Role profile

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<th>Job title</th>
<th>Job family and level</th>
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<tr>
<td>Research Fellow (Title will be ‘Research Associate’ where an appointment is made before PhD is completed)</td>
<td>Research and Teaching Level 4 (Appointment will be Level 4 career training grade where an appointment is made before PhD has been completed)</td>
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<th>School/Department</th>
<th>Location</th>
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<tr>
<td>School of Medicine, Mental Health &amp; Clinical Neurosciences</td>
<td>Queen’s Medical Centre</td>
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**Purpose of role**

The purpose of this role will be to have specific responsibility for performing research, for developing methodology and fulfilling research objectives and proposals for a research project in developing technologies for brain connectivity mapping using Magnetic Resonance Imaging (MRI). 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 be expected to have good knowledge of programming and neuroimage analysis skills and interest in working in neuroanatomy. You will join an established team, led by Professor Stam Sotiropoulos (https://conilab.nottingham.ac.uk), who has 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), birthplace of MRI and soon to be home of the ultra-high field UK national facility.

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.

You will be part of a team working towards developing novel quantitative brain connectivity mapping approaches, supported by an ERC Consolidator Programme that Prof. Sotiropoulos leads. You will work on developing new data-driven, multi-modal algorithmic frameworks, using diffusion and functional MRI.

### Main responsibilities

(Primary accountabilities and responsibilities expected to fulfil the role)

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<th>% time per year</th>
<th>Research Responsibilities:</th>
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<td>65 %</td>
<td>▪ 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.</td>
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<td>▪ To resolve problems, in meeting research objectives and deadlines in collaboration with others.</td>
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<td>▪ 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.</td>
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2  Engagement, Communication and Continuation Responsibilities:
- 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.

3  Teach, supervise, examine, and personal tutoring:
- To supervise undergraduate and/or postgraduate students projects as appropriate.
- You are expected to make a contribution to teaching that is in balance with wider contributions to research and other activities.

4  Other:
- Any other duties appropriate to the grade and level of the role.
- 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.

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| 2 | **Engagement, Communication and Continuation Responsibilities:**<br>▪ 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 | **Teach, supervise, examine, and personal tutoring:**<br>▪ To supervise undergraduate and/or postgraduate students projects as appropriate.  
▪ You are expected to make a contribution to teaching that is in balance with wider contributions to research and other activities. | 10 % |
| 4 | **Other:**<br>▪ Any other duties appropriate to the grade and level of the role.  
▪ 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. | N/A |
### Person specification

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<th>Essential</th>
<th>Desirable</th>
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| **Skills**              | ▪ Excellent oral and written communication skills, including the ability to communicate with clarity on complex information.  
                           ▪ 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 deploy effectively  
                           ▪ Advanced Programming/scripting skills (C / C++ / Matlab / Python / shell scripting) | ▪ Ability to organise own work independently.  
                           ▪ Bayesian inference/data fusion approaches.  
                           ▪ Software version control and repositories. |
|                         | ▪ Good understanding of statistical modelling and/or signal and/or image processing.  
                           ▪ Experience in use of research methodologies and techniques to work within medical image/MRI analysis.  
                           ▪ Some practical experience of applying the specialist skills and approaches and techniques required for the role.  
                           ▪ Publication track record commensurate to career stage. | ▪ Understanding of and exposure to brain imaging modalities, including anatomical and diffusion MRI and/or resting-state functional MRI.  
                           ▪ Experience of brain connectivity analysis or methods development for diffusion MRI/tractography/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 blind source separation approaches (ICA/NMF).  
                           ▪ Strong publication record in neuroimaging/brain connectivity methods development.  
                           ▪ Previous success in gaining support for externally funded research projects.  
                           ▪ Experience of developing new approaches, models, techniques, or methods in medical image/MRI analysis. |
| **Knowledge and experience** | ▪ Good understanding of statistical modelling and/or signal and/or image processing.  
                           ▪ Experience in use of research methodologies and techniques to work within medical image/MRI analysis.  
                           ▪ Some practical experience of applying the specialist skills and approaches and techniques required for the role.  
                           ▪ Publication track record commensurate to career stage. | ▪ Understanding of and exposure to brain imaging modalities, including anatomical and diffusion MRI and/or resting-state functional MRI.  
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                           ▪ Experience of developing new approaches, models, techniques, or methods in medical image/MRI analysis. |
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<th>Qualifications, certification and training (relevant to role)</th>
<th>PhD (or close to completion) or equivalent in relevant domain, such as engineering, data science, physics, applied mathematics, neuroscience</th>
<th>PhD in computational neuroimaging/human brain mapping/brain connectivity.</th>
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<td>Statutory, legal or special requirements</td>
<td>Willingness to adopt the vision and values of the School of Medicine</td>
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**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

Line manager

Role holder

Key stakeholder relationships

Professor of Computational Neuroimaging

Research Associate/Fellow

Fellows in the same Group

Colleagues (Extended research group, Centre, School, Collaborators)

Students