 JULY AS 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 for two years. The annual salary is £75,732 - £80,000 plus excellent benefits, including flexible working and family friendly policies, <https://www.turing.ac.uk/work-turing/why-work-turing/employee-benefits>

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## 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.

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](mailto:HR@turing.ac.uk).***