



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 and 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 performing research and developing Neuroimage Analysis methodology for brain Magnetic Resonance Imaging (MRI) data. You will fulfil research objectives of the Neuro-Metrology programme, funded by a 5-year European Research Council (ERC) Consolidator grant. You will develop artificial intelligence (AI), data-driven approaches for learning latent generative distributions of brain connectivity data for establishing measurement reference standards for brain connections that can link the individual to the population (normative modelling). 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 join an established team, led by Prof. Stam Sotiropoulos (<https://conilab.nottingham.ac.uk>), whose main areas of research interest include the development of innovative neuroimaging technologies for mapping the brain at a systems level. The team has a track record in brain connectivity mapping using diffusion MRI, with a portfolio of research programmes funded by the European Research Council (ERC), the US National Institutes of Health (NIH) and UKRI. They are part of the Sir Peter Mansfield Imaging Centre (SPMIC), birthplace of MRI and soon to be home of the ultra-high field (11.7T) UK national facility.

You will have the opportunity to use your initiative and creativity to identify areas for research, develop research methods and extend your research portfolio.

The School of Medicine 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.

To find out more about the School of Medicine, its values, vision, teaching and research, please see our [further information leaflet](#).

	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. 	65%

	<ul style="list-style-type: none"> To resolve problems, in meeting research objectives and deadlines in collaboration with others. 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	Engagement, Communication and Continuation Responsibilities: <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, course development, collaborative or joint research projects. 	25%
3	Teach, supervise, examine and personal tutoring: <ul style="list-style-type: none"> You are expected to make a contribution to teaching that is in balance with wider contributions to research and other activities. 	10%
4	Other: <ul style="list-style-type: none"> Any other duties appropriate to the grade and level of the role 	N/A

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> Excellent oral and written communication skills, including the ability to communicate with clarity on complex information A publication track record commensurate to career stage. Ability to creatively apply relevant research approaches, models, techniques and methods. 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. Ability to assess and organise resource requirements and 	<ul style="list-style-type: none"> Ability to use computing clusters/servers for large data processing and/or high-performance computing. Good understanding of statistical modelling / Bayesian Inference. Publication record in AI for medical image analysis methods development, commensurate to career stage. Ability to organise own work independently.

	<p>deploy effectively.</p> <ul style="list-style-type: none"> • Evidence of proficiency with coding and the development of software tools/scripts (e.g. C / C++ / Python / Matlab / Julia / shell scripting) • Machine learning/artificial intelligence skills 	
Knowledge and experience	<ul style="list-style-type: none"> • Some practical experience of applying the specialist skills and approaches and techniques required for the role. • Experience in use of research methodologies and techniques to work within area. • Knowledge of devising artificial neural networks for unsupervised/supervised learning. • Some exposure to image processing and convolutional neural networks. • Experience of software version control and repositories. • Experience of scientific writing/presentations. 	<ul style="list-style-type: none"> • Previous success in gaining support for externally funded research projects. • Experience of brain MRI/connectivity analysis or methods development for diffusion MRI/resting-state functional MRI. • Experience of developing software toolboxes for others to use. • Experience of developing deep generative models, such as Autoencoders, Adversarial architectures, Stable Diffusion. • Experience of developing artificial neural networks for anomaly detection. • Experience in methods for specifically analysing neuroimaging data
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> • PhD or equivalent in relevant computational domain, such as Computer Science, Engineering, Physics, Statistics, Neuroscience OR near to completion of a PhD. 	<ul style="list-style-type: none"> • PhD in AI/Deep Learning
Other	<ul style="list-style-type: none"> • Willingness to adopt the vision and values of the School of Medicine. 	



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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
- Taking ownership** Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
- Forward thinking** Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
- Professional pride** Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
- Always inclusive** Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others

