

Computational and Field Senior Technician (Remote sensing)

Department of Geography

Closing date: 7th April 2025

Vacancy reference: L C 4 5 4 1 7



The role

Salary:

£33,482 - £39,355
per annum

Contract:

Fixed term for 24 months

Location:

Central Cambridge

Department:

Geography

Responsible to:

Dr Emily Lines

Working Pattern:

Full-time

Role overview

The Computational and Field Senior Technician (CFST) will be a member of Dr Emily Lines's Research Group in the Department of Geography. Their work will involve carrying out data processing, developing new data processing pipelines, assisting with fieldwork, and assisting with the smooth day-to-day running of the Group, including working with the existing Geography Lab technical team and the Department's computing support team.

Dr Lines's UKRI project "*Next generation forest dynamics modelling using remote sensing data*" focuses on the use of high resolution remote sensing data to improve our understanding of how forests are structured and function. The CFST will focus on the processing of high-resolution remote sensing data including terrestrial and drone laser scanning, including the deployment and development of bespoke processing pipelines to extract ecologically important information from high-resolution point clouds. The CFST will also support additional fieldwork to collect data, including international fieldwork.

The Geography Department consists of approximately 120 staff, and 450 undergraduate, Master and PhD students, who work mainly within two buildings on the Downing Site, central Cambridge. The Department of Geography's laboratories have earned Platinum Green Impact Awards by the University, and the Geography Science Laboratories team aim to maintain and further develop sustainable practise. The University of Cambridge is a signatory to the national Technician Commitment. This is a sector-wide initiative, sponsored by the Gatsby Foundation and the Science Council that aims for greater visibility, recognition, career development and sustainability for technicians across all disciplines

The CFST will assist in Dr Emily Lines's UKRI FLF project, focussing on tasks around collecting and processing high-resolution three-dimensional LiDAR and Structure from Motion point cloud data of forests. Computational tasks will include pre-processing field data using proprietary scanner software (RiScan, Agisoft Metashape, LidarViewer), performing semantic and instance segmentation using existing software pipelines developed by the group and others, cleaning point cloud segmentation output, and analysing data to extract ecologically important information including forest structure, tree carbon and diversity. The CFST may also develop new bespoke tools or pipelines tailored to the Group's needs, including those based on deep learning/AI methods. The majority of existing tools are in Python, with some also in R, C/C++. Experience in Python is expected as a minimum, and training can be provided in other languages. Processing tools are deployed both locally and on HPC clusters, and the CFST will do so using bash and Linux. Additionally, the CFST will be expected to support other group members in the collection of new data in UK and international fieldwork, totalling c. 3 months over the period of employment.

Furthermore, the CFST will contribute to the production and interpretation of data for academic-led research in their own specialist area(s) and be encouraged and supported to undertake training, under the guidance of the PI and the Geography Science Laboratories Manager, to maintain their skills and develop their experience. They will also coordinate responsive equipment bookings associated to the Group, and will be proactive in maintaining computational and field equipment in the Group, with training to do so provided by the PI and existing Geography Science Laboratories team as needed

Key responsibilities

- Process high-resolution three-dimensional LiDAR and Structure-from-Motion point cloud data of forests using proprietary and open software in Python, and optionally in R and C/C++, including in Linux and HPC environments.
- Develop new processing tools and/or pipelines for high-resolution three-dimensional LiDAR and Structure from Motion point cloud data of forests in Python, and optionally in R and C/C++.
- Maintain up to date knowledge of three-dimensional point cloud processing tools and techniques.
- Develop and maintain data processing user guides on the Group Github pages.
- Assist in field data collection in the UK and internationally, including physically strenuous work in remote locations.
- Be proactive in maintaining computational and field equipment of the Group.
- Provide training to undergraduates, postgraduates and academic researchers in processing and use of our datasets, and data collection, and support field and computational teaching, research and outreach of the research group.
- Assist in the organisation and running of research meetings and workshops, both internal and external.
- Contribute to skills development of all Group members through the sharing of expertise through on-the-job training and attention to own personal and professional skills development.
- Provide other duties appropriate to the role and commensurate with the grade, as directed by Dr Lines.

Person Specification

Criteria	Essential	Desirable
Experience		
<ul style="list-style-type: none">Experience of processing remote sensing data in terrestrial ecosystems	✓	
<ul style="list-style-type: none">Experience of LiDAR data collection and processing (terrestrial, drone and/or aerial) in forest environments		✓
<ul style="list-style-type: none">Experience of field work, particularly in forest environments	✓	
<ul style="list-style-type: none">Experience of data processing pipelines in Python, R and/or C/C++	✓	
<ul style="list-style-type: none">Experience developing and maintaining open source software, e.g. through GitHub		✓
<ul style="list-style-type: none">Experience with Linux and High Performance Computing		✓
Skills		
<ul style="list-style-type: none">A breadth of technical research skills relevant to physical geography, with specialisms in forest ecology	✓	
<ul style="list-style-type: none">Knowledge of Health and Safety issues relevant to field work		✓
<ul style="list-style-type: none">Ability to carry out technical work with a high degree of precision and accuracy	✓	
<ul style="list-style-type: none">Strong programming skills, including specialist digital/numerical data processing of scientific data relevant to forest ecology	✓	
<ul style="list-style-type: none">Demonstrable time and data management and organisational skills		✓

Person Specification (continued)

Criteria	Essential	Desirable
Qualifications		
<ul style="list-style-type: none">Degree level qualification (or equivalent experience) in Geography or related subjects such as Environmental Sciences or Biology	✓	
<ul style="list-style-type: none">First aid qualification		✓
<ul style="list-style-type: none">Full driving licence (that allows manual) in order to be able to access field sites	✓	
Additional requirements		
<ul style="list-style-type: none">Proactive interest in the development of sustainable day-to-day practices in the research group	✓	
<ul style="list-style-type: none">Willingness to train and support other group members in data collection and analysis	✓	
<ul style="list-style-type: none">Desire to organise and conduct extensive fieldwork campaigns in sometimes remote international environments	✓	
<ul style="list-style-type: none">Willingness to maintain up-to-date knowledge on the field, including learning new techniques	✓	

The Department of Geography

The Department of Geography has a long-established international reputation as one of the leading centres of innovative geographical thought and education and celebrated one hundred years of teaching Geography in Cambridge in 2019.

The Department is a friendly and inclusive scholastic community with wide-ranging research interests spanning the natural and social sciences and the humanities. Incorporating the Scott Polar Research Institute, and based on two central Cambridge sites, at Downing Place and Lensfield Road, it has approximately 40 academic, 25 research and 45 support staff at any one time.

Teaching

The Department delivers a Tripos (undergraduate degree) with an intake of approximately 100 students per year and has a vibrant graduate community of approximately 150 students studying at PhD level and on Master's courses in *Geography*, *Polar Studies*, *Anthropocene Studies*, *Holocene Climates* and *Conservation Leadership*.

The Department is ranked top in the 2023 *Complete University Guide* in the category of Geography and Environmental Science and third in the 2022 *QS World University Rankings* for Geography.

Visit our website at <http://www.geog.cam.ac.uk>

Research

The Department's research activities are organised into six thematic research groups: *Vital Geographies*, *Infrastructural Geographies*, *Geographies of Knowledge*, *Biogeography and Biogeomorphology*, *Climate and Environmental Dynamics*, and *Glaciology and Glacial Geology*. These overlap with two centres of excellence – the Cambridge Group for the History of Population and Social Structure, co-hosted with the Faculty of History, and the Scott Polar Research Institute. The Department also provides the home for the University of Cambridge Conservation Research Institute.

The Department's research is aided by well-supported laboratories, field equipment and high-performance computing services, supporting a combination of fieldwork, laboratory analysis and experiments, remote sensing and computational modelling.

In the 2021 Research Excellence Framework exercise, 96% of Cambridge's overall submissions were rated as 'world leading' or 'internationally excellent'. 50.8% of outputs submitted by the Department were awarded the highest rating of 4* overall, meaning that they were world leading. The Department was also recognised for its outstanding research environment, which enables its researchers to flourish to their full potential.

For further information see:

<http://www.geog.cam.ac.uk/research/>.



Laboratories and field equipment

The Geography Department's laboratory and field equipment facilities are at the heart of specialist research and research-led teaching in physical geography at Undergraduate and MPhil level. Field and Laboratory teaching includes large classes for first year undergraduates (~100), more specialised sessions for smaller undergraduate and MPhil classes (10-40) and research training for undergraduate and MPhil dissertation students, and PhD researchers (totalling 20+ per year).

As well as general teaching laboratory and a range of sample preparation spaces, the Department's laboratories are currently home to the Cambridge Tephra Laboratory, the Tree-Ring Unit, the Conservation Palaeoecology Lab and a growing UAV facility, each of which houses highly active research clusters with specialist equipment.

The Department of Geography's laboratories have earned Platinum Green Impact Awards from the University and aim to maintain and develop sustainable practise.

The University of Cambridge is a signatory to the national Technician Commitment. This is a sector-wide initiative, sponsored by the Gatsby Foundation and the Science Council that aims for greater visibility, recognition, career development and sustainability for technicians across all disciplines.

Terms of Appointment

Tenure and probation

Appointment will be made on a 2 year fixed term basis, subject to satisfactory completion of a six-month probationary period.

Hours of work and working pattern

The hours of work for the position are 36.5 hours per week, working Monday to Friday.

Pension

You will automatically be enrolled to become a member of CPS (Contributory Pension Scheme) – a defined benefit and defined contribution 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 36 days inclusive of public holidays. For part-time employees, annual leave will be pro rata'd based on days worked.

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 for these 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 or 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 Advisor in the Department of Geography (ndk20@cam.ac.uk), 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.

“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



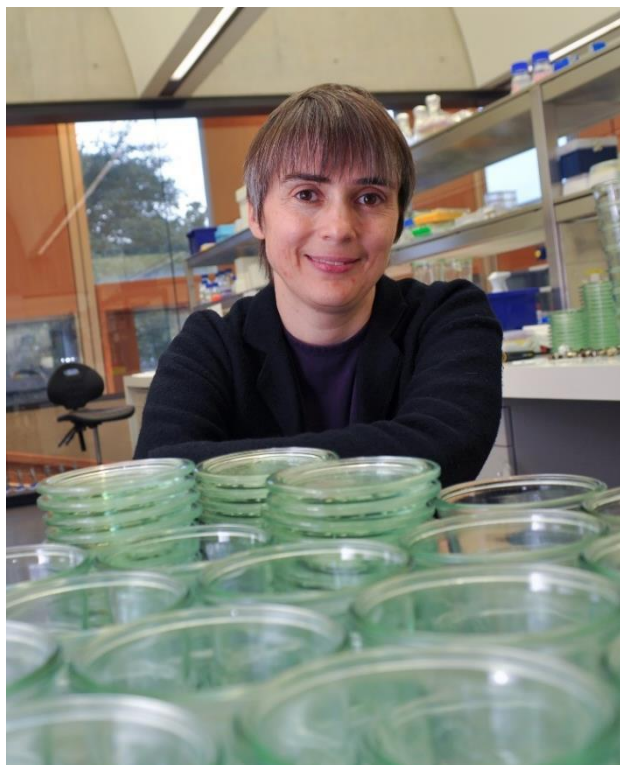
Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 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

We offer a CAMbens scheme for University employees, providing access to online and in-store shopping discounts and cashback. With more than 2,000 participating retailers, employees can save money on a wide range of household expenses, from groceries and clothes, to holidays and insurance and much more. A range of local discounts are also available, helping employees to save money whilst also supporting local Cambridge businesses and a CAMbens Cycle to Work salary sacrifice scheme is also available, which enables employees to save money on transport costs. A 10% discount rate on the purchase of train season tickets, bulk buy tickets and an interest free travel to work loan are also available for staff of the University.



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.

In the ‘Suitability for the Role’ section of the application, you are encouraged to clearly set out how your knowledge, skills and experience match the Person Specification for the role. If you upload any additional documents which we have not requested, we will not be able to consider these as part of your application.

Full contact details of two referees are required, at least one of whom we may contact if you are invited for interview. One of your referees must represent your current or most recent employer.

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 about the role or the application process should be directed to HR@geog.cam.ac.uk

The **closing date** for applications is **7th April 2025**.

Interviews for shortlisted candidates will take place in Cambridge **w/c 21st April 2025**.

UNIVERSITY OF
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