



Candidate Information

Position:	Research Fellow in Multimodal Image Integration
School/Department:	School of Electronics, Electrical Engineering and Computer Science
Reference:	25/112409
Closing Date:	Monday 10 March 2025
Salary:	£39,922 - £43,603 per annum
Anticipated Interview Date:	Tuesday 8 April 2025
Duration:	48 months

JOB PURPOSE:

This post is part of a new research project "Transforming spatial and structural biology: Native ambient mass spectrometry" funded by a Wellcome Trust Discovery Award jointly awarded to Professor Iain Styles at Queen's University Belfast and Professor Helen Cooper at the University of Birmingham.

The project will develop new computational and experimental technologies to detect, identify, and image intact, folded proteins and protein complexes directly from biological tissue samples using state of the art mass spectrometry imaging techniques.. The outcomes will be new tools that have the potential to revolutionise our understanding of human health, and we will demonstrate the technology's potential in two key application areas: molecular pathology and drug discovery.

The successful applicant will develop new computational methods for data integration and image fusion, drawing on a range of technical approaches including artificial intelligence, computer vision, image processing, and data reduction, and will collaborate closely with the experimental team in Birmingham, including regular visits.

MAJOR DUTIES:

1. Undertake research within the scope of the project, working under supervision and in collaboration with other members of the research team.
2. Design, develop and refine research within the project scope using a range of computational approaches including, but not limited to artificial intelligence, machine learning, modelling and simulation, statistics, scalable data technologies.
3. Analyse and critically evaluate relevant existing approaches to the research problem, drawing on the literature and other sources as appropriate and using methodologies and other techniques appropriate to the area of research.
4. Produce high quality research outputs consistent with project aims. This will include collaborating and co-authoring outputs with PI and project team (as appropriate).
5. Prepare presentations and present research at national and international conferences.
6. Assist grant holder in the preparation of progress reports to the project funder.
7. Assist grant holder in the preparation of funding proposals and applications to external bodies.
8. Carry out occasional educational support, supervision and demonstrating duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
9. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and professional development activities as required.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a PhD in Computer Science or other computationally intensive area.
2. At least a 2.1 honours degree in Computer Science, Mathematics, Physics or other numerate discipline.
3. Recent relevant* research experience to include:
 - Demonstrable experience of high-quality research in computer vision, machine learning, artificial intelligence or related areas.
 - A proven track record of developing novel computational methods to solve research problems.
 - Working effectively as part of a research team in the development and promotion of the research area.

4. Experience of contributing to broader management and administrative processes.
5. A sufficient breadth of knowledge of general computational methods and principles.
6. Excellent programming and mathematical skills.
7. Willingness to undertake additional training in research methods and other related skills as required.
8. Practical problem solving skills, independence of thought and initiative.
9. Proven ability to communicate complex information effectively in oral and written format.
10. Proven ability to build relationships/ to develop internal and external networks.
11. Ability to assess and organise resources.
12. Ability to work as part of a research team.
13. Willingness to travel to collaborating partners on a regular and frequent basis, including for extended visits of up to one month.

DESIRABLE CRITERIA:

1. Demonstrable experience of:
 - Developing and applying computational methods to biological imaging research.
 - Interdisciplinary research
2. A strong track record of high-quality publications relative to stage in career.
3. Experience of organising research-related events such as workshops, tutorials and related activities.
4. Knowledge of proteins and general biochemistry.