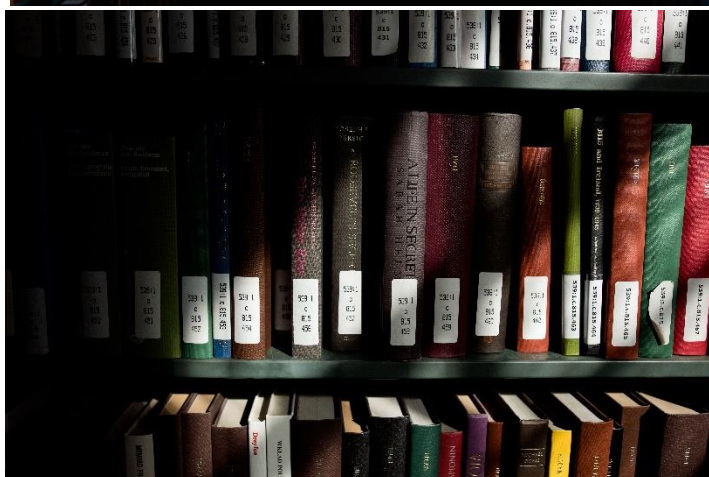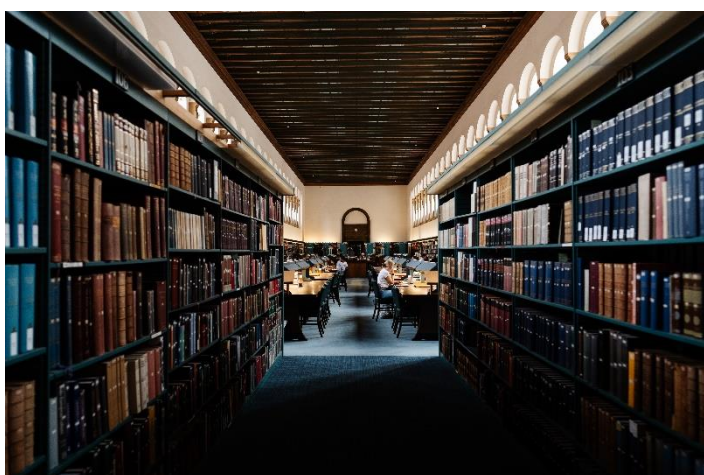# Senior Software Developer

Digital Innovation and Development

Cambridge University Libraries

Closing Date: 20 April 2025
Job Reference: VE45481

Library photos by Alice the Camera

Athena SWAN Silver Award

ECU Race Charter — Race Equality Charter Bronze Award

disability confident COMMITTED

We are a Living Wage Employer

Senior Software Developer

Salary:
£41,671-£55,755

Contract:
Permanent

Location:
Cambridge

Faculty / Department: Digital Initiatives and Strategy

Responsible to: Lead Developer

Working Pattern:
Full Time, Hybrid (at least one day a week on-site)

Purpose of the role:

The Cambridge University Library Innovation and Development team are looking for an enthusiastic Senior Developer with strong Terraform and AWS operations expertise to help re-imagine our services in the cloud and use cutting-edge technologies to solve complex challenges creatively.

We are transforming the way the library handles, displays and preserves its world-class collections including the notebooks of Isaac Newton and the letters of Charles Darwin.

This is a chance to build on and expand our vital platform for library staff and researchers. You will work on a variety of full-stack systems, with varied technologies and languages, allowing you to gain a wide range of experience in a supportive team environment.

The work can range from maintaining and supporting core library services to developing innovative digital humanities research projects. Open-source standards in data and software are important to us, and you will be able to contribute to our rich open-source software offerings including the Cambridge Digital Library platform which is used in institutions across the UK.

This role is for a Senior Developer with a background in AWS operations, object-orientated programming and full-stack web development, to work as part of our agile development team. You will take on ownership of tasks and provide additional investigation, including coordinating with stakeholders and other developers to propose, verify and implement a solution.

Being a member of the Development team, and the wider department, the role holder will be working closely with other Developers in a collaborative environment, sharing ideas, giving and receiving feedback. The team also collaborate with other institutions in open-source communities, as leaders, spearheading changes beneficial to many.
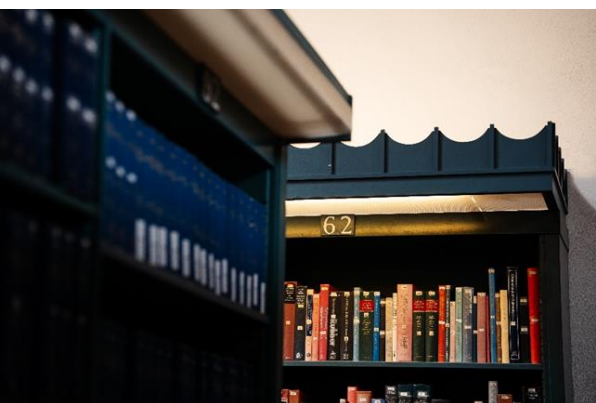
Key responsibilities:

To own the development tasks assigned, including analysing user and stakeholder requirements and existing technologies used within the team, building new features, and proposing solutions.

Requirements Definition

- Drive the requirements elicitation process for complex developments where necessary, identifying what stakeholder input is required.
- Take responsibility for the investigation and application of any changes affecting scope.
- Identify the impact of external events affecting a development or programme/project.

Cloud Architecture and System Design
- Recommend/design cloud and system architectures, data structures and tools which meet business needs.
- Deliver technical visualisation of proposed applications for approval by stakeholders and execution by a development team.
- Translate logical designs into physical designs and produce detailed design documentation.
- Ensure best practices and standards are applied to ensure the highest level of data protection and system security are implemented.
- Review design proposals from colleagues.

Software Development

- Undertake complex programs and program modifications from detailed specifications, using agreed standards and tools.
- Write high quality code, making proper use of version-controlled software repositories and participate actively in code review, and creates and maintains systems documentation.

Testing

- Analyse complex cloud-native components and software system interactions in order to identify the cause of faults and devise appropriate testing strategies in order evaluate potential solutions.
- Analyse complex systems for conformance to sophisticated user requirements.
- Participate in the development of meaningful evaluation criteria and perform appropriate acceptance testing.
- Assist junior developers in a mentoring capacity in order to develop their skills and understanding.
- Coordinate activities to ensure security tests are carried out.

Cloud Automation and DevOps

- Install and configure, using standard DevOps practices, applications and services as required.
- Develop and maintain infrastructure-as-code solutions, ensuring security, consistency and scalability.
- Automate deployments, monitoring, and scaling of applications and infrastructure.
- Define and agree release and deployment plans with customers, operations and other stakeholders.
- Ensure that all release and deployment packages can be tracked, installed, tested, verified, and/or uninstalled or backed out, if appropriate.
- Document the release cycle appropriately, in order to facilitate configuration management and knowledge transfer.

Systems Development Management

- Lead development activities across a range of applications and systems, using an appropriate software development methodology and programme/project management tools.
- Participates in the concept generation and work description for innovative software development grants.
- Estimate time and staffing levels for planning and reviews proposals for technical applications and systems, using an appropriate software development methodology and programme/project management tools.
- Participate in the concept generation and work description for innovative software development grants.
- Estimate time and staffing levels for planning and review proposals for technical feasibility.

Person Specification

This Section details the knowledge, skills and experience we require for the role and would need to be demonstrated within your application alongside any experience related to the responsibilities for the role.

Specialist knowledge & skills		
• High level of practical experience of software development in the following areas: Object-Oriented programming languages such Java, Python or Ruby.	✓	
• Experience of using Infrastructure as code, e.g. Terraform for management of cloud-based architectures.	✓	
• Experience of using databases such as PostgreSQL.	✓	
• Full-stack web development. Ability to design modern web infrastructure architectures for attributes such as scalability, maintainability and reliability.	✓	
• Experience with UNIX-like operating systems.	✓	
• Experience with working with highly sensitive data including personal private data.		✓
• Cloud-based development practices, including serverless technologies and security frameworks.		✓
• Containerised deployment such as Docker / Kubernetes		✓
• Knowledge of current and emerging metadata standards, schema and approaches including ISAD(G), EAD and EAC, Dublin Core, METS, MARC/MARCXML, TEI;		✓
• Lucene-based search engines such as Solr, Elasticsearch or OpenSearch;		✓
• Markup languages such as XML, JSON and methods of processing them, eg XSLT.		✓
• Developing capabilities for managing content; innovative display techniques; library catalogue systems; image servers		✓
• Digital repository systems such as Fedora/Samvera/Islandora or DSpace		✓

Interpersonal & communication skills		
• **Autonomy:** - Able to work under general direction within a clear framework of accountability. - Can exercise substantial personal responsibility and autonomy. - Can plan own work to meet given objectives and processes.	✓	
• **Influence:** - Able to influence team and specialist peers internally. Can influence customers at account level and suppliers. - Can take some responsibility for the work of others and for the allocation of resources. - Able to participate in external activities related to own specialism. - Able to make decisions that influence the success of projects and team objectives.	✓	
• **Complexity:** - Can perform a broad range of complex technical or professional work activities, in a variety of contexts. - Able to investigate, define and resolve complex problems.	✓	
• **Business Skills:** - Able to select appropriately from applicable standards, methods, tools and applications. - Can demonstrate an analytical and systematic approach to problem solving. - Able to communicate fluently orally and in writing and can present complex technical information to both technical and non-technical audiences. - Can plan, schedule and monitor work to meet time and quality targets and in accordance with relevant legislation and procedures. - Able to rapidly absorb new technical information and apply it effectively. - Will maintain an awareness of developing technologies and their application and take some responsibility for personal development.	✓	
Relevant experience		
• Demonstrate experience working on several significant software development projects.	✓	
• Track record of mentoring junior software developers and delivering development projects on time and under budget.		✓
Additional requirements		
• Open-source experience in a distributed development project highly desirable.		✓
• Experience of modern (agile) development techniques desirable.		✓

Behavioural Attributes

This section summarises the behavioural attributes (or competencies) that we expect the role holder to be able to demonstrate, at what level and whether this is an essential or desirable requirement. Full definitions are at: https://www.hr.admin.cam.ac.uk/policies-procedures/behavioural-attributes

Please review these and provide specific examples in your application of how you have demonstrated these attributes in your work, education or other experience. It will assist your application if you explain the situation, what you did and what the outcomes were.

Attribute	Level
Valuing Diversity	A
Achieving Results	B
Communication	B
Innovation and Change	B
Negotiating and Influencing	C
People Development	B
Relationship Building	B
Strategic Focus	B

Professional Services Values

Developed by professional services staff, our values underpin everything we do. By living the values in the work we do, we hope to foster an environment where staff feel empowered. The values encourage staff to; work together and share skills to create a sense of community, act with integrity, take an inclusive and fair approach and develop honest and open relationships that are underpinned by our shared values. We encourage applicants to consider these values within their application.

The Cambridge University Libraries

Cambridge University Library and the affiliated libraries

Cambridge University Library is one of the world's great research libraries. The Library is a major scholarly resource, not only for the University's academic community, but also for researchers nationally and internationally. Cambridge University Library has been collecting books and manuscripts since the 14th century and now has one of the greatest and most accessible collections of books and manuscripts in the world. As a legal deposit library for over 300 years, the University Library also has comprehensive holdings of UK publications, as well as extensive collections built up through purchase over several centuries.

Organisationally, the University Library comprises the main University Library and its affiliated libraries (see below for a list of all Affiliated Libraries).**The University Library Department and Faculty Libraries List:**

- The African Studies Library
- The Architecture and History of Art Library
- The Asian and Middle Eastern Studies Library
- The Balfour and Newton Libraries (Zoology)
- The Betty and Gordon Moore Library for Physical Sciences, Mathematics and Technology
- The Chemistry Library
- The Casimir Lewy Library (Philosophy)
- The Classics Library
- The Cory and Herbarium Libraries
- The Divinity Library
- The Engineering Library
- The English Library
- The Everton Library (Education)
- The Haddon Library (Archaeology and Anthropology)
- The Genetics Library
- The Geography Library

- The Marshall Library (Economics)
- The Material Science & Metallurgy Library
- The Medical Library
- The Modern and Medieval Languages and Linguistics Library
- The MRC Cognition & Brain Sciences Library
- The Pendlebury Library (Music)
- The Plant Sciences Library
- The Psychology Library
- The Physiology, Development and Neuroscience Library
- The Scott Polar Research Institute Library
- The Seeley Library (History, Land Economy, Latin-American Studies, Policy and International Studies, Sociology
- The South Asian Studies Library
- The Squire Law Library
- The Radzinowicz Library (Criminology)
- The Rayleigh Library (Physics)
- The Veterinary Medicine Library
- The West Hub Library
- The Whipple Library (History and Philosophy of Science)

Terms of Appointment

Tenure and probation
Appointment will be made on a permanent basis.

Appointments will be subject to satisfactory completion of a 9-month probationary period which will be set dependant on the length of tenure.

Hours of Work and Working Pattern
The hours of work for the position are full time, 37 hours per week, working Monday – Friday.

Pension
You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a hybrid pension 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
Please note that if you are offered the post you will be asked to provide your relevant original certificates of your qualifications.

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

Equality and Diversity

We particularly encourage 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 Department Administrator, who is responsible for recruitment to this position.
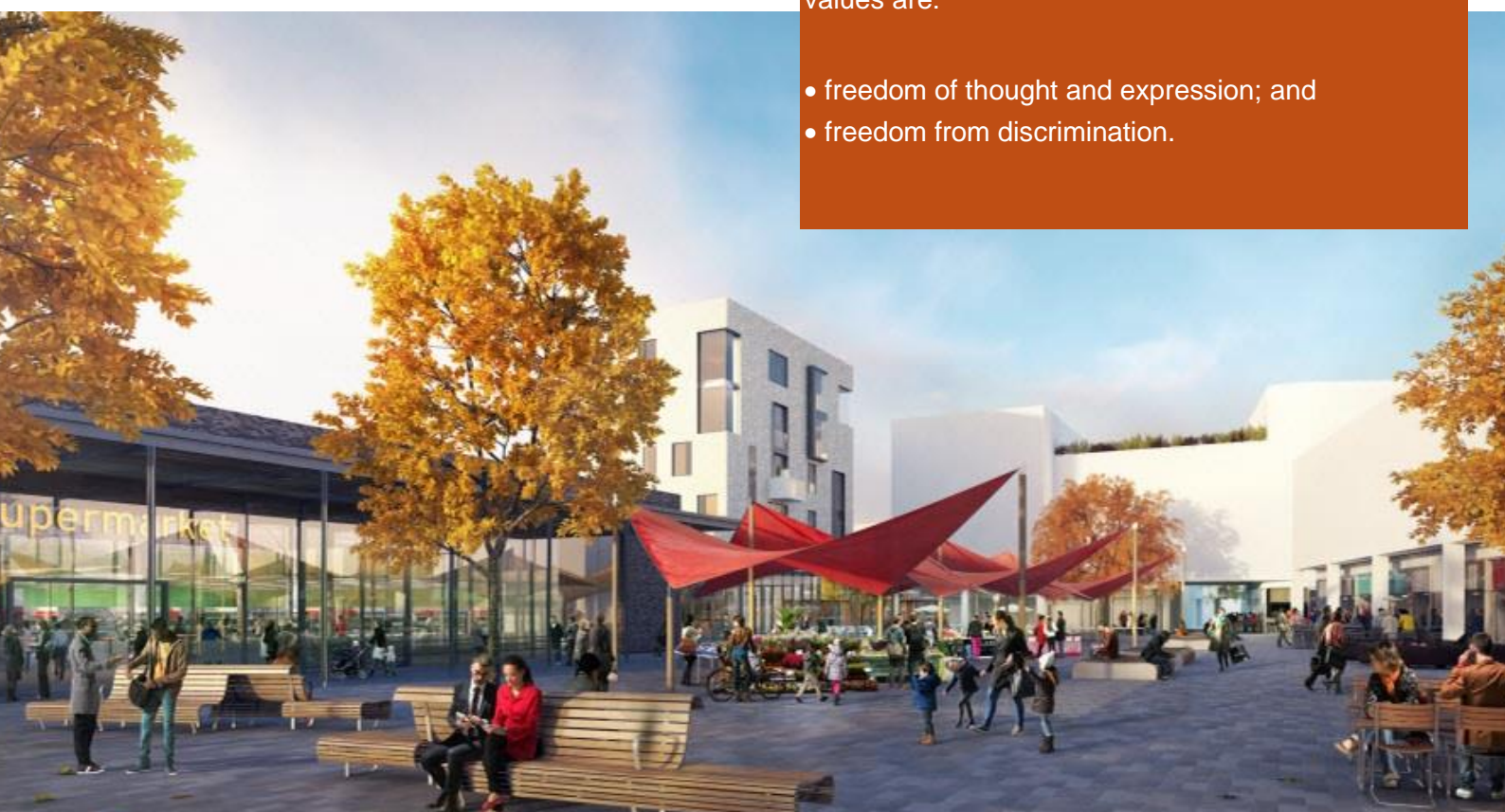
The University

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 world-leading 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 academic and commercial growth at both the West Cambridge Innovation District, and the Biomedical Campus in the south of the city. Eddington, in North West Cambridge, is a mixed-use development including key worker housing for staff, a community centre and a new primary school, managed by the University. Through these projects, the University is 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 undergraduate students, provide student accommodation and pastoral support and deliver small group teaching for undergraduates.

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

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.

"Cambridge graduates and researchers have made – and continue to make – a colossal contribution to human knowledge and the understanding of the world around us. Their work touches on the lives and livelihoods of everyone from patients diagnosed with life-threatening diseases, to residents of areas critically affected by climate change, to children growing up in conflict zones. It has a lasting impact on our society, our economy and our culture: the world is truly a better place thanks to their efforts."

Stephen Toope, Vice Chancellor 2019

Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 23,000 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 science and technology campus to the west of the city centre, and is 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 groups, including the Women's Staff Network, Race Equality Network and LGBT+ Staff Network. More details are available here: http://www.equality.admin.cam.ac.uk/

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

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/RelocationService/. 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/
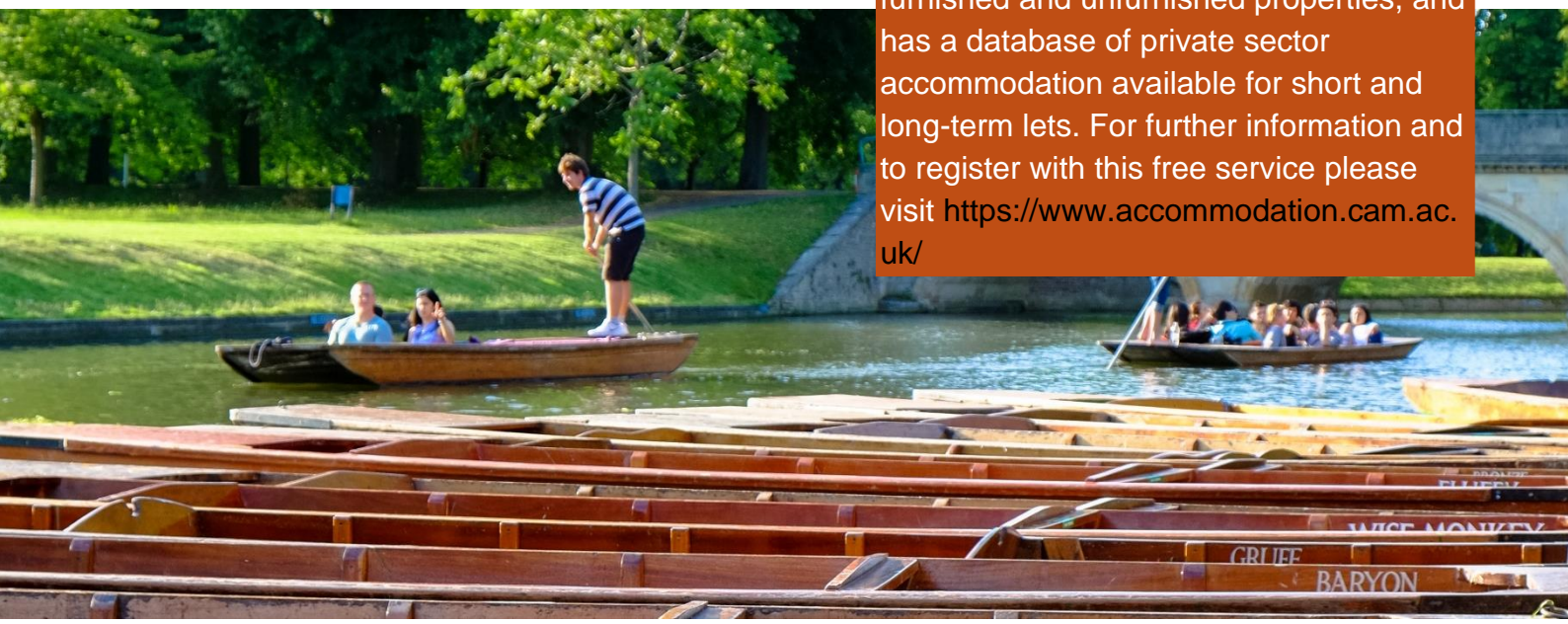
What Cambridge can offer

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.

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 paid emergency leave for parents and carers.

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 Postdoc Academy supports the postdoctoral community within Cambridge. Further details are available here: https://www.postdocacademy.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. The University delivers The Festival of Wellbeing annually, which is a programme of stimulating talks and activities, which aim to promote wellbeing and good mental and physical health. The University also hosts the Cambridge Festival, which is 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 as well as supporting their professional and career development on an ongoing basis. Our Personal and Professional Development (PPD) team provide development opportunities for all University employees, including face-to-face sessions, online learning modules and webinars. All employees also have unlimited access to LinkedIn Learning to support their development. Both new and existing employees can undertake funded Apprenticeships, which lead to a range of vocational and professional qualifications. 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. A range of University training providers also offer specialist learning and development in their own areas e.g. teaching and learning, digital literacy, finance, health and wellbeing, safety.

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.

Informal enquiries are welcomed and should be directed to:

Name: Jennie Fletcher – Lead Developer
Email: jlf44@cam.ac.uk

If you have any queries regarding the application process please contact: **Ella May Bailey, HR Coordinator**
jobs@lib.cam.ac.uk

The closing date for applications is: 20 April 2025
The interview date for the role is: TBC