UNIVERSITY of BRADFORD

Job Description

Postdoctoral Research Fellow

Development of en face OCT for accurate glaucoma diagnosis

School of Optometry & Vision Science

Faculty of Life Sciences

Brief summary of the role

Role title:	Postdoctoral Research Fellow
Grade:	8
Faculty or Directorate:	Faculty of Life Sciences
Service or Department:	School of Optometry & Vision Science
Location:	University of Bradford
Reports to:	Dr Jonathan Denniss
Responsible for:	Delivery of aspects of Medical Research Council funded project "Development of en face optical coherence tomography for accurate diagnosis of early retinal damage in glaucoma"
Work pattern:	Full time. Primarily on-campus preferred with some travel to partner sites and/or flexible working as agreed with line manager. Fixed term for 12 months.

Main purpose of the role

This 12-month, full-time position is to conduct research funded by The Medical Research Council to develop en face optical coherence tomography for the accurate detection of early retinal damage in glaucoma.

The postholder will be based primarily at the University of Bradford with potential for some travel to Leeds Teaching Hospitals and Bradford Teaching Hospitals NHS sites. The postholder will work collaboratively with a group of researchers and clinical staff from the University of Bradford, the NHS and externally. Funding is also available for the postholder to present their work at conferences, nationally and/or internationally.

The postholder will work with 3-D *en face* optical coherence tomography (OCT) images of the retina captured from volunteers with glaucoma and healthy control volunteers. They will take the lead in developing new/improved approaches to processing these images for

improved visualisation and quantification of defects caused by glaucoma. Approaches will be driven by existing plans (e.g. as described in the funded research proposal), but also by the postholder's own experience, knowledge and initiative. The postholder will lead (with the support of the PI, Dr Jonathan Denniss) studies assessing the performance of candidate approaches, ultimately contributing to development of an evidence-based technique for clinical use, which is our ultimate goal. The postholder will also share responsibility for dissemination of the research through presentations and written publications, taking the lead in some instances, as well as writing reports and/or documentation on our findings and developed software/techniques. The postholder will also be responsible for effective communication of technical aspects of the work to other members of the team without technical backgrounds (e.g. clinicians). This includes clearly documenting developed software, and teaching others in its use according to the goals of the project.

The postholder will have excellent communication and team working abilities and be committed to the effective and timely conduct of the funded research, applying their own initiative, technical skills and research skills for this purpose, and taking the lead in planning and implementing parts of the project related to image processing and analysis.

Main duties and responsibilities

1. Take a lead role in conducting technical aspects of the project as described in the funding application, ensuring that relevant project milestones are met and all relevant policies are adhered to. Plan, prioritise and implement these aspects of the project, making use of available resources, and completing tasks to reach agreed objectives within the specified timeframe.

2. Take a lead role in developing and improving image processing of en face OCT images, building on previous work using own initiative and skills. This includes development and testing of complex techniques and production/development of software for processing and analysing OCT images, or other tasks relevant to the project as may be required.

3. Take a lead role in assessing the performance of developed techniques, including collecting, analysing and reporting complex data, identifying relationships between complex independent factors, and determining how best to apply existing methodologies for this purpose.

4. Take the lead in dissemination of relevant aspects of the project through writing papers and reports for the funder and other diverse stakeholders, writing scientific publications arising from the project, presenting at seminars and conferences. Using excellent written and verbal communication skills to ensure reports, papers, presentations etc. are clear and understandable at a level appropriate to the audience.

5. Communicate or present complex research results, developments and ideas within the research group, including to those without a technical background. Document findings, developments (including software developments) and ideas clearly and in such a way as to be understandable to those without a technical background (e.g. clinicians).

6. Produce and/or develop software to advance the purposes of the research, and ensure that code produced is readable, understandable and well-documented such that it can be later adapted and/or translated into other programming languages by others. Communicate the functioning, usage, advantages and limitations of such software to others through excellent verbal and written communication skills, using communication methods chosen to best convey the information.

7. Teach others from a different, non-technical background, how to use lab software, including that newly developed by the role-holder. Ensure that procedures are clear and well-understood, and ensure that those using such software are doing so correctly.

8. Support, encourage and assist others in the lab (e.g. new starters, research students, those with less developed technical skills) in developing their own technical skills relevant to the project as necessary for their role. Contribute to building team morale and improving collaboration through active participation in development of individuals' skills.

9. Work collaboratively and flexibly as part of the study team, partners and wider University to achieve and enhance the study goals. Identify and act on areas for improved collaboration, improved performance or improved efficiency in our work. Encourage others to contribute to the team's common goals.

10. Liaise effectively with other members of the team, the project partners/collaborators and other members of University staff and the wider network around the project as necessary to achieve and enhance the project's goals. Take advantage of networking opportunities (e.g. conferences) to develop own network, building contacts and skills relevant to the project.

11. Comply with the data management process to comply with University, funder and GDPR requirements.

12. Undertake literature searches and synthesise research evidence as needed to support the project, keeping up with the latest developments in relevant areas.

13. Use own initiative and creativity to anticipate and resolve problems through appropriate reasoning and assessment of options. Approach problems from different perspectives, and initiate solutions which take into account strategic implications and which do not limit future choices.

14. Contribute to the development of further original research ideas building on existing concepts to develop new avenues of research or new methodologies relevant to the

project. Use own initiative and independent decision-making to explore ideas, including those that may require further funding, working collaboratively with other members of the team as appropriate.

15. Effectively undertake administrative duties related to the project and personal development.

16. Engage proactively in continuous professional development.

17. Any other duties as requested commensurate with the grade and nature of the post.

This document outlines the duties required at the current time to indicate the level of responsibility. It is not a comprehensive or exhaustive list and may vary to include other reasonable requests as directed by university management which do not change the general character of the job, or the level of responsibility entailed.

About the University of Bradford

Values

At the University of Bradford, we are guided by our core values of Excellence, Trust, Innovation, and Inclusion. These values shape our approach and our commitment to making diversity, equity, and inclusion part of everything we do – from how we build our curriculum to how we build our workforce. It is the responsibility of every employee to uphold the university values.

Equality, Diversity, and Inclusion (EDI)

At the University of Bradford, we are guided by our core values of Excellence, Trust, Innovation, and Inclusion. These values shape our approach and our commitment to making diversity, equity, and inclusion at the heart of everything we do.

We foster a work environment that's inclusive as well as diverse, where staff can be themselves and have the support and adjustments to be successful within their role.

We are dedicated to promoting equality and inclusivity throughout the university and have established several networks where individuals can find support and safe places fostering a sense of belonging and acceptance. We are committed to several equality charters such as Athena Swan, Race Equality Charter, Disability Confident and Stonewall University Champions Programme.

Health, safety, and wellbeing

Health and Safety is a partnership between employee and employer each having responsibilities, as such all employees of the University have a statutory duty of care for their own personal safety and that of others who may be affected by their acts or omissions.

It is the responsibility of all employees that they fulfil a proactive role towards the management of risk in all of their actions. This entails the risk assessment of all situations, the taking of appropriate actions and reporting of all incidents, near misses and hazards.

Managers should note they have a duty of care towards any staff they manage; academic staff also have a duty of care towards students.

All colleagues will need to ensure you are familiar with any relevant Health and Safety policies and procedures, seeking advice from the Central University Health and Safety team as appropriate.

We are registered members of the University Mental Health Charter. This visibly demonstrates our commitment to achieving cultural change in student and staff mental health and wellbeing across the whole university, whilst supporting the vision of our People Strategy to create a culture and environment of transformational diversity, inclusion and social mobility, creating a place where our values come to life and are evident in our approach.

Information governance

Employees have a responsibility for the information and records (including student, health, financial and administrative records) that are gathered or used as part of their work undertaken for the University.

An employee must consult their manager if they have any doubts about the appropriate handling of the information and records with which they work.

All employees must always adhere to data protection legislation and the University's policies and procedures in relation to information governance and information security.

Employees will be required, when and where appropriate to the role, to comply with the processing of requests under the Freedom of Information Act 2000.

Criminal record disclosures and working with vulnerable groups

Depending on the defined nature of your work and specialist area of expertise, the University may obtain a standard or enhanced disclosure through the Disclosure and Barring Service (DBS) under the Rehabilitation of Offenders Act 1974.

All employees of the University who have contact with children, young people, vulnerable adults, service users and their families must familiarise themselves, be aware of their responsibilities and adhere to the University's policy and Safeguarding Vulnerable Groups Act 2006.

The University is committed to protect and safeguard children, young people and Vulnerable Adults.

Suitable applicants will not be refused positions because of criminal record information or other information declared, where it has no bearing on the role (for which you are applying) and no risks have been identified against the duties you would be expected to perform as part of that role.

Role holder: essential and desirable attributes

Qualifications

Essential	• PhD in a relevant field, e.g. medical image processing/analysis, computer vision. • First degree in a numerate discipline e.g. computer science, physics, mathematics, engineering, data science. • Candidates with an alternative background (e.g. clinically qualified) may be considered if exceptional skills/experience in image processing or a related field can be demonstrated.
Desirable	

Experience, skills, and knowledge

Essential	• Strong background in programming in a language suitable for image processing (e.g. matlab) • Experience and skills in image processing that could be applied to the technical development of novel approaches to enhancing and analysing medical images of eye structures. This should be evidenced by publications, patents or other suitable evidence (e.g. PhD thesis, developed software). • Research experience involving image processing or other data-intensive workflows. • Knowledge and experience of statistics and research data analysis. • Strong numerical skills.

	• Excellent written and verbal communication skills.
Desirable	• A track record of significant involvement in high-quality scientific publications and presentations. • Experience of producing and documenting software and/or code for use by colleagues without programming skills. • Experience using optical coherence tomography and/or other medical imaging in research. • Research experience within optometry/ophthalmology, medical imaging or a related field. • Experience and skills in data management according to a data management plan and GDPR. • Experience in further development of existing research projects. • Excellent time management and planning skills, with the ability to meet deadlines.

Personal attributes

Essential	• Ability to work independently to solve relevant research problems. • Ability to work collaboratively as part of a team. • Takes personal responsibility for delivering a programme of work. • Committed to continuing personal/professional development. • Committed to engaging in positive working relationships.
Desirable	• A desire for an ongoing career involving research