

Research Associate in MRI Physics for Neuroscience

Department of Psychology

Closing date: 30th May 2024

Job Reference: PJ41480



Research Associate in MRI Physics for Neuroscience

Salary:

Grade 7
£36,024 - £44,263

Contract:

Fixed Term – 18 months

Location:
Cambridge

Department:
Department of
Psychology

Responsible to:
Professor Zoe Kourtzi

Working Pattern:
Full Time

Purpose of this role

Exciting opportunity for a Research Associate in MRI Physics for Neuroscience to join Professor Zoe Kourtzi's Neuroscience team (Adaptive Brain Lab, Univ of Cambridge: <https://www.abg.psychol.cam.ac.uk>) and MR Physics teams at:

- Wolfson Brain Imaging Centre, Cambridge (Prof Guy Williams),
- Translational Neuroimaging laboratory, Cambridge (Dr Stephen Sawiak)
- Purdue MRI Facility, School of Health Sciences, Purdue University (Prof Uzay Emir).

The successful applicant will develop and implement innovative ultra high-field MRI and MRS sequences, protocols, and data analysis pipelines to address cutting edge neuroscience questions. They will join a research-focused multi-disciplinary team of MRI physicists and neuroscientists using neuroimaging in both human and animal models for discovery and translational neuroscience.

The research activity is at the core of a Wellcome Trust funded Collaborative award that brings together a cross-disciplinary team of international experts to build cutting edge MRI tools for investigating brain network dynamics for adaptive behaviour. Our work programme bridges work across species (mice, humans) and scales (local circuits, global networks) to uncover the network and neurochemical mechanisms that support learning and brain plasticity.

Our collaborative research programme provides unique opportunities for cross-disciplinary training in innovative methodologies at the interface of MRI Physics, animal and human neuroimaging, neurotechnology and computational science. The successful applicant will have the opportunity to participate in workshops and retreats across the network as well as exchange visits across labs to facilitate cross-disciplinary training and collaborative working.

Brain Imaging Centres:

Human brain imaging will be carried out at the Wolfson Brain Imaging Centre (WBIC, <https://www.wbic.cam.ac.uk>) in collaboration with Prof Guy Williams. This is a dedicated Major Research Facility that houses state of the art equipment including a Siemens 7T and three 3T scanners, and addresses cutting edge neuroscience questions using the latest MR physics methodology. This research will implement world leading MRI and MR Spectroscopy techniques in collaboration with Prof Uzay Emir (Purdue) to advance Ultra-High-Field MRS-GABA.

Animal imaging will take place at the Translational neuroimaging laboratory (<https://www.bio.cam.ac.uk/facilities/imaging/transneuro>) in collaboration with Dr Stephen Sawiak. The facility houses Bruker 7T and 9.4T MRI scanners for rodent imaging and will incorporate state of the art optical sensors and MRS-GABA imaging protocols.

KEY RESPONSIBILITIES

Research and Scholarship

- Develop and implement MR physics/MR-methods innovations to the human and animal scanner platforms (including protocol and sequence development).
- Develop MRI protocols for neuroscience studies and troubleshoot issues in close collaboration with neuroscientists to ensure good data quality.
- Liaise across imaging facilities (Cambridge, Purdue), and translate MRI protocols across human and animal MRI scanners.
- Work with staff across imaging facilities to facilitate knowledge exchange and co-ordination of studies.
- Ensure good practice, including version control, for image acquisition and analysis.
- Engage with national MR research consortia (eg UK7T) and to maintain professional development and expertise.
- Contribute to data management and analysis pipelines, the development of neuroimaging techniques, setting-up of neuroimaging studies including interfacing external equipment within the scanner environment.
- Prepare work for written research reports and publications
- Attend cross laboratory meetings and workshops. Support the organisation of network events (e.g., meetings, workshops) and attend training courses.
- Prioritise tasks within agreed work schedule to ensure that projects are delivered on time.
- Assist in supervision of undergraduate or postgraduate students and lab members working on similar projects.

Administrative

- Carry out routine administrative tasks associated with specified research projects, e.g. organisation and documentation of project meetings, data management and sharing following GDPR guidelines following best practice.
- Follow best practice in research including keeping accurate records of research undertaken, building data analysis pipelines and documenting work using standardised formats so that it can be shared efficiently and effectively with others.
- Assist in the preparation of reports, proposals and applications to external bodies, e.g. for funding and contractual purposes.

Liaison and Networking

- Liaise with networks of laboratories and researchers across the collaboration assisting in planning and integration of research to fulfil aims of the research project.
- Disseminate research findings at internal meetings, and at international scientific meetings.
- Liaise and collaborate with students and researchers at the University of Cambridge and more widely within collaborative research networks.

Planning and Organising

- Plan and manage research activity in collaboration with others and contribute to execution of research projects led by principal investigator.
- Coordinate own work with others to avoid conflict or duplication of effort and coordinate with other lab members to share lab resources and cooperate to maximise efficiency.

Person Specification

Criteria	Essential	Desirable
Education		
PhD (or submitted at time of appointment) together with a strong academic track record, in a relevant area: MRI Physics, Chemistry, Biomedical Engineering, or another relevant area that provides a solid grounding in MR physics.	✓	
Specialist knowledge & skills		
Experience with developing and implementing MRI protocols for biomedical, neuroscience research	✓	
Experience with pulse sequence coding	✓	
Experience with MRI data analysis		
Excellent quantitative skills (i.e. sound grasp of mathematics and statistics) and experience of computer programming (e.g., C, Matlab, Python),	✓	
Ability to work safely in a high-field MRI environment	✓	
Understanding of the demands of collecting complex brain imaging data with proven ability to organise work	✓	
Experience of Siemens, Bruker MRI platforms		✓
Programming in Siemens IDEA environments		✓
Hands-on experience of ultra-high-field (7T, 9.4T) scanning		✓
Desirable: Hands-on experience of neuroimaging (both scanning and data analysis) and experience with neurocognitive research.		✓
Interpersonal & communication skills		
Ability to work as part of a team and independently using own initiative.	✓	
Excellent interpersonal and collaborative skills. Ability to work with and contribute to a diverse range of research teams.	✓	
Demonstrable written and oral communication skills.	✓	

Excellent organisational skills to work effectively balancing building a specialist area of research and sharing with the group in supporting a range of projects.	✓	
Relevant experience		
Track record of publication in scientific journals and presentations at scientific meetings.	✓	
Previous experience of working in a research or clinical environment.	✓	
Awareness of data protection and ethical issues	✓	
Additional requirements		
Contribute to team development, data management and analysis pipelines, research practices. Encourage others in a team helping to guide new starters and train research staff.	✓	

Department of Psychology



The Department of Experimental Psychology (one of the oldest psychology departments in the country) merged with the Department of Social and Developmental Psychology in 2012 to create a new larger Department of Psychology, and now has interests covering the full breadth of Psychology. It is not a large Department as measured by the number of University Teaching Officers (28), but it does accommodate many Post- Doctoral Research Scientists and Postgraduate Research Students within a number of world- class research groups.

Members of the Department teach on a number of undergraduate courses and admits around 50 research postgraduates each year.

The Department is celebrated for its teaching; students are taught by researchers of international excellence and many of its past students have gone on to prominent positions in psychology and related fields throughout the world.

The Department is frequently rated in the top three world-wide. Research staff include University Teaching Officers, Postdoctoral Research Associates, Research Assistants, Laboratory Staff and Graduate Students conducting

psychological and neuroscientific research into topics including sensory perception, attention, memory, language, cognitive development, psychopathology, computational models of psychological processes, associative learning, animal cognition and behaviour, drug addiction, family and gender, forensic psychology, new human genetics and assisted reproductive technologies, new information technologies, social cognition , social perception and personality, children's developing social understanding and relationships, social representations, judgment and decision-making, biological influences on development and behaviour, expression of personality in ideology and music, social and political attitudes and applied developmental psychology.

Facilities for research in human perception and cognition are excellent and includes access to cognitive neuroscience facilities, including 3 and 7T magnets and human electrophysiological and psychophysiological measurement, including magnetoencephalography. Excellent infant and child testing lab facilities are also available.

For more details relating to the Department of Psychology
www.psychol.cam.ac.uk

The School of Biological Sciences



The School of the Biological Sciences encompasses the Faculty Board of Biology and the Faculty Board of Veterinary Medicine. 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 can be found on the departments' websites. The members of the Gurdon Institute, the Sainsbury Laboratory, MRC Toxicology and the Systems Biology Centre have affiliations with departments in the School. The Stem Cell Institute and Milner Institute have affiliations also within the School of Clinical Medicine, and is represented on the Faculty Board of Clinical Medicine. It has responsibilities across three Triposes (the Natural Sciences Tripos, Medical and Veterinary Sciences Tripos and Psychological and Behavioural Sciences Tripos)

It 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.

Terms of Appointment

Tenure and probation

Appointments will be made on a fixed-term basis for a period of 18 months in the first instance. This is because the post is grant funded which is not part of the university's revenues.

Appointments will be subject to satisfactory completion of a six-month probationary period.

Hours of Work and Working Pattern

This is a full time position, 37 hours per week Monday – Friday.

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.

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.

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/>

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.

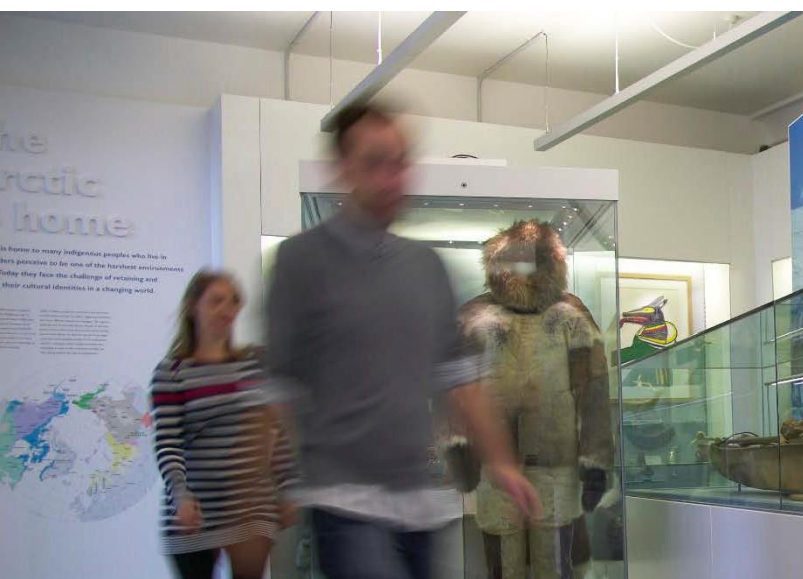
The Colleges and the University remain committed to admitting the best students regardless of their background and to investing considerable resources both in widening access and financial support. The 31 Colleges are self-governing, separate legal entities which appoint their own staff. Many academic 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



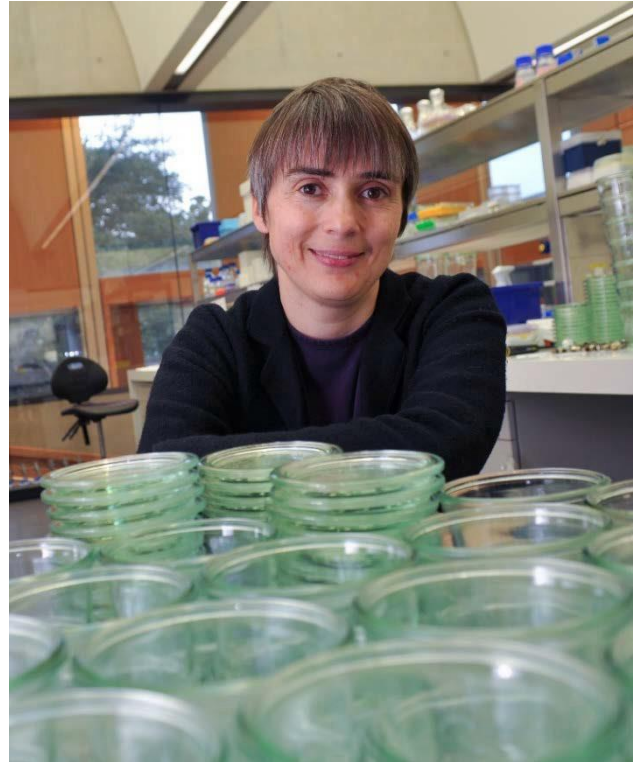
Working at the University

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 award, 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.

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:

Professor Zoe Kourtzi: zk240@cam.ac.uk

Professor Uzay Emir: uemir@purdue.edu

If you have any queries regarding the application process please contact Peter Fanning, HR Administrator, Department of Psychology. Email: pmf32@cam.ac.uk

The closing date for applications is: Thursday 30th May 2024 at midnight.

The interview date for the role is: Week commencing 17th June 2024.



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CAMBRIDGE