



Job title	Research Fellow (Title will be 'Research Associate' where an appointment is made before PhD is completed)	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 career training grade where an appointment is made before PhD has been completed)
School/ Department	School of Medicine, Mental Health & Clinical Neurosciences	Location	Medical School, Queen's Medical Centre, Nottingham

Purpose of role

The purpose of this role will be to have specific responsibility for research, for developing methodology and fulfilling the research objectives of the Neuro-Metrology programme, recently funded by a 5-year European Research Council (ERC) Consolidator grant. You will be part of a team working towards the aims of this programme on developing quantitative brain connectivity mapping approaches, based on magnetic resonance imaging (MRI). Neuro-Metrology will increase accuracy, assess measurement tolerance, and develop reference measurement standards for connectivity estimation. Specifically, the programme aims are: a) To develop and validate novel multi-modal (diffusion and resting-state functional MRI) and cross-species (humans and non-human primates) neural connectivity frameworks, b) To develop and assess vendor-agnostic technologies for brain mapping that are harmonised and generalisable across different types of MRI scanners, c) To establish measurement reference standards for brain connections that can link the individual to the population (normative modelling).

You will join an established team, led by Dr Stam Sotiropoulos (<https://spmuc-uon.github.io/conilab>), who have a track record in developing computational neuroimaging technologies for mapping the brain at a systems level. The team is a part of the Sir Peter Mansfield Imaging Centre (SPMIC) and the Precision Imaging Beacon of Excellence at the University of Nottingham. They have strong, long-standing collaborations with colleagues at the Wellcome Centre for Integrative Neuroimaging (WIN-FMRIB), University of Oxford, the Centre for Magnetic Resonance Research (CMRR), University of Minnesota and the Department of Psychiatry, Yale University. The programme will actively build upon these collaborations.

You will be expected to plan and conduct work using approaches or methodologies and techniques appropriate to the type of research, and will be responsible for writing up your work for publication. You will have the opportunity to use your initiative and creativity to identify areas for research, develop research methods and extend the team's research portfolio.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Research Responsibilities: <ul style="list-style-type: none"> To manage, plan and conduct own research activity using recognised approaches, methodologies and techniques within the research area or by developing novel techniques where needed. To resolve 	65%

	<p>problems, in meeting research objectives and deadlines in collaboration with others.</p> <ul style="list-style-type: none"> To identify opportunities and assist in writing bids for research grant applications. Prepare proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes. 	
2	<p>Engagement, Communication and Continuation Responsibilities:</p> <ul style="list-style-type: none"> To write up research work for publication and/or contribute to the dissemination at national/international conferences, resulting in successful research outputs. To collaborate with academic colleagues on areas of shared interest for example collaborative or joint research projects 	25%
3	<p>Teaching:</p> <ul style="list-style-type: none"> To supervise undergraduate and/or postgraduate students projects as appropriate. To make a contribution to teaching activities when appropriate. 	10%
4	<p>Other:</p> <ul style="list-style-type: none"> Any duties as required in accordance with the nature and grade of the post. We recognise the importance of continuous professional development and therefore the importance of providing opportunities, structured support and encouragement to engage in professional development each year 	N/A

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> Advanced Programming/scripting skills (C / C++ / Matlab / Python / shell scripting) Good understanding of statistical modelling and/or signal and/or image processing. Basic machine learning knowledge. Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. Publication track record commensurate to career stage. 	<ul style="list-style-type: none"> Parallel programming and/or High-performance computing skills using computing clusters. Understanding of MR image acquisition and sources of artefacts. Knowledge of Machine (or Deep) Learning methods for modelling generative distributions. Strong publication record in neuroimaging/brain connectivity methods development. Ability to organise own work independently.

	<ul style="list-style-type: none"> ▪ Ability to build relationships and collaborate with others, both internally and externally. ▪ High analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights. 	
Knowledge and experience	<ul style="list-style-type: none"> ▪ Experience of medical image/MRI analysis. ▪ Some knowledge of processing relevant MRI modalities (diffusion MRI, resting-state functional MRI). ▪ Experience of software version control and repositories. 	<ul style="list-style-type: none"> ▪ Experience of brain MRI/ neuroimage analysis. ▪ Experience of brain connectivity analysis or methods development for diffusion MRI/resting-state functional MRI. ▪ Use of FSL/SPM or other major packages for brain image analysis. ▪ Exposure to high-performance computing (HPC) for computational processing of large datasets. ▪ Experience of biophysical modeling or Bayesian inference. ▪ Experience of developing software toolboxes for others to use.
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ PhD or equivalent in relevant computational domain, such as engineering, physics, mathematics, statistics, neuroscience, or the equivalent in professional qualifications and experience in research area OR near to completion of a PhD ▪ Hold an undergraduate degree in Physics, Engineering, Computer Sciences or Neurosciences 	<ul style="list-style-type: none"> ▪ PhD in computational neuroimaging/ human brain mapping/brain connectivity using diffusion/resting-state functional MRI.
Other	<ul style="list-style-type: none"> ▪ Willingness to adopt the vision and values of the School of Medicine 	



The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

The School of Medicine holds a Silver Athena SWAN award in recognition of our achievements in promoting and advancing these principles. Please see

<http://www.nottingham.ac.uk/medicine/about/athena-swan.aspx>



The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others



