UNIVERSITY OF CAMBRIDGE

Senior Research Software Engineer/ Research Software Engineer - EdTech

Department of Computer Science and Technology

Closing date: 12th January 2025
Job Reference: NR44004

Athena SWAN Silver Award

ECU RACE CHARTER — Race Equality Charter Bronze Award

disability confident COMMITTED

We are a Living Wage Employer

Senior Research Software Engineer/ Research Software Engineer

Salary:

Research Software Engineer
£34,866 - £45,163 per annum

Senior Research Software Engineer
£46,485 - £58,596 per annum

Contract:
Fixed Term, in the first instance

Location:
West Cambridge

Department:
Computer Science and Technology

Responsible to:
Alastair Beresford

Working Pattern:
Full Time

Purpose of the role

Research Software Engineer will work on the Isaac online education platform, a collaboration between the University of Cambridge and the Raspberry Pi Foundation. The role involves designing, building and running an online platform to teach STEM subjects.

The Isaac platform uses recent developments in web technology and computer-based educational techniques to improve physics, chemistry, biology, maths and computer science teaching in schools. Our online platform currently reaches tens of thousands of students and thousands of teachers; in peak periods we receive over 5 million question attempts a month. For further information see isaacphysics.org and adacomputerscience.org.

The Isaac platform includes:

- delivery of material through written text, video and interactive simulations,

- diagnostic feedback for students through diverse interactive questions and problem solving,

- assessment for learning,

- models of student progress to recommend further teaching materials or exercises,

- feedback to improve content quality through usage analyses, and

- LLM integration to provide AI-guided feedback on short-free text answers.

We use the platform to measure learning outcomes at scale, publish results in the academic literature and drive further innovation on our platform in an evidence-based way. By understanding the fundamentals, we aim to improve online learning outcomes not just on our platform but for society at large.

We release all our software for this project under an open-source licence (see: https://github.com/isaacphysics).
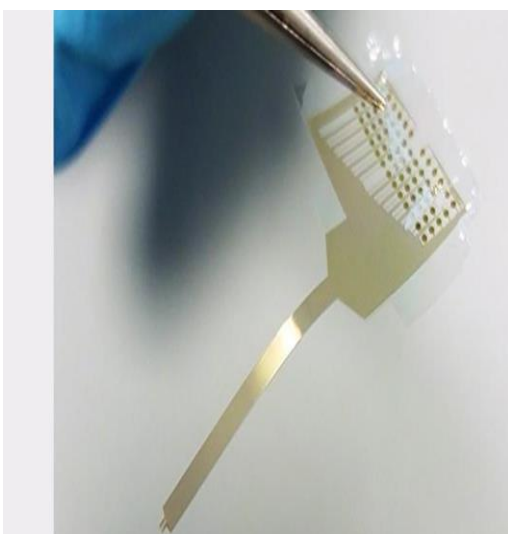
The successful applicant will work with the Technical Director, Professor Alastair Beresford, as well as a dedicated six-person research and development team in the Department of Computer Science and Technology in Cambridge. You will also collaborate with the content and product teams at the Raspberry Pi Foundation and in the Department of Physics, and with groups of researchers across the broader EdTech and computing education research communities.

You'll need to have excellent programming and technical skills, an appetite to learn what you don't know, and a commitment to make a difference for the young people who use our platform. Day-to-day activities will include researching and implementing new features and supporting junior members of the team.

Key responsibilities:

- Collaboratively develop, test and deliver high-quality working software

- Range of full-stack development work

- Project leadership - build consensus and take accountability for delivering product features

- Line management and mentoring of a small team of Junior Software Engineers and Research Assistants

- Ownership of processes and code quality assurance

- Input into strategic planning over the lifetime of the product

- Championing systems and process improvement

- Proactive management of security risks and data protection compliance; input into policy

- Share knowledge with clear communication, technical credibility, and empathy

- Representing the technical team to colleagues and stakeholders across other departments and organisations

We strive to make the University a place where talented people who care about our mission can do the best work of their careers. If we offer you a role here at the University of Cambridge, we'll make it work for you, and you can be confident that you'll be working with exceptional people.

We have a flexible and collaborative approach to all aspects of our work – if you have research, technical or other interests, we strive to make Isaac a supportive place for you to explore a broad range of projects. There will also be opportunities for teaching within the department, e.g. through tutoring undergraduates in small groups and assisting with practical assessment and marking.

Person Specification

Criteria	Essential	Desirable
Education & qualifications		
A degree in computer science or a related discipline, or equivalent experience		✓
Specialist knowledge & skills		
Advanced knowledge of Java or TypeScript	✓	
The ability to adapt and select appropriate software, languages and tools	✓	
Knowledge of cyber security and data protection principles		✓
Interpersonal & Communication skills		
Work independently to deliver large projects	✓	
Direct junior colleagues and QA their code	✓	
Make clear and credible representations on technical matters to internal and external partners	✓	
Relevant Experience		
Experience delivering major new product features	✓	
Experience managing or contributing to open source projects		✓
Experience of all stages of the software development cycle		✓
Additional Requirements		
Passion for EdTech, blended learning and/or computing education		✓
A track record of published research in a relevant area (will be an advantage)		✓

Computer Science and Technology

The Department of Computer Science and Technology is an academic department that encompasses computer science along with many aspects of engineering, technology and mathematics. We have a world-wide reputation for academic research with consistent top research ratings. Professor Alastair Beresford is the Head of Department.

The Department has around 340 people engaged in research: academic staff, research associates, and PhD students.

The Department carries out research across the computer science field and encourages the development of new technologies and applications. You can read more about research here in the Environment Statement (submitted to the most recent REF (Research Excellence Framework) – the system for assessing the quality of research in UK higher education institutions. **All** aspects of our research environment were rated 'world-leading'.

The Department has an open and collaborative culture, supporting revolutionary fundamental computer science research, strong cross-cutting collaborations internally and externally, and ideas which transform computing outside the University. Please follow the links to the Themes at: https://www.cst.cam.ac.uk/research to find out more about our research.

Support staff play a key role in supporting the Department's academic and research endeavours. The Department provides a stimulating environment that promotes a strong sense of community, whilst valuing and recognising individual contributions.

The School of Technology

The School of Technology is an administrative grouping of five related institutions: the Department of Chemical Engineering and Biotechnology, the Department of Computer Science and Technology, the Department of Engineering, the Cambridge Judge Business School and the Cambridge Institute for Sustainability Leadership. The School contains over 200 permanent academic staff and around 2,800 students.

About the School

The aim of the School of Technology is to provide a focus and framework for its constituent institutions to formulate and express views pertinent to technology. Above all, technology departments recognise a duty to influence and be influenced by society at large and to work towards the creation of wealth and an improved quality of life.

Vision: Advance the frontiers of technology

The constituent academic departments in the School aspire to be internationally top-ranking centres of excellence in the teaching and research of technological subjects.

Mission: Provide excellent teaching and perform quality research

The School provides quality education at undergraduate and postgraduate level to students selected on intellectual merit, regardless of gender, race or disability. Our high-calibre graduates play leading roles in industry, the professions and academia.

We aim to cultivate a well-balanced portfolio of world-class research. With a clear focus on the advancement of technology, we will lead the way in the creation of wealth and in improving quality of life, by increasing the efficiency of existing technologies, by optimising the use of our natural resources and by preserving our environment.
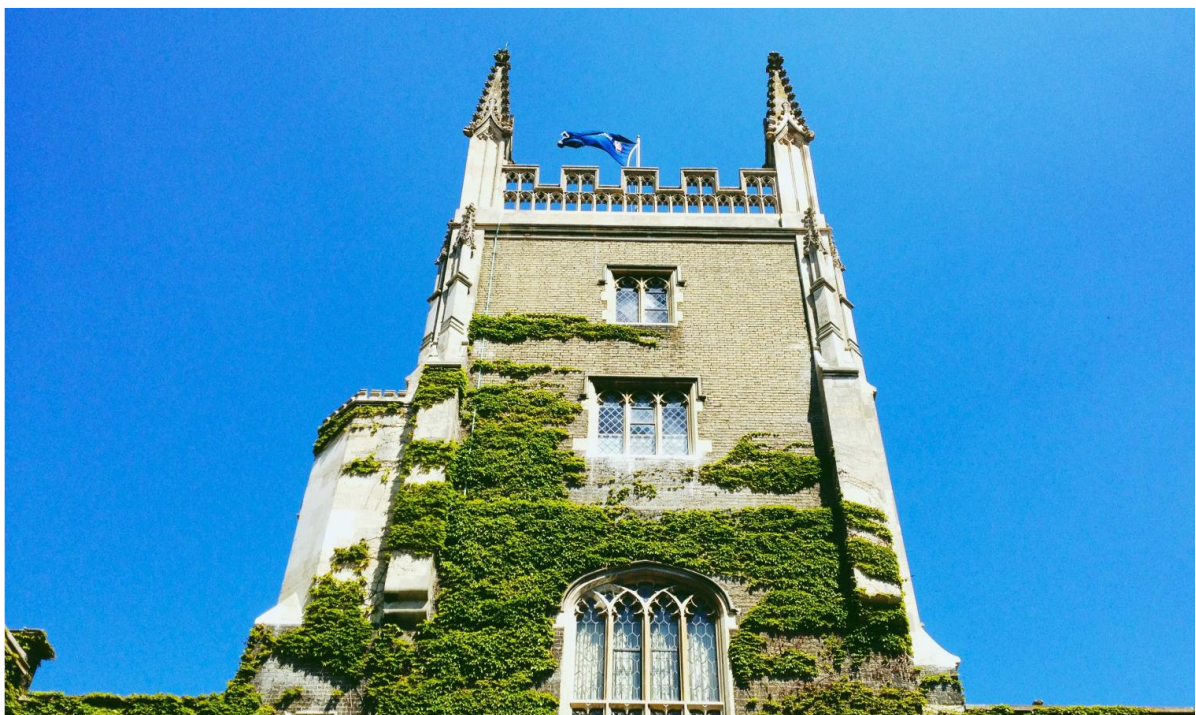
Terms of Appointment

Tenure and probation
Fixed-term: The funds for this post are currently available until 31st January 2026, subject to renewal. The project was first funded in 2013; we have successfully renewed several times and we are very optimistic about the long-term prospects to support this post. Appointments will be subject to satisfactory completion of a 6-month probationary period.

Candidates will be considered at the Research Software Engineer and Senior Research Software Engineer levels, depending on experience

Hours of Work and Working Pattern
The hours of work for the position are 35 hours per week, working Monday – Friday.

We are flexible in our approach to in-person working with some colleagues regularly using our offices in Cambridge while others working remotely. We use a combination of Google Meet, Trello, Monday and Slack to facilitate blended working.

Pension
You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme). For further information please visit: www.pensions.admin.cam.ac.uk/.

Annual leave
Full time employees are entitled to annual paid leave of 41 days inclusive of public holidays. For new part-time employees, annual leave will be pro rata'd based on days worked.

General information
Pre-employment checks

Right to work in the UK
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.

Health declaration Once an offer of employment has been made the successful candidate will be required to complete a work health declaration form.

Qualifications
The person specification for this position lists qualifications that are essential and/or desirable. Please note that if you are offered the post you will be asked to provide your relevant original certificates of these qualifications.

References - offers of appointment will be subject to the receipt of satisfactory references.

Equality and Diversity

We particularly encourage women and /or candidates from a Black, Asian and Minority Ethnic background to apply for this vacancy as they are currently under-represented at this level within our University.

Information if you have a disability
The University welcomes applications from individuals with disabilities. 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, the HR Administrator who is responsible for recruitment to this position.
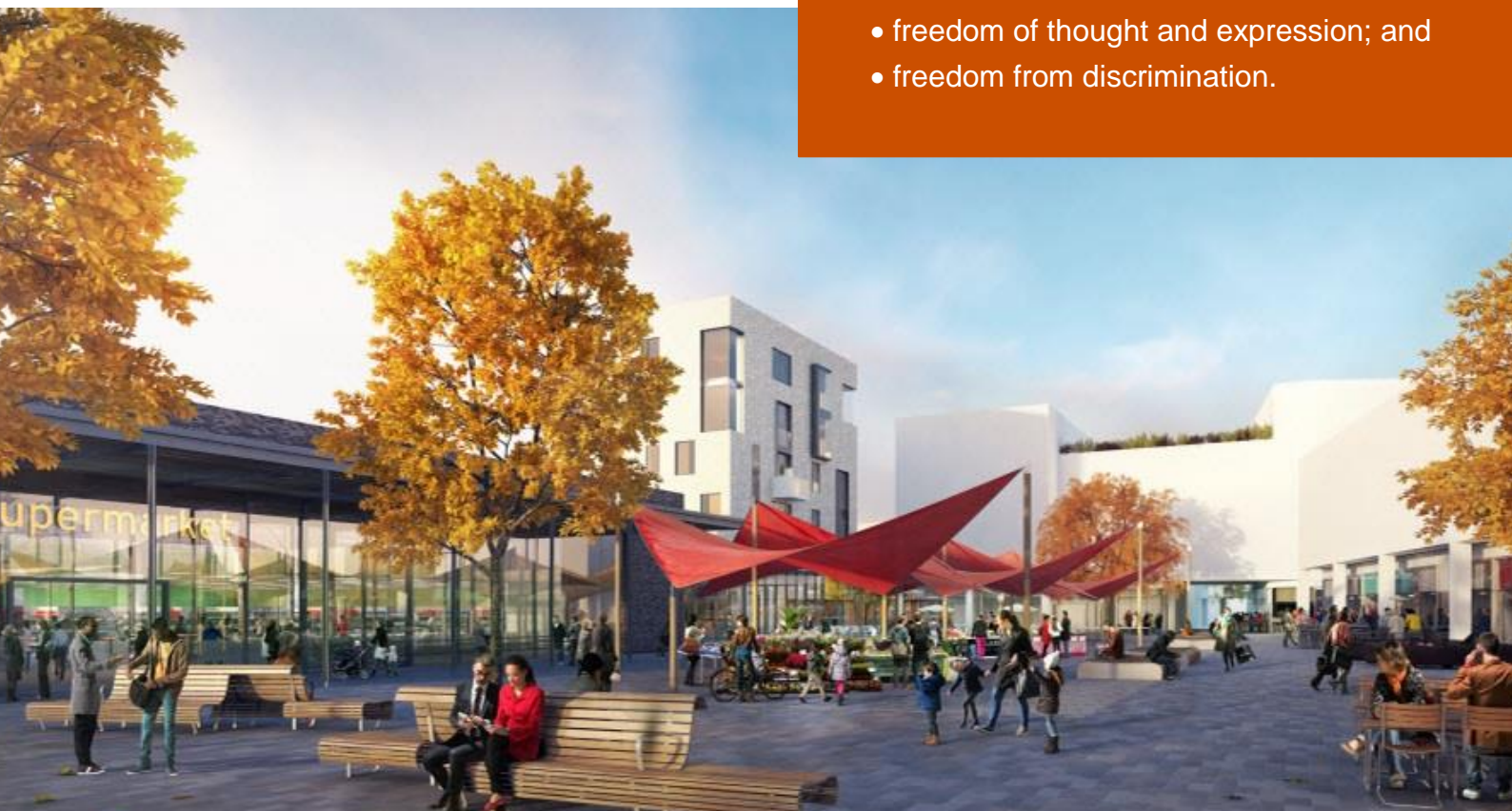
The University

The University of Cambridge is one of the world's oldest and most successful universities. We are a renowned centre for research, education, and scholarship that makes a significant contribution to society. The University is consistently ranked amongst the top universities in the world. Our affiliates have won more Nobel Prizes than any other University.

Our sustained pursuit of academic excellence is built on a long history of first-class teaching and research within a distinctive collegiate system. For eight centuries our ideas and innovations have shaped the world. Our principal goal is to remain one of the world's leading universities in an increasingly competitive global higher education sector. Today the University of Cambridge is at the centre of a cluster of over 4,300 businesses employing 58,000 people.

Our capital investment projects include the West Cambridge site, the North West Cambridge development and the growth of the Biomedical Campus in the south of the city. The North West Cambridge development includes the opening of a primary school – the first in the UK to be managed by a University. So we are deeply embedded in, and committed to serving, our local community. These are all conspicuous signs of a University that is not only adapting to new needs, but also anticipating the future.

Our mission is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence. Our core values are:

- freedom of thought and expression; and
- freedom from discrimination.

About Us

The University is one of the world's leading academic centres. It comprises 150 faculties and departments, together with a central administration and other institutions. Our institutions, museums and collections are a world-class resource for researchers, students and members of the public representing one of the country's highest concentrations of internationally important collections.

The University has an annual income of £2 billion. Research income, won competitively from the UK Research Councils, the European Union (EU), major charities and industry, exceeds £500 million per annum and continues to grow.

The Colleges and the University remain committed to admitting the best students regardless of their background and to investing considerable resources both in widening access and financial support. The 31 Colleges are self-governing, separate legal entities which appoint their own staff. Many academic staff are invited to join a College as a Teaching Fellow, which provides a further social and intellectual dimension. The Colleges admit students, provide student accommodation and deliver small group teaching.

The University awards degrees and its faculties and departments provide lectures and seminars for students and determine the syllabi for teaching and conducting research.

Our instinct for seeking out excellence and setting up enduring and mutually beneficial collaborations has led us to establish strategic partnerships across the globe. Whether it is the successful Cambridge-Africa Programme involving universities in Ghana, Uganda and elsewhere on the African continent; or the close association with the government of India to pursue new research in crop science; or the creation, with Germany's Max Planck Institutes, of a Cambridge-based centre for the study of ethics, human economy and social change – international partnerships are now an inextricable part of the University's make-up.

"Through its outstanding education, research and innovation, the University of Cambridge has made – and continues to make – a lasting contribution to human knowledge and is flourishing. By working at the University of Cambridge, you will be joining a vibrant community of students, scholars and professional services staff committed to supporting and enhancing the University's mission to contribute to society."

*Prof Deborah Prentice, Vice-Chancellor 2023*
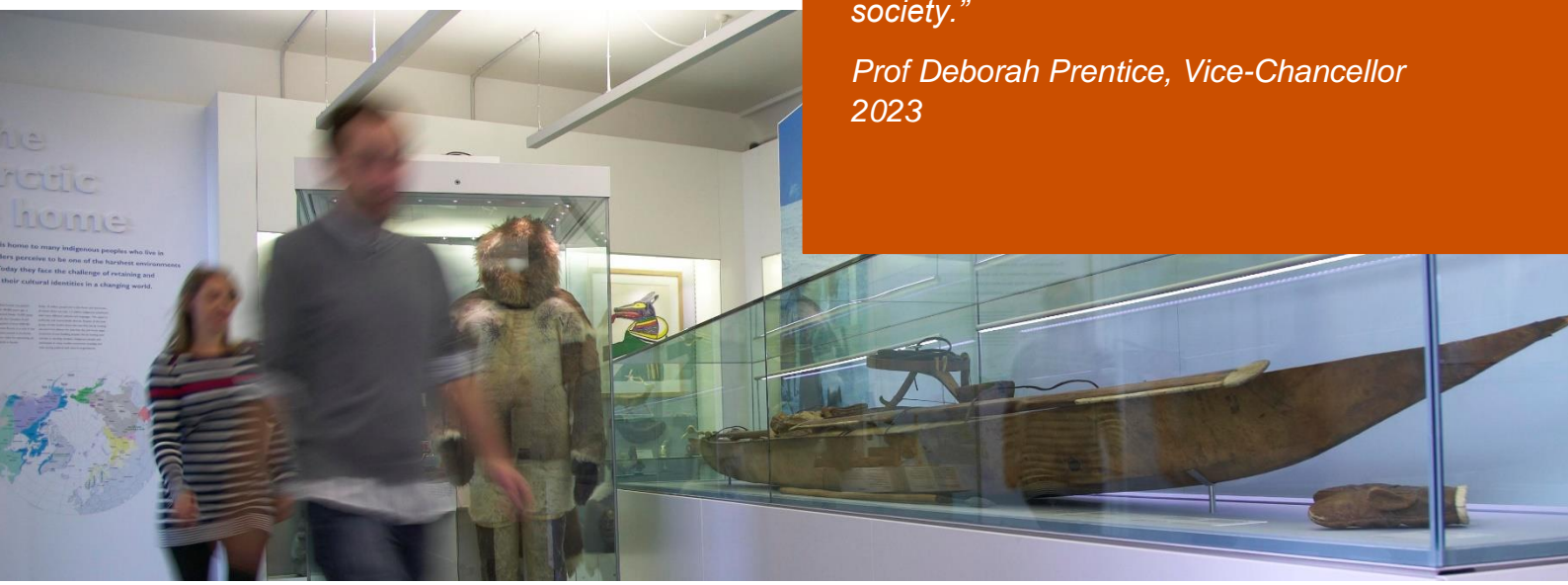
Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 18,000 students and over 16,000 staff from all walks of life and corners of the world.

The University continually explores strategies to attract and retain the best people. It is committed to supporting its staff to achieve their best. We are a fair, diverse and inclusive society and we believe our staff are our greatest asset. There is strong commitment to developing institutional leadership and supporting and encouraging staff development at all levels.

We offer a variety of roles including academic, research, professional, managerial and support roles. We also offer extensive benefits and excellent learning opportunities within a stimulating working environment.

The University's estate is undergoing the most significant transformation in its history. Cambridge has been able to create a new science and technology campus to the west of the city centre, and is now expanding further to the north west of Cambridge including investing in affordable homes for University key workers and community facilities. Even with our continued development, the University remains within walking or cycling distance across the campus. The University is a major partner on the Cambridge Biomedical Campus and we continue to redevelop our historic city centre sites demonstrating our determination to ensure that we can offer the best facilities and opportunities for our staff and students.
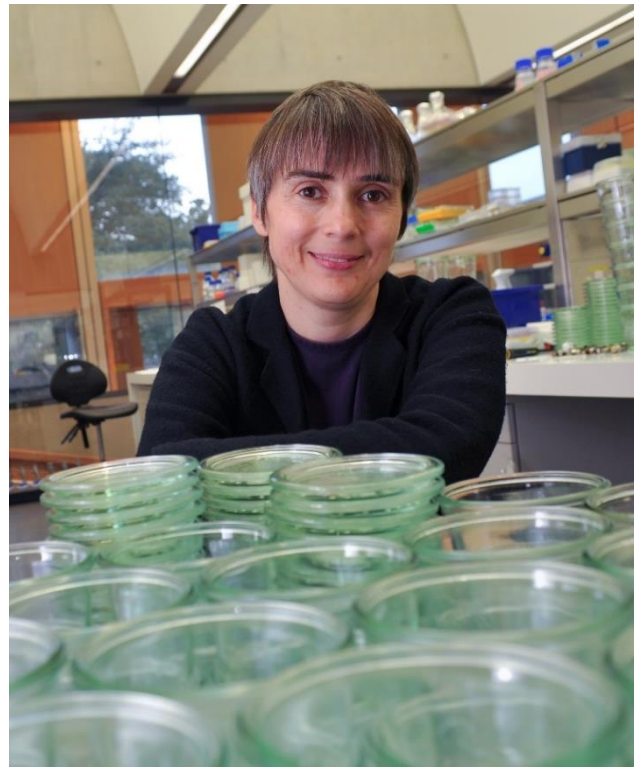
Equality & diversity
The University has built its excellence on the diversity of its staff and student community. We aim to be a leader in fostering equality and inclusion, and in promoting respect and a sense of belonging for all. We encourage applications from all sections of society. All appointments are made on the basis of merit. We have an Equal Opportunities Policy, along with a range of diversity networks for women, black and minority ethnic and lesbian, gay, bisexual and transgender staff. More details are available here: http://www.equality.admin.cam.ac.uk/

The University has a bronze Race Equality Charter aware, with framework for improving the representation, progression and success of minority ethnic staff and students within higher education. Furthermore, the University's Athena SWAN award recognises and celebrates good practice in recruiting, retaining and promoting women.

Living in Cambridge

Cambridge is rich in cultural diversity. From beautiful University and College buildings, museums and art galleries, quaint gardens and punts on the River Cam, to a vibrant restaurant and café scene, our employees are surrounded by the wonderful features of this unique city.

You can find a wide-range of high street shops and 3 shopping centres, with independent alternatives at the historic market and nestled within the passageways in the city centre. You will find a cinema, bowling alley, a nightclub and various live performances At the Cambridge Leisure Park, with further entertainment options at the Corn Exchange, Arts Theatre and the ADC Theatre. Further information can be found on the Visit Cambridge website.

If you prefer the faster pace of life, London is a 45 minute train journey away. For those travelling from overseas, Stansted Airport is just 45 minutes away and Heathrow Airport under 2 hours away. The University is a short distance from a host of other attractions such as Ely Cathedral, Newmarket Races and various wildlife parks and stately homes. Cambridge is also within easy reach of the beautiful Broads and coastlines of Norfolk and Suffolk.

Relocation Support

The University recognises the importance of helping individuals to move and settle into a new area. We provide support and guidance to those relocating internationally or domestically to take up a post at the University of Cambridge, liaising with other University offices and selected partners to ensure comprehensive relocation support is available. This includes: accommodation, childcare, schools, banking, immigration and transport. If you would like further information, please visit https://www.accommodation.cam.ac.uk/. The Shared Equity Scheme and the Reimbursement of Relocation Expenses Scheme provide financial assistance to qualifying new members of staff with the costs of relocating to Cambridge.

Accommodation Service

The University Accommodation Service helps staff, students and visiting scholars who are affiliated to the University in their search for suitable accommodation in Cambridge. The dedicated accommodation team can provide access to a wide range of University-owned furnished and unfurnished properties, and has a database of private sector accommodation available for short and long-term lets. For further information and to register with this free service please visit **https://www.accommodation.cam. ac.uk/**

What Cambridge can offer

We offer a comprehensive reward package to attract, motivate and retain high performing staff at all levels and in all areas of work.

The University offers a wide range of competitive benefits, from family leave entitlement, to shopping and travel discount schemes. Our generous annual leave package contributes to the positive wellbeing of our University employees. Sabbatical leave enables academics to focus on research and scholarship, whilst still maintaining their full salary. The University also has a career break scheme for academic and academic-related staff, with additional flexible working policies for all other staff.

Pay and benefits

The University salary structure includes automatic service-related pay progression in many of its grades and an annual cost of living increase. In addition to this, employees are rewarded for outstanding contribution through a number of regular pay progression schemes. The University offers attractive pensions schemes for employees, with an additional benefit of a salary exchange arrangement providing tax and national insurance savings. Payroll giving is also a simple, tax-efficient way for employees to make monthly donations to charity.

CAMbens employee benefits

The University offers employees a wide range of competitive benefits, known as CAMbens. CAMbens offers something for everyone across a range of categories, including:

- Financial Benefits, including shopping discounts (both local and national) and a Payroll Giving scheme;

- Relocation and Accommodation Benefits, including relocation assistance and interest-free Rental Deposit Loans;

- Travel Benefits, including Cycle to Work, discounts on train season tickets and interest-free Travel to Work loans;

- Family Friendly and Lifestyle Benefits, including support with childcare and family friendly policies;

- Health and Wellbeing Benefits, including a University Staff Counselling Service, discounts at the University Sports Centre, and other local gyms, and healthcare schemes.

What Cambridge can offer

Family-friendly policies

The University recognises the importance of supporting its staff. We have a range of family-friendly policies to aid employees' work-life balance including a generous maternity, adoption and shared parental leave entitlement of 18 weeks full pay and emergency family care support via My Family Care.

Other family-friendly support includes:

Our highly regarded workplace nurseries, a childcare salary exchange scheme and a high quality holiday Playscheme may be available to help support University employees with caring responsibilities (subject to demand and qualifying criteria). Further childcare information can be found here: https://www.childcare.admin.cam.ac.uk/

The Newcomers and Visiting Scholars Group is an organisation within the University run by volunteers whose aim is to help newly arrived wives, husbands, partners and families of Visiting Scholars and members of the University to settle in Cambridge and give them an opportunity to meet local people. The Office of Postdoctoral Affairs supports the postdoctoral community within Cambridge. Further details are available here: https://www.opda.cam.ac.uk/

Your wellbeing

The University's Sport Centre, Counselling Services and Occupational Health are just some of the support services available to University employees to promote their physical and mental wellbeing. There are many societies in Cambridge catering for almost every taste and interest. Whether you want to take part in a sport, participate in music or drama, pursue a hobby, or join a political group, you will almost certainly find that a society exists for this purpose. The University also hosts the Cambridge Science Festival and Cambridge Festival of Ideas, as well as Open Cambridge weekend, which together attract over 50,000 visitors per year. The festivals are a great opportunity to get your first taste of public engagement, through volunteering, supporting hands-on activities or proposing a talk.

Development opportunities

We support new employees to settle in through various activities. The encouragement of career development for all staff is one of the University's values and we put this into practice through various services and initiatives. Our Personal and Professional Development Department provides development opportunities and courses for all University employees. These include face-to-face sessions, online learning modules and webinars. Employees may also apply for financial support to undertake training that will lead to a qualification. We offer reduced staff fees for University of Cambridge graduate courses and the opportunity to attend lectures and seminars held by University departments and institutions. The CareerStart@Cam programme also supports employees in assistant staff roles who do not hold higher education qualifications to develop their skills, experience and qualifications.

How to apply

Applications should be submitted online via the University of Cambridge jobs page www.jobs.cam.ac.uk by clicking "Apply online" in the job advert. You will need an email address to register for our online system.

Conversations about flexible working are encouraged at the University of Cambridge. Please feel free to discuss flexibility prior to applying (using the contact information below) or at interview if your application is successful.

For further information about the role applicants should contact Alastair Beresford, Head of Department at Alastair.Beresford@cst.cam.ac.uk.

If you have any queries about the application process please contact personnel-admin@cst.cam.ac.uk.

The closing date for applications is: 12th January 2025.
Interviews will be held: 21st and 24th January 2025.