Role profile

<table>
<thead>
<tr>
<th>Job title</th>
<th>Research Associate/ Fellow in predictive imaging</th>
<th>Job family and level</th>
<th>Research and Teaching Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>School/ Department</td>
<td>Medicine/Division of Clinical Neuroscience/National Institute for Health Research (NIHR) Nottingham Biomedical Research Centre (BRC)</td>
<td>Location</td>
<td>Queen’s Medical Centre, Medical school</td>
</tr>
</tbody>
</table>

**Purpose of role**

The purpose of this role will be to provide machine learning expertise in radiomics/medical image analysis and to develop the methodology in the NIHR Nottingham BRC and the Precision Imaging Beacon. Precision medicine necessitates understanding complex high dimensional data including imaging. Building and validating models that predict progression of disease, disease type, or response to treatment is fundamental to precision medicine and will require use of advanced technologies. Such models will enable image informed clinical trials and best treatment for individuals. In addition to this, imaging-based trials demand high quality data, and machine learning for quality control will be used to maximise data integrity and trial success. You will be expected to plan and conduct work using machine learning and statistical techniques appropriate to the aims of precision medicine, and will be responsible for writing up work for publication.

You will join an established team, led by Professor Dorothee Auer, whose main areas of research interest include translational Magnetic Resonance Imaging.

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

**Main responsibilities**

(Primary accountabilities and responsibilities expected to fulfil the role)

<table>
<thead>
<tr>
<th>% time per year</th>
<th>Research Responsibilities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>- To manage, plan and conduct own research activity using recognised approaches, methodologies and techniques within the research area. To resolve problems, in meeting research objectives and deadlines in collaboration with others.</td>
</tr>
<tr>
<td></td>
<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>
</tr>
<tr>
<td></td>
<td>- To supervise postgraduate student projects as appropriate.</td>
</tr>
</tbody>
</table>
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, course development, collaborative or joint research projects.
- To collaborate with colleagues from multiple disciplines.

| 2 | Teaching: |
|---|---|---|
| 3 | You are expected to make a contribution to teaching that is in balance with wider contributions to research and other activities |

<table>
<thead>
<tr>
<th>4</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Any duties as required in accordance with the nature and grade of the post</td>
</tr>
</tbody>
</table>

Person specification

<table>
<thead>
<tr>
<th>Skills</th>
<th>Essential</th>
<th>Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent programming skills</td>
<td>Programming in high level languages such as Matlab.</td>
<td></td>
</tr>
<tr>
<td>Good understanding of statistics</td>
<td>Experience in Machine learning tools such as H2O</td>
<td></td>
</tr>
<tr>
<td>Excellent oral and written communication skills, including the ability to communicate with clarity on complex information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to creatively apply relevant research approaches, models, techniques and methods.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to build relationships and collaborate with others, both internally and externally</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to assess and organise resource requirements and deploy effectively</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Knowledge and experience | ▪ Experience of predictive model building and validation using Machine learning  
▪ Experience with radiomics  
▪ Experience working within multidisciplinary teams | ▪ Previous success in gaining support for externally funded research projects  
▪ Experience of developing new approaches, models, techniques or methods in radiomics |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualifications, certification and training (relevant to role)</td>
<td>▪ PhD or equivalent in computer science or the equivalent in professional qualifications and experience in computational medical image analysis</td>
</tr>
<tr>
<td>Other</td>
<td>▪ Willingness to adopt the Ethos and Principles of the School of Medicine</td>
</tr>
</tbody>
</table>

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
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

- **Line manager**
  - Senior Imaging Statistician

- **Role holder**
  - Research Fellow in predictive imaging

- **Key stakeholder relationships**
  - Colleagues
  - Students