The Alan Turing Institute

Postdoctoral Research Associate – Machine Learning and Artificial Intelligence for Healthcare

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 400 researchers and a talented business team.

THE ROLE

Sir Alan Wilson (Director, Special Projects, The Alan Turing Institute and Executive Chair, The Ada Lovelace Institute) and Professor Mihaela van der Schaar (John Humphrey Plummer Professor of Machine Learning, Artificial Intelligence and Medicine, Cambridge University) are looking for post-doctoral researchers with a background in computer science, mathematics or engineering to conduct original research on machine learning and artificial intelligence theory, methods and systems for revolutionizing medicine.

Rather than apply off-the-shelf methods we develop new theory and build new models in areas such as deep learning, ensemble learning, learning from time series data and reinforcement learning.

The research on personalized medicine and on medical decision support system involves collaboration with medical doctors and researchers from Cambridge, Oxford, Southampton, University College London, University of Bologna and UCLA, specialized in cancer research and treatment, cardiovascular diseases, cystic fibrosis, emergency medicine and surgery.

We strongly believe that this will change the way in which medicine is practiced today and advance healthcare. To date, our research has led to concrete improvements in early warning systems for ICU admissions, personalised donor-recipient matching for organ transplantation and the analysis of individualized treatment effects, among many others.

Successful postdoctoral candidates should have a strong mathematical background and preferably a strong machine learning background and be eager to do research with a strong societal impact – improve medical care and discovery. However, no prior knowledge of medicine or biology is required.

DUTIES AND RESPONSIBILITIES

- Contribute statistical and machine learning skills to the various elements of the project.
- Working closely with the PI, Co-Is and domain experts to develop a good understanding of the challenges in this domain and potential solutions.
- Support the Principal Investigator and research group in the design and development of the research programme.
- Conduct studies of related literature and research to support the design and implementation of projects and development of reports, ensuring conceptual relevance, comprehensiveness, and currency of information.
- Conduct a specified programme of research to advance the aims of the project under the supervision and direction of a Principal Investigator, working with the Institute team, including research assistants, research associates, software engineers, data scientists and PhD students.
- Engage in appropriate training and professional development opportunities as required by the Principal Investigator.
- Write and publish articles in peer-reviewed journals/digests that highlight findings from research ensuring consistency with the highest standards of academic publication and showcasing the Institute's research leadership

PERSON SPECIFICATION

The successful candidate will have:

ESSENTIAL

- A PhD degree or equivalent professional experience in a field with significant use of both computer programming and advanced statistical or numerical methods.
- Experience managing, structuring, and analysing research data.
- Experience managing and evaluating the ethical implications of a project.
- Experience managing and organising the parameters and results of computational experiments.
- Fluency in one or more modern programming languages used in research in data science and artificial intelligence. (We particularly work in R, Python, and modern C++, but demonstrable use of other programming languages for research, together with a facility for learning new languages, is most welcome.)
- 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 and Rmarkdown)
- Demonstrated enthusiasm and ability to rapidly assimilate new computational and mathematical ideas and techniques on the job, at a more than superficial level, and apply them successfully.
- Excellent written and verbal communication skills, including experience in the visual representation of quantitative data, the authoring of research papers or technical reports, and giving presentations or classes on technical subjects.
- Ability to lead one's own work independently, including planning and execution, and to collaborate productively as part of a team.

DESIRABLE

- Machine learning
- Deep learning
- Computational statistics, particularly Bayesian modelling and Bayesian statistics
- Experience using graphical methods and non-parametric tests

TERMS AND CONDITIONS

This full-time post is offered on a fixed-term basis up until 2021, with possibility for extension (funding permitting). We are happy to talk flexible working.

The annual salary is £35,000 - £41,000.(dependent on skills and experience) plus excellent benefits. https://www.turing.ac.uk/work-turing/why-work-turing/employee-benefits.

Secondments from university partners are welcome.

APPLICATION PROCEDURE

If you are interested in this opportunity, please click the apply button below. You will need to register on the applicant's portal and complete the application form including your CV, covering letter and contact details for your referees.

Along with a CV and covering letter, please submit a research output to support your application, for us to read before the interview. This might be a link to a selected research or technical paper, a technical blog post or a chapter of a thesis or dissertation, but we particularly encourage applicants to submit a link to a public version control tool such as GitHub containing an example analysis script or research software library they have made a significant contribution.

If you have questions or would like to discuss the role further with a member of the Institute's HR Team, please contact them on 0203 862 3394 or 020 3862 3357, or email recruitment@turing.ac.uk.

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, gender reassignment, marital and civil partnership status, pregnancy, religion or belief or sexual orientation. Reasonable adjustments to the interview process can also be made for any candidates with a disability.

Please note all offers of employment are subject to continuous eligibility 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***.***