Co-investigator for Postdoctoral Research Associate – Statistical machine learning for randomized clinical trials

THE ALAN TURING INSTITUTE

The Alan Turing Institute is the UK's national institute for data science and artificial intelligence. As such the Institute plays an important part in shaping the UK's strategy and 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, 30 in-house research software engineers and a talented business team.

THE MRC Clinical Trials Unit at UCL

The MRC Clinical Trials Unit (CTU) at UCL is a centre of excellence for clinical trials, meta-analyses and epidemiological studies. It is committed to strengthening and expanding the evidence base for healthcare nationally and internationally. It also develops methodology to improve the design, conduct and analysis of clinical studies, and hosts one of the MRC's eight regional Hubs for Trials Methodology Research. The MRC CTU currently employs around 230 staff.

The MRC CTU is part of The Institute of Clinical Trials and Methodology, within the Faculty of Population Health Sciences (FPHS). The Faculty brings together expertise in Child Health, Women's and Reproductive Health, Population Health, Global Health, Cardiovascular Science, Clinical Trials and Health Informatics, in a unique grouping that spans the life-course.

Further details can be found at our website: http://www.ctu.mrc.ac.uk/

THE ROLE

We seek an outstanding co-investigator to work alongside the Programme Director for Health, Professor Chris Holmes to join an exciting new collaboration between the Alan Turing Institute and the MRC Clinical Trials Unit (MRC CTU) at UCL, exploring the potential impact of statistical machine learning on the design, conduct and analysis of randomised clinical trials.

The co-investigator will work with Professor Holmes and a postdoctoral researcher to explore novel statistical machine learning methods for the identification of treatment effect heterogeneity in RCTs, and predictive models of personalised treatment effects. Particular attention will be paid to issues around interpretability, reproducible research, validation of AI methods and the assessment of false discovery rates.

Successful candidates should have a strong quantitative background and preferably a strong statistical machine learning background and be eager to do research at the interface of AI and clinical trials with a strong societal impact.

We will be holding interviews for the postdoctoral researcher role w/c 14 October 2019 and we would like the successful candidate for the co-investigator role to join the interview panel. More information will be provided at the interview stage.

ORGANISATIONAL POSITION

The postholder will work closely with senior collaborators at the Alan Turing Institute and the MRC CTU.

KEY DUTIES AND RESPONSIBILITIES

You will be expected to work closely with the senior principal investigators:

- To work collaboratively with researchers, senior investigators from across the Turing and MRC CTU as well as external partners on the project.
- To explore the potential of new statistical (machine learning) methods to improve the learning opportunities from RCTs.
- To help shape the research priorities and analyses using machine learning methods on existing trials data within the MRC CTU.
- To attend and present research findings and papers at academic and professional conferences, and to contribute to the external visibility of both institutes.
- To participate in the organisation of research workshops and other events.
- To be given the personal freedom to develop and pursue innovative research ideas.

Skills and experience

Candidates must be able to demonstrate, through examples, the capabilities below:

- A PhD degree or equivalent professional experience in a field with significant element of computational statistics or statistical machine learning.
- Experience in the development and/or application of statistical machine learning methods.
- Experience in managing, structuring, and analysing research data.
- Fluency in one or more modern statistical programming languages used in research in data science and artificial intelligence, such as R or Python.
- An understanding of the importance of good practice for producing reliable software and reproducible research (e.g. version control, literate analysis tools such as Jupyter and Rmarkdown)
- Demonstrated enthusiasm and ability to rapidly assimilate new computational and statistical ideas and techniques on the job 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.
- Interest in methodological advances in clinical trials

Desirable

- Computational statistics, particularly Bayesian modelling and Bayesian statistics
- Experience using graphical methods and data visualisation
- Familiarity with common applied statistical software used in clinical trials, e.g. Stata, SAS or R
- Understanding of clinical trials, particularly the statistical methods used to analyse data from clinical trials.

Contract Type

Fixed term 0.2FTE up until 2022, with possibility for extension (funding permitting). The Alan Turing Institute will buy out your time from your home institution.

LOCATION: Either at the Alan Turing Institute at the British Library, London, or at the MRC CTU, at 90 High Holborn, London but with regular attendance at both sites.

Application procedure

Stage 1 – submission of short CV and cover letter and research output

If you consider that you meet the criteria set out in the person specification and wish to apply for the role, you will be required to register on the online portal Flexi-Grant at https://ati.flexigrant.com and submit an application form.

Please upload your two-page CV, with contact details for your referees and a two-page (maximum) cover letter on how you meet the person specification above and your research interests.

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 you have made a significant contribution to.

Stage 2 – short-listed candidates will be invited to interview

If you have questions or would like to discuss the role further, please email healthprogramme@turing.ac.uk

Closing date for applications: 13 September 2019 at 23:59

Interviews will take place W/C: 7 October 2019

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, religion or belief or sexual orientation. Reasonable adjustments to the interview process can also be made for any candidates with a disability. Happy to Talk Flexible Working

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***.***