

The Alan Turing Institute

DATA STUDY GROUP PRINCIPAL INVESTIGATOR

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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

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 multidisciplinary 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 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:

- **Dstl –**
The Discovery project seeks to enable semi-automated horizon scanning to understand the shifting science and technology (S&T) landscape. Topic modelling is used to find topics and trends in content from academic journals for monitoring purposes, allowing the user to identify emerging technology
- **Leading Pharmaceutical Company –**
The project aims to develop a solution that can allow researchers to extract and consolidate actionable insights from published sources in near real-time leveraging natural language processing (NLP). This will be a proof-of-concept project focusing on extracting actionable insights
- **Biodiversity Challenge-**
This challenge presents an exciting opportunity for researchers to work on the UK's largest publicly accessible source of biodiversity data. The challenge of this data set is considerable: heterogeneous sources of data, aspects of both spatial and temporal analysis.
- **Manufacturing Challenge**
The project aims to develop an effective machine learning methodology capable of dynamic predications that will enable, at minimum, more effective optimisation of dynamic plants, hopefully leading to more optimal chemical plants can reduce environmental impact, by consuming less resources per unit of production.

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.

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 including Statistics, Mathematics, Engineering, Computer Science, or related discipline.	E	A
Knowledge and Experience		
Familiar in a wide range of data science and AI techniques	E	AI
Fluency in one or more modern programming languages used in research in data science and artificial intelligence (e.g. Python)	E	A
Coordinating and editing a multi-author academic paper or report	E	A
Proven experience in data science techniques and real-world datasets particularly relevant for the challenge at hand	E	AI
Designing an academic study with experiments	E	AI
Experience with messy real world data (dependant on challenge)	E	A
Experience managing, structuring, and analysing research data	E	AI
Experience of managing, prioritising and resourcing a project, leading it to a successful conclusion	D	AI
Ability to rapidly assess industrial/commercial problems and come up with possible ideas and techniques in how to solve them	D	AI
Industry or consultancy experience in data science problems/context	D	A
Experience working with multi-disciplinary groups towards a common goal	D	AI
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	AI
Initiative and Problem Solving		
Resolves complex problems that occur infrequently where guidance, if available, is not specific. Anticipate the implications of setting precedent as well as the impact across the organisation, prior to taking action.	E	AI
Analysis and Research		

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Develops new hypotheses and concepts for testing to expand or extend existing body of knowledge. Challenges the status quo and provides mechanisms and approaches to explore new possibilities or explanations	E	A I
Decision Making		
Ability to confidently make low-risk decisions after assessing the wider impact	E	I
Able to contribute to discussions and make decisions as part of 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
Other Requirements		
Commitment to meeting deadlines	E	I
Flexible attitude towards work	E	I
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.

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.

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

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.

CLOSING DATE FOR APPLICATIONS: Sunday 26 February 2023 at 23:59

TERMS AND CONDITIONS

This is a zero hours position per project/challenge. The hourly rate is £25.

Time commitment is an average of 135 hours (however, this could increase or decrease dependant on the challenge), typically spread over 25 days in 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.70 hours spread over 10/11 working days to prepare for the event.
- Event stage:3-4 hours per day, total of 20 hours for the week – to take place outside of normal working hours – e.g. 5-9pm Monday-Friday
- Post-event stage: c.10 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.

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.