The Alan Turing Institute

DATA STUDY GROUP (EARLY-CAREER) PRINCIPAL INVESTIGATOR

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 purpose is to make great leaps in data science and AI research to change the world for the better. Its goals are to advance world-class research and apply it to national and global challenges, build skills for the future by contributing to training people across sectors and career stages, and drive an informed public conversation by providing balanced and evidence-based views on data science and AI.

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

Data Study Groups (DSG) are the Turing's version of a hackathon, yet much more collaborative in nature. DSG events are held a number of times over a year. They provide an engagement tool for postgraduate students and above (participants), as well as industry, government and third sector (Challenge Owners, CO) to engage with the Turing Institute. For participants it is a training activity, primarily peer to peer learning, where they get to work on real-life data science problems. For COs, it is an entry level engagement tool to working with the Turing, with our objective to develop the outputs of the DSG into further and bigger research projects.

DSGs require both logistical planning and data science expertise to help prepare challenges for the events, which is provided by a multidisciplined team coordinated by the Institute.

ROLE PURPOSE

The DSG Principal Investigator (DSG PI) will be required to take academic ownership of a singular DSG challenge. They are responsible for:

- **Scoping** the overall DSG challenge into something that will be suitable for DSG participants
- **Supporting** the DSG participants during the event and acting as quality control on what they write, code and developed solutions, (e.g., completeness and scientific integrity)
- **Reporting** to ensure the final report is of publishable quality for the Turing website, qualifying the outcomes and suggesting how the DSG project can be developed into a broader and longer-term research project.

This is an opportunity for early career researchers (post PhD) to gain valuable real-world experience working collaboratively with industry, government or third sector. Support and training will be offered in and around ethics, communicating with industry and project design.

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DSG Challenges:

- **Detection of oil leaks from shipwrecks in satellite Synthetic Aperture Radar images**

An estimated 2.5 to 20 million tonnes of oil is still stored in shipwrecks around the world. As shipwrecks rust, or are torn apart for illegal metal salvaging, leaks will occur, often with negative environmental impacts. When a shipwreck starts leaking it is essential to detect as soon as possible so that action can be taken. Oil spills in the ocean can be detected on Synthetic Aperture Radar (SAR) images.

This challenge seeks to detect oil spills produced by sunken ships on satellite SAR images using machine learning image analysis.

The challenge data consists of a time series of satellite tiny images made up of 50 or more snapshots over the site of a known wreck for each studied site. The truth is given by labelled rasters with three categories: land, sea surface and potential oil spill. The location of the wreck on the image is known as well as wind speed, which affects detectability.

This study aims to automatically detect actively leaking shipwrecks in an easily scalable and efficient way.

- **Supply-demand gaps and trends in recruitment for AI roles across the UK labour market**

The Alan Turing Institute works closely with several industry, professional and governmental bodies in the skills ecosystem. The Turing has led the development of a framework with government partners to define high-level competencies required to enable responsible and safe AI adoption. The project empowers businesses to understand the competencies required to deliver value from AI and its underpinning technologies. We believe a **competency-based** approach is essential to underpin more equitable recruitment practices, to support organisations in identifying upskilling routes for their existing workforce and develop a pipeline of higher-skilled talent.

This challenge will seek to analyse:

- supply-demand gaps for AI competencies across the UK labour market
- emerging trends in the recruitment practices for data science and AI roles in the UK.
- exposure risk to different types of roles in the UK

DUTIES AND AREAS OF RESPONSIBILITY

Scoping: The DSG PI leads on the academic design of a challenge, working closely with the Challenge Owner. The DSG PI is the academic lead, the CO the problem and context giver. The DSG PI will scope the problem, taking it from an industrial/commercial problem and turning it into a multi-directional academic challenge that can be presented to participants for the DSG and tackled in four days (nine days if event is online). This includes ensuring the problem is novel, the data is enough to support a solution, and that potential solutions are not too complex to implement.

Supporting: During the event itself, the DSG PI should provide academic input and suggestions to the group about the challenge. They should not direct but support the group in what they are investigating. The DSG PI will be supported by a facilitator (taken from the group cohort) who will manage the day-to-day group coordination during the DSG event. The DSG PI will also need to review the contents of the report, ensuring that the narrative is coherent and well-organised, relevant to the DSG question, and scientifically rigorous (e.g., with assumptions and shortcomings clearly stated, and achievements not over-stated).

Reporting: The project will conclude with a published report (on the Turing website); co-authored by the DSG group and finalised by the DSG PI. As part of this, the DSG PI will further evaluate the results and expand on potential follow-on engagement opportunities to continue the work started during the DSG.

DSG PIs will also need to keep a work diary of what they are doing and for how long and log in the HR Portal. This will be for monitoring and payment.

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For more detailed overview of the role, the prospective candidate should review the DSG PI supplementary doc.

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 or equivalent experience and/or qualifications) in a relevant area, which will include Statistics, Mathematics, Engineering, Computer Science, or related discipline.	E	A
Knowledge and Experience		
Familiar in a wide range of data science and AI techniques particularly relevant for the challenge at hand	E	A I
Fluency in one or more modern programming languages used for research in data science and artificial intelligence (e.g. Python)	E	A
Coordinating and editing a multi-author academic paper or report	E	A
Experience in designing an academic study with experiments	E	A I
Experience managing, structuring and analysing research data	E	A I
Ability to rapidly assess industrial/commercial problems and come up with possible idea and techniques in how to solve them	D	A I
Industry or consultancy experience in data science problems/context	D	A
Experience working with multi-disciplinary groups towards a common goal	D	A I
Participated in a Turing Data Study Group Event	D	A
Communication		
Excellent communication, negotiation and influencing skills at all levels	E	I
Able to present complex information in an audience-appropriate format	E	A I
Decision Making		
Ability to confidently make low-risk decisions after assessing the wider impact	E	I
Able to contribute to discussion and make decisions as part of a team	E	I
Planning and Organising		
Manages time and resources effectively; routinely monitoring and reviewing progress to ensure effective working of self and others	E	A I
Ensures work is completed to expected standards, timeframes and budgets and in line with personal/team/service area objectives	E	A I
Initiative and Problem Solving		
Resolves complex problems that occur infrequently where guidance, if available is not specific.	E	A I

Analysis and Research		
Develops new hypotheses and concepts for testing to expand or extend existing body of knowledge.	E	A I
Challenges the status quo and provides mechanisms and approaches to explore new possibilities or explanations	E	A I
Other Requirements		
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.

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 3536 or email recruitment@turing.ac.uk.

The cover letter (up to 2 pages) should demonstrate your ability to suggest multiple potential methodological approaches to the challenge being applied for, as well as demonstrate:

- Experience in applied data science
- Willingness for multi-disciplinary collaborative work

- Enthusiasm for working with industry, government and third sector to take their business problems and convert into data science research projects

CLOSING DATE FOR APPLICATIONS: SUNDAY 27 APRIL 2025 AT 23:59 (LONDON, UK, BST)

TERMS AND CONDITIONS

This is a zero-hour contract until 1 April 2026. The hourly rate is £29.48.

Time commitment is an average of 135 hours (however, this could increase or decrease dependant on the challenge), typically spread over a 4 – 6 months period, but not evenly distributed.

Please consult the DSG PI supplementary doc for a detailed breakdown.

The time commitment can be roughly broken down as follows:

- Pre-event stage: c.60 hours spread over 3-4 months to prepare for the event.
- Event stage: Days can be up to 10-12 hours, especially on the Tuesday – Thursday. Minimum about 15 hours and maximum about 45 hours for the week – some to take place outside of normal working hours – e.g. 5-9pm Monday-Friday
- Post-event stage: c.20 hours spread over 8 weeks to complete and finalise the report.

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 making sure our recruitment process is accessible and inclusive. This includes making reasonable adjustments for candidates who have a disability or long-term condition. Please contact us at adjustments@turing.ac.uk to find out how we can assist you.

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***.***