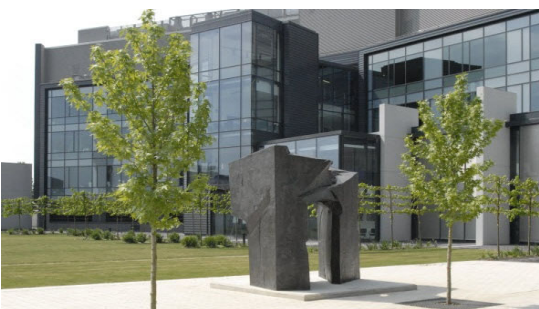


Postdoctoral Research Associate (Fixed Term)

Department of Physiology, Development &
Neuroscience

Closing Date: 9 June 2025

Job Reference: PM45938



Postdoctoral Research Associate: Mapping and Modulating Head-Direction Circuits

Salary:

£37,174–£45,413

Contract:

Fixed-Term

Location:

Central Cambridge

Faculty / Department:

Physiology, Development &
Neuroscience

Responsible to:

Dr Sepiedeh Keshavarzi

Working pattern:

Full-time

Purpose of the role

Applications are invited for a postdoctoral position in Dr. Sepiedeh Keshavarzi's laboratory at the University of Cambridge. The lab's Wellcome-Trust-funded research investigates neural circuits for the sense of direction and self-motion by combining *in vivo* and *ex vivo* neuronal recording and manipulation with quantitative behavioural assays in mice. For more details, please visit our website: keshavarzilab.com.

This project will dissect the organisation of head-direction circuits in the mouse brain, with a focus on the retrosplenial cortex and its reciprocal cortical and thalamic connections. In the first phase, you'll employ slice electrophysiology (whole-cell patch-clamp), circuit tracing and optogenetic mapping to characterize the synaptic and intrinsic properties of defined pathways. In the second phase, you'll investigate how these circuits remodel during spatial-orientation tasks, probing whether neuronal plasticity is necessary for accurate spatial learning.

Collaborative opportunities will allow you to bridge *ex vivo* and *in vivo* approaches. Highly driven postdocs who establish efficient slice workflows may broaden their skillset to include complementary *in vivo* approaches – ranging from extracellular recordings with Neuropixels probes and two-photon calcium imaging to spatial-orientation behavioural assays – either independently or in partnership with colleagues specialising in these techniques.

Key Experience

We seek a motivated, ambitious researcher with a strong background in cellular neurophysiology and clear interest in the lab's research program.

Research Environment

The successful candidate will join a collaborative laboratory committed to rigorous, innovative research and to fostering professional development of its members. We provide funding and logistical support for conferences and workshops, guidance on independent fellowship applications, and ongoing career mentorship.

You will work within a multidisciplinary team – interacting regularly with other neuroscience groups in the Department – and collaborate with both in-house experimentalists and external engineers and computational neuroscientists. The Department's seminars, along with events hosted by the Cambridge Neuroscience Network, will enrich your experience through further scientific exchange and networking.



Postdoctoral Research Associate: Mapping and Modulating Head-Direction Circuits

Key Duties and Responsibilities

- Design, develop and conduct experiments and analyze experimental data.
- Keep up to date with relevant literature in the field.
- Maintain a permanent record of all data, metadata, codes, methods and results in accordance with the lab's guidelines for data and code management.
- Prepare experimental results or code for presentation to the Principal Investigator and the lab on a regular basis.
- Contribute to the writing, submission, and revision of manuscripts for publication.
- Collaborate closely with others lab members, providing support and supervision when required.
- Assist in the supervision of undergraduate and graduate student projects as required.
- Contribute to the general operations of the lab, including maintenance of lab stocks, purchasing, mouse colonies, etc.
- Contribute to the departmental activities including seminars and events.
- Carry out any other duties commensurate with the grade and purpose of the post.



Person specification

	essential		desirable
Education & Qualifications			
Educated to PhD level in Neuroscience or a related field (or near completion)	✓		
Specialist knowledge and skills			
Extensive experience with slice patch-clamp electrophysiology and data analysis.	✓		
Strong foundational knowledge in neurophysiology.	✓		
Clear demonstration of interest in the lab's research program.	✓		
Experience with optogenetic circuit-mapping (viral delivery, photostimulation).			✓
Experience with rodent stereotactic surgery.			✓
Proficient programming skills in Python (or Matlab).			✓
Interpersonal & communication skills			
Capable of clearly communicating scientific ideas and findings in English, both verbally and in writing.	✓		
Committed and enthusiastic about collaborative work on research projects	✓		
Willing to assist in training and supervising other lab members.	✓		
Willing to work occasionally on weekends when experiments require continuity over a specific time period.	✓		
A solid track record of research output.			✓



The Department of Physiology, Development & Neuroscience

The Department of Physiology, Development and Neuroscience (PDN) is engaged in teaching and research across a wide range of biological sciences - from cell and developmental biology, through cellular and animal physiology to systems neurosciences and human anatomy.

Currently there are 46 academic staff, involved in teaching and leading active research groups, 12 independent research fellows (funded by the Wellcome Trust, the Royal Society and others), over 70 post-doctoral researchers and circa 50 professional support staff. Research grant income amounts to around £10M annually, and flows from a variety of sources, including UKRI Research Councils, The Wellcome Trust, The Royal Society, European Research Council, Leverhulme Trust, British Heart Foundation. Our PhD students go on to prestigious fellowships and influential scientific positions worldwide.

The Department occupies two buildings in the Downing Site, which include Teaching Facilities, research laboratories equipped for diverse research programmes, and facilities such as the Cambridge Advanced Imaging Centre. It participates in a range of University Interdisciplinary Research Initiatives including Cambridge Neuroscience, Cambridge Reproduction, Cambridge Cardiovascular Disease, Metabolism, Stem Cells. Members of the Department contribute to several of the School of Biological Sciences Research Themes, including leadership roles in Neuroscience and in Reproduction, Development and Lifelong Health (<https://www.bio.cam.ac.uk/research/research-themes>). PDN also has affiliates in Cambridge Stem Cell Institute and the Gurdon Institute and is located close to other major biological departments including Psychology, Genetics, Biochemistry and Pathology. There are strong collaborative links with the Clinical School, the Veterinary School, and the MRC Centre for Brain Repair and the MRC Laboratory of Molecular Biology.

Research Activities: PDN sets itself the goal of sustaining a research enterprise of the highest international standard. Our central aim is to understand the relationship between Biological Structure and Function. The Department has the breadth of expertise, specialised research facilities and operative structures to conduct this research at all levels of biological organisation, ranging from gene expression through cell and tissue biology, ultimately to the analysis of the whole organism and its physiology and behaviour. The main research interests are set out on our web site (<http://www.pdn.cam.ac.uk/research/>).

Undergraduate teaching activities: The Department's extensive undergraduate teaching programme provides courses for medical, veterinary and science students. All academic staff are required to deliver lectures, teach practical classes and examine. The expectation is that new Lecturers would contribute to teaching across a broad range of Development, Reproduction and Physiology in 1st and 2nd-year undergraduate courses, as well as at more specialist level.

Life in PDN: A friendly and welcoming Department, PDN strives to create a workplace where everyone feels included and has a sense of belonging. It seeks to give staff and students support in making their work and studies as fulfilling as possible whilst respecting a healthy work-life balance. PDN recognises that its strength lies in the staff and students who work and study here and that the greater our diversity, the stronger we will be. We currently hold an Athena SWAN Bronze award and have a good gender balance (for example, of 19 Professors in PDN, 10 are women) and wish to improve our racial diversity. We encourage applications from all sections of society. <https://www.pdn.cam.ac.uk/intranet/equality-diversity-and-inclusion>.

The School Of Biological Sciences



The School of Biological Sciences encompasses the Faculty Board of Biology and the Faculty Board of Veterinary Medicine and is represented on the Faculty Board of Clinical Medicine. It has responsibilities across four Triposes (the Natural Sciences Tripos, the Medical Sciences Tripos, the Veterinary Sciences Tripos and the Psychological and Behavioural Sciences Tripos).

About the school

The School of Biological Sciences shares the Graduate School of Life Sciences, Graduate Committee and Medical Education Committee with the Clinical School. It has its own Degree Committee. It includes nine Departments and the Centre for Family Studies, plus five major research Institutes and an animal hospital. The School is a key player in the Cambridge Conservation Initiative as well as the majority of Cambridge Strategic Initiatives. The School is associated with the Museum of Zoology and the Botanic Garden. Key officers of the School plus details of relevant Research Ethics Committees (Human Biology, Psychology) can be found on the [School's website](#). Various subcommittees report to the Council, as required.

Formal representation on the Council of the School (its most senior decision-making body) is outlined in Chapter 8 of the University's Statutes and Ordinances. Heads of School Institutes, as well as Heads of Departments, are currently co-opted on to the Council, together with representatives of the three Faculty Boards. In addition, the Head of the Botanic Garden and a representative from the School of Technology attend as observers.

Most of the detailed information about research and teaching in the School is to be found on the departments' web sites. The members of the Gurdon Institute, the Sainsbury Laboratory and the Systems Biology Centre have affiliations with departments in the School. The Stem Cell Institute and Milner Institute also have affiliations within the School of Clinical Medicine.

Terms of appointment

Tenure and probation

Appointments will be made on a fixed-term basis for a period of 3 years (reason for the limit of tenure: limited funding)
Appointments will be subject to satisfactory completion of a six month probationary period.

Hours of Work and Working Pattern

The hours of work for the position are 37 hours per week. We welcome applications from individuals who wish to be considered for part-time working or other flexible working arrangements.

Pension

You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefits 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

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 please contact Tracey Flack, pdnhr@pdn.cam.ac.uk, who is responsible for recruitment to this position.

The University

The University of Cambridge is consistently ranked one of the best universities in the world, achieving academic excellence through its Faculties, Departments and other Institutions, together with the 31 Colleges.

The University is renowned for its record of discovery and innovation. It is one of the great institutions, with a regional, national and global reach, attracting the very best and brightest minds. Our staff and students shape the world around us for the better: we attract and partner with like-minded people.

Whether contributing to the development of new anti-cancer drugs, adding to the understanding of how black holes are formed, revolutionising the study of ancient settlements, convening academic expertise to offer solutions to the climate crisis, or analysing public attitudes towards democracy around the world, the University's research is remarkable in its breadth, quality and impact. The University also sits at the heart of Europe's largest technology cluster and has catalysed more than 1,500 high-tech companies. And yet what inspires our 24,000 students and 13,000 staff is not what has already been achieved, but what is possible in the future.

The education and experience of our students, based on a partnership between the University's academic Departments and Faculties and the 31 Colleges, is second to none. Every student is a member of one of the Colleges, each a community of students, academics and staff drawn from across the University's comprehensive range of subject areas.



The University is a self-governing community, with a system for decision-making that provides a high degree of accountability and transparency to its members. Each Department and Faculty is part of one of six academic Schools, but each of them, and each individual academic, has a great deal of autonomy. The Colleges are independent and self-governing, working in a symbiotic relationship with the University.

The University has a number of Institutions that are independent of any Faculty or Department and are not part of the academic Schools. These include the Institute of Continuing Education (which provides high-quality education to adults throughout their lives), the Fitzwilliam Museum, Kettle's Yard (an historic house and gallery that holds important collections of modern art) and the University Library. In addition to their diverse contributions to University and public life, these non-School Institutions are also important centres of teaching and research.

Cambridge University Press & Assessment provides academic publishing, examinations and learning materials worldwide, supporting the dissemination of research, academic development at school and in higher education, and international student mobility. Legally, the Press & Assessment is a department of the University. It provides very important funds to invest in the academic purposes of the University.

The University has made truly remarkable contributions to the sum of human understanding, with breakthrough ideas and discoveries that have changed the way we understand ourselves, our planet, and the universe around us. Yet the global and national contexts in which it operates are fast-changing and increasingly filled with uncertainty. In a world that is becoming - politically, economically, socially, and technologically – ever more interconnected but even less equal, the University's mission – “to contribute to society through the pursuit of education, learning and



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.

"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."

Professor Deborah Prentice,
Vice Chancellor, 2023



Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 24,000 students and over 13,000 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.

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'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.



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 26 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 are 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 (<https://www.nvs.admin.cam.ac.uk/>) is an organisation within the University that welcomes the partners and families of visiting scholars and new members of the University. Run by volunteers, the group offers opportunities to visit interesting Cambridge venues, learn about the community, take part in social events and gain local knowledge while developing a strong support network of both residents and other newcomers.

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: **Dr. Sepiedeh Keshavarzi**
Email: sk2244@cam.ac.uk

If you have any queries regarding the application process, please contact:
Tracey Flack, pdnhr@pdn.cam.ac.uk.

The closing date for applications is midnight on **9th June 2025**.

Interviews will be held soon after the closing date.

