

Job title	Research Associate in Trust and Transparency in AI, Leverhulme Centre for the Future of Intelligence
Grade	7
Salary range	£32,236 – £39,609
Staff Group	Research
Department / Institution	Leverhulme Centre for the Future of Intelligence, University of Cambridge

Role Summary

In collaboration with the Machine Learning Group, the Leverhulme Centre for the Future of Intelligence (CFI) at the University of Cambridge invites applications for a postdoctoral Research Associate to work on one or more aspects of the project 'Trust and Transparency in AI', which spans multiple disciplines including machine learning, law, psychology and policy. The appointment will be for up to 2 years. It is an exciting opportunity for a talented individual to make a major contribution to the development of this field.

CFI is a new, highly interdisciplinary research centre addressing the challenges and opportunities posed by artificial intelligence (AI). Funded by the Leverhulme Trust, CFI is based at the University of Cambridge, with partners in the University of Oxford, Imperial College, and UC Berkeley. The Centre also has close links with industry, policymakers, and many academic disciplines.

This is a new Research Associate post within CFI's Trust and Transparency project, based in central Cambridge. This project, led by Dr Adrian Weller and Professor Zoubin Ghahramani, and involving partners at Imperial College and DeepMind, examines technical, legal and social mechanisms for ensuring AI systems are appropriately transparent, reliable and trustworthy. Its strands include:

(i) Transparency. We need to be able to understand the internal processes of AI systems. This is particularly challenging for approaches such as neural networks, which learn or evolve to carry out a task without clear mappings to chains of inference that are easy for a human to understand. This strand studies ways to make interpretable the reasons for an AI's predictions or decisions. There is an emerging field of research studying these issues within machine learning, though the psychology of how humans understand systems is also important. One important area where transparency is urgently needed is where algorithms are used in the criminal justice system.

(ii) Trustworthiness. We need to understand when humans tend to trust machines, and when they should – that is, what makes intelligent and autonomous systems appropriately trustworthy. This strand includes insights from machine learning, psychology, human computer interaction, anthropology and more. One technical theme in this strand is to develop approaches for scalable probabilistic reasoning which can yield good performance 'in the wild' even in unforeseen settings. This may include notions of learning and inference which can supply proofs of accuracy, as used in

formal verification systems; or ways for an AI to monitor its situation dynamically to detect if its environment has changed beyond its comfort zone.

(iii) Law and Governance. What policy instruments and standards can help ensure that AI systems are fair, appropriately transparent, trustworthy, interpretable, and respect privacy and human rights? What do we mean by these concepts with regard to the impact of algorithms, and how should they be enforced? What impact will legislation such as the EU GDPR have?

The appointee is expected to have depth of expertise in one (or more) of these strands. For example, experts in either machine learning or in law are encouraged to apply.

If the appointee has a machine learning background, they could be offered a joint appointment with the Machine Learning Group in the Department of Engineering.

In addition to contributing to this project, the appointee will play an important role in CFI's interdisciplinary activities, including discussion groups, workshops, and an annual conference. Candidates should have a PhD in a relevant field and should provide strong evidence of potential for research and publication at the highest level, as well as strong interest in engagement with policy and technology communities.

Main Responsibilities

The Research Associate will report to CFI's Executive Director, Dr Stephen Cave, and the Trust and Transparency project leader, Dr Adrian Weller.

Post-holders will be expected to:

- Conduct independent and collaborative research on one or more of the strands mentioned above, to be published as papers in leading academic journals.
- Produce reports for government, industry and other relevant organisations based on this research, as appropriate.
- Produce occasional articles suitable for a broader audience in order to increase public understanding of this area of research.
- Organise, participate in, and speak at workshops, seminar series, lectures and conferences relevant to this research.
- Develop collaborations with leading researchers and research centres relevant to this research within and outside Cambridge, and with key contacts in government, international organisations, and industry where relevant.
- Collaborate on further funding applications relevant to the work of this project and CFI's broader research aims.

Person profile

Essential knowledge, skills and experience required for role

Education & qualifications	<ul style="list-style-type: none">• A PhD in a specialist subject relevant to the project's aims, completed by time of appointment, is essential.• Fluency in English is essential.
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Specialist knowledge & skills	<ul style="list-style-type: none"> • Expertise in an area relevant to the project is essential. • Evidence of a serious research interest in the research foci of the Centre, including a research proposal explaining how their skills are relevant to this project, is essential. • The ability to quickly acquire a technical understanding of other relevant fields where necessary. • The inclination and the intellectual versatility to engage with a range of 'big-picture' questions, and the ability to pursue such questions in a rigorous way, integrating findings from different academic disciplines using a variety of analytic methods.
Interpersonal & communication skills	<ul style="list-style-type: none"> • Excellent written and oral communication and presentation skills are essential. • Ability to engage with diverse communities of experts – including academics across disciplines, industry partners, and policymakers is essential. • Evidence of ability to work in collaborative environments is desirable.
Relevant experience	<ul style="list-style-type: none"> • Experience in organisation of conferences and academic events is highly desirable. • Ability to contribute to the Centre's grant-writing and fundraising efforts is desirable.
Additional requirements	<ul style="list-style-type: none"> • An enthusiasm and strong commitment to CFI's core research aims is essential. • The post-holder is expected to conduct most of their research in Cambridge and be based there but travel elsewhere for research, conferences and meetings.

Terms and Conditions

Location	Central Cambridge
Working pattern	Full Time
Hours of work	<p>This position is full time.</p> <p>There are no conditions relating to hours and times of work but the jobholder is expected to work such hours and days as are reasonably necessary for the proper performance of their duties. The times of work should be agreed between the jobholder, the project leader and CFI's Executive Director.</p>
Salary	£32,236 - £39,609 subject to experience.
Start date	Negotiable (from Feb 2019)
Length of appointment	Up to two years.

Limited funding	The current position is funded by a research grant or contract. The position is limited to two years in the first instance, and the head of department, or his/her nominee, will keep the role holder informed of the funding situation.
Probation period	Six Months.
Annual leave	Full time employees are entitled to annual paid leave of 6.6 weeks (or 33 days); this excludes Public Holidays but includes building closure days between Christmas and New Year.
Pension eligibility	Universities Superannuation Scheme (USS) Pension scheme details, including information about the legal requirement for the University to automatically enrol its eligible jobholders into a qualifying workplace pension scheme from 1 March 2013, is available at: http://www.pensions.admin.cam.ac.uk/ .
Retirement age	The University does not operate a retirement age for assistant staff/research staff/unestablished academic staff/unestablished academic-related staff.

Screening Check Requirements

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working for us. If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it. If you need further information, you may find the Right to Work page within the 'Applying for a job' section of the University's Job Opportunities pages helpful (please see <http://www.jobs.cam.ac.uk/right/have/>).

Application Process

To submit an application for this vacancy, please click on the link in the 'Apply online' section of the advert published on the University's Job Opportunities pages. This will route you to the University's Web Recruitment System, where you will need to register an account (if you have not already) and log in before completing the online application form.

Applications are due by **31 January 2019**, and should include:

- **A Curriculum Vitae**
- **A Covering Letter** of no more than 1,500 words, outlining a proposed research direction, and explaining how this proposal and your skills would contribute to this project in particular and to CFI more broadly.
- **A Sample of Writing** of no more than 5,000 words. Candidates should choose a sample that demonstrates their suitability for this project, and their ability to write clearly and effectively. The writing sample may be published work, or a chapter from the applicant's thesis, or other unpublished work.
- **The names and contact details of two referees** who are familiar with your work. *Please note that if you would like us to take your references into account in deciding whether to shortlist you, it is essential that you select the box 'At any point in this process' on the online system in response to the question when references can be requested.*

If you upload any additional documents which have not been requested, we will not be able to consider these as part of your application.

The closing date for applications is 31 January. If you have any questions about this vacancy or the application process, please contact Susan Gowans on skg41@cam.ac.uk, or for any questions about this project, please contact Adrian Weller on aw665@cam.ac.uk.

Interviews will take place in Cambridge in February 2019.

General Information

The University of Cambridge

The University of Cambridge is one of the world's oldest and most successful Universities, with an outstanding reputation for academic achievement and research. It was ranked first in the 2011 QS World University Rankings and its graduates have won more Nobel Prizes than any other university in the world. The University comprises more than 150 departments, faculties, schools and other institutions, plus a central administration and 31 independent and autonomous colleges.

The University and the Colleges are linked in a complex historical relationship. The Colleges are self-governing, separate legal entities which appoint their own staff. They admit students, provide student accommodation and deliver small group teaching (supervisions). The University awards degrees and its faculties and departments provide lectures and seminars for students, determine the syllabi for teaching and conduct research.

There is much more information about the University at <http://www.cam.ac.uk/univ/works/index.html> which we hope you will find helpful.

Leverhulme Centre for the Future of Intelligence

The development of AI seems likely to be one of the defining themes of our century, and the project of ensuring that we make best use of its opportunities is one that we all face together. Thanks to a £10 million grant from the Leverhulme Trust, the University of Cambridge has established a new interdisciplinary research centre, the Leverhulme Centre for the Future of Intelligence, to explore the opportunities and challenges of this potentially epoch-making technology, both short and long term. The Centre is a collaboration with partners at the Oxford Martin School at the University of Oxford, at Imperial College London, and with Stuart Russell's group at UC Berkeley.

A major goal of the CFI is to lead the growth of a new interdisciplinary research community to address the opportunities and challenges of AI. To this end, it is launching two initial research exercises and seven projects in its first research phase, each of which addresses an important question related to the development and implications of AI. The Centre's objectives are practical as well as theoretical, and it places a high priority on links outside academia, including to leading technology developers and policy leaders. CFI also aspires to improve the standard of public debate on the impacts of AI, and senior CFI staff will support the jobholder in writing for a broader audience, including through our partnership with aeon.co. More information is available at www.lcfi.ac.uk.

The Machine Learning Group, Department of Engineering

The [Machine Learning Group](#) is a part of the [Computational and Biological Learning Laboratory](#) located in the [Department of Engineering](#) at the [University of Cambridge](#). The research in the group is very broad, ranging over all aspects of machine learning. Particular strengths of the group are in Bayesian approaches to modelling and inference in statistical applications. The type of work done can range from studying fundamental concepts in applied Bayesian statistics, all the

way to getting our algorithms to perform competitively against the state-of-the-art in big-data applications. The group also works in a broad range of application domains, including neuroscience, bioinformatics, finance, social networks, and physics, just to name a few, and the group actively seeks to collaborate with other groups within the Department of Engineering, throughout the university as a whole, and with other groups within the UK and around the world.

What the University can offer you

One of our core values at the University of Cambridge is to recognise and reward our staff as our greatest asset. We realise that it's our people who have built our outstanding reputation and that we will only maintain our leading position in the academic world by continuing to attract and retain talented and motivated people. If you choose to come and work with us, you will find that we offer:

- **Excellent benefits** – You will be eligible for a wide range of competitive benefits and services, including numerous discounts on shopping, health care, financial services and public transport. We also offer defined benefits pension schemes and tax-efficient bicycle, car lease and charity-giving schemes.

We will help you balance your home and work life by providing you with generous annual leave entitlement and procedures for requesting a career break or flexible working arrangements if you need them. You will also have access to a range of well-being support services, including in-house Occupational Health and Counselling services. If you have childcare responsibilities, you may also benefit from the enhanced maternity/adoption pay, two nurseries and a holiday play scheme that we provide.

We are keen to welcome new employees from other parts of the UK and other countries to Cambridge. If you will be relocating to Cambridge on a centrally funded appointment of two years or more, you may be eligible for our relocation expenses scheme. The University [Accommodation Service](http://www.accommodation.cam.ac.uk/) (<http://www.accommodation.cam.ac.uk/>) will also be available to help you find suitable rented accommodation and to provide advice on renting arrangements and local facilities, if required. In addition, certain academic and academic-related appointments are eligible for the Shared Equity Scheme which offers financial assistance with the purchase of living accommodation.

- **A welcoming and inclusive environment** - We will help you settle into your new role and working environment through a central [University induction event](#), local induction activities and our online induction package. Where appropriate to your role, you will have a probation period to provide a supportive framework for reviewing your progress and discussing your training and development needs.

If you are relocating to Cambridge, you and your family will be welcome to attend the Newcomers and Visiting Scholars Group, which provides an opportunity to find out more about Cambridge and meet other people new to the area.

- **Extensive development opportunities** - The encouragement of career development for staff is one of the University's core values. We put this into practice through various services and initiatives, including:
 - A [wide-range of training courses](#) and online learning packages.
 - The [Staff Review and Development \(SRD\) Scheme](#), which is designed to enhance work effectiveness and facilitate career development post-probation.
 - [Leave for career and personal development](#), including long-term study leave for assistant staff and sabbatical leave for academic staff.
 - The [CareerStart@Cam programme](#), which supports assistant staff roles without higher education qualifications to develop their skills, experience and qualifications. Assistant staff may also apply for financial assistance for study which results in a qualification.
 - [Reduced staff fees](#) for University of Cambridge graduate courses.

- The opportunity to attend [lectures and seminars](#) held by University departments and institutions.
- Policies and processes dedicated to the career development of researchers and the implementation of the principles of the Concordat, which have led to the University being recognised with an HR Excellence in Research Award by the European Commission.

You can find further details of the benefits, services and opportunities we offer can be found in our CAMBens Employee Benefits web pages at <http://www.hr.admin.cam.ac.uk/pay-benefits/cambens-employee-benefits>. A range of information about living and working in Cambridge is also available to you within the University's web pages at <http://www.jobs.cam.ac.uk/> and <http://www.hr.admin.cam.ac.uk/hr-staff/information-staff>.

Equality of Opportunity at the University

We are committed to a proactive approach to equality, which includes supporting and encouraging all under-represented groups, promoting an inclusive culture and valuing diversity. We make selection decisions based on personal merit and an objective assessment against the criteria required for the post. We do not treat job applicants or members of staff less favourably than one another on the grounds of sex (including gender reassignment), marital or parental status, race, ethnic or national origin, colour, disability (including HIV status), sexual orientation, religion, age or socio-economic factors.

We have various diversity networks to help us progress equality; these include the Women's Staff Network, the Disabled Staff Network, the Black and Minority Ethnic Staff Network and the Lesbian, Gay, Bisexual and Transgender Staff Network. In addition, we were ranked in the top 100 employers for lesbian, gay and bisexual (LGB) staff in Stonewall's Workplace Equality Index 2013 and we hold an Athena SWAN silver award at organisation level for promoting women in Science, Technology, Engineering and Medicine.

We are supportive of staff with caring responsibilities, such as through our flexible working, career break and returning carers schemes. We encourage individuals to include details of any breaks in employment due to caring responsibilities in applications for employment so that these can be taken into consideration in assessments made, where appropriate.

Information if you have a Disability

The University welcomes applications from individuals with disabilities and we are committed to ensuring fair treatment throughout the recruitment process. We will make adjustments to enable applicants to compete to the best of their ability wherever it is reasonable to do so, and, if successful, to assist them during their employment. Information for disabled applicants is available at <http://www.admin.cam.ac.uk/offices/hr/staff/disabled/>.

We encourage you to declare any disability that you may have, and any reasonable adjustments that you may require, in the section provided for this purpose in the application form. This will enable us to accommodate your needs throughout the process as required. However, applicants and employees may declare a disability at any time.

If you prefer to discuss any special arrangements connected with a disability, please contact, Miss Ruth Farley, HR Administrator who is responsible for recruitment to this position ruth.farley@admin.cam.ac.uk or 01223 332886. Alternatively, you may contact the HR Business Manager responsible for the department you are applying to via hradmin@admin.cam.ac.uk.