The Alan Turing Institute

Research Engineer

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 programme at the Turing is looking to expand a high performing team of research engineers working on real-world problems aligned with securing the UK. 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 candor'* and '*lifelong learning'* are encouraged. We embrace failure as a learning opportunity and necessary precursor to success. We are empowered to take ownership of our work and operate with a high level of autonomy in our roles, to deliver measurable impact to our partners.

This role will be based at the hub8 working space in Cheltenham.

SC 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: https://www.gov.uk/government/publications/united-kingdom-security-vetting-clearance-levels/national-security-vetting-clearance-levels#security-check-sc

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DUTIES AND RESPONSIBILITIES

Successful candidates will:

- Understand the problems of the Turing's partners and develop appropriate approaches to solving these problems.
- Develop capabilities, which might include: deploying machine learning models; 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

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)**
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.	**D**	**A**
Undergraduate-level degree or higher in computer science, data science, mathematics, statistics 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. 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 managing, and structuring research data as well as experience managing and organising the parameters and results of computational experiments.	**D**	**A/I**
Direct experience developing and deploying technologies in support of Defence and National Security organisations.	**D**	**A/I**
Machine learning experience with one or more established software libraries (e.g. Tensorflow, Keras, PyTorch, scikit-learn).	**D**	**A/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**	**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**
User interface design and development with web technologies, especially for data visualisation and knowledge representation.	**D**	**A/I**
Experience with public cloud platforms and related technologies.	**D**	**A/I**
Communication		
Excellent written and verbal communication skills, demonstrated by, for example, experience in the documentation of software packages or data resources, the authoring of technical reports, or giving presentations or classes on technical subjects.	**E**	**A/I**

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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**
Analysis and Research		
Ability to contribute to, and maintain, research software projects.	**E**	**I**
Automated testing, software quality assurance, infrastructure-as-code and continuous integration.	**D**	**I**
Developing for containerised, micro-service focussed deployment (e.g. Docker, Kubernetes).	**D**	**I**
Other Requirements		
Commitment to EDI principles and to the Organisation values	**E**	**I**
Hold or be able to obtain Security Check (SC) clearance	**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.

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, covering letter and contact details for your referees. If you have questions about the role or would like to apply using a different format, please contact them on 0203 862 3340, or email recruitment@turing.ac.uk.

CLOSING DATE FOR APPLICATIONS: 14 June 2023 at 23:59

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.

Obtaining and holding a Security Check (SC) clearance will be an essential requirement for this role. Candidates will either hold a SC clearance at application stage or apply for SC clearance upon appointment, and secure SC clearance within 6 months of the commencement of their employment, or in such longer period as the Institute may in its absolute discretion consider reasonable to obtain such clearance. Eligibility criteria and further information on the process can be found on the UK Government security vetting website: National security vetting: clearance levels - GOV.UK (www.gov.uk)

To obtain this clearance there are nationality requirements. Applicants should check whether they are eligible to apply for SC clearance before applying to this role.

Candidates who are not granted, or unable to hold SC clearance will be ineligible to undertake this role.

TERMS AND CONDITIONS

This full-time post is offered on a permanent basis. The annual salary is £42,893 - £48,300 plus excellent benefits including flexible working and family friendly policies, https://www.turing.ac.uk/work-turing/why-work-turing/employee-benefits

Those holding SC clearance will receive a market supplement in recognition of this clearance. If you do not hold this clearance upon commencement of employment, you will receive the market supplement from the date you successfully gain SC clearance.

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***.***