



Windsor Fellowship Prostate Cancer UK Internship Programme

Internship information pack

Internship placement information

Host institution:

The University of Manchester

Host laboratory address:

Patterson Building, Wilmslow Rd, Manchester M20 4BX

Host lead and joint lead researchers:

Dr Alan McWilliam & Dr Jane Shortal

Project title:

Predicting Cribriform Architecture in Prostate Cancer Using MRI Radiomics

Research Project summary:

Prostate cancer is the most common cancer in men in the UK, but not all prostate cancers behave in the same way. While some grow slowly and can be safely monitored, others are more aggressive and require treatment.

To help determine how aggressive a prostate cancer is, samples of prostate tissue are collected through a biopsy and examined by a pathologist. They use the Gleason grading system to describe the patterns of cancer growth, where higher grade patterns are generally associated with more aggressive disease.

One pattern is called cribriform architecture. This is a sieve-like growth pattern which is usually grouped under a Gleason pattern 4. It is classed as an aggressive feature that is independently associated with high rates of treatment failure. Its presence is an important factor in treatment decision making. For example, some men with Group 2 (Gleason 3+4) non-cribriform disease may be suitable for active surveillance, whereas those with cribriform architecture requires definitive treatment.

Identifying cribriform architecture can be challenging. A biopsy only samples a small proportion of the tumour, and prostate cancer can be heterogeneous so these patterns may be missed by biopsy. There can also be variability in how tumour patterns are identified and interpreted by the pathologist.

MRI is routinely used to detect prostate cancer, but standard MRI assessment cannot reliably identify cribriform architecture. Radiomics, an image analysis technique that measures patterns in medical images that may not be visible to the human eye. These features could provide additional information about the biology of a tumour and potentially allow cribriform to be detected non-invasively.

This project will investigate whether radiomic information extracted from routine prostate MR images can be used to reliably predict whether a tumour contains cribriform architecture.

You will work with clinical information, MRI scans, and pathology reports from men with prostate cancer to develop and evaluate machine-learning models that analyse image characteristics to predict the presence of cribriform architecture. These findings will help to assess the potential of MRI-derived biomarkers for non-invasive risk stratification.

In the longer term, this project will generate preliminary data and methodological pipelines to support future studies. This work could ultimately help clinicians by improving identification of men who may be suitable for active surveillance of whether radical treatment would be more appropriate.

You will be supported to contribute to a conference abstract for presentation at a national scientific meeting and included on a manuscript for submission to an appropriate peer-reviewed journal once findings are of sufficient maturity.

What skills, techniques and/or methods will you develop during the project:

You will gain practical experience in the computational cancer research environment. You will develop programming skills in Python and R for data cleaning, statistical and radiomic analysis, while learning to analyse real-world clinical datasets. The project will provide an opportunity to gain exposure to MR prostate images and real-world clinical data. Through this, you will be introduced to key concepts in medical image analysis and multimodal data analysis.

Beyond technical skills, you will gain confidence in scientific communication through project meetings, internal presentations, and report writing. You'll work within a large multi-disciplinary team spanning scientific, computational, and clinical expertise, gaining insight into translational cancer research and clinical workflows. This will also provide a valuable opportunity to begin to build your network with potential colleagues and collaborators relevant to future postgraduate study in cancer research, medical imaging, or data science.

What induction, training, support and guidance will be provided to you:

You will be based within the Manchester Cancer Research Centre, working alongside researchers and clinicians from The University of Manchester, The Christie NHS Foundation Trust, and the Cancer Research UK Manchester Institute. You'll be embedded within a multidisciplinary research group of clinicians, physicists, postdoctoral researchers, PhD students and research radiographers, and participate in group meetings, seminars and departmental events, providing opportunities to develop professional networks and learn about different career pathways in academia and clinical research.

During the first week, you will have a structured induction, including introductions to the multidisciplinary research group and department, research and information governance training, and be introduced to the research group's Code of Conduct, which sets expectations for a respectful, inclusive and collaborative research culture. You will be given access to the necessary systems and research datasets.

You'll meet weekly with your supervisors to review progress, challenges and agree objectives for the following week. The supervisory team will provide ongoing technical support and help the intern develop skills in scientific writing, presentation, and critical appraisal of literature. They will also provide pastoral support and career guidance, including advice on postgraduate study and careers in medical and data science.

Alongside formal supervision, you will be welcomed into a large and supportive research group with an established peer mentoring (buddy) system, where new students are paired with more experienced PhD students to help them settle. In the

longer term, we would look to remain in contact with you beyond the placement, supporting your future career development and research opportunities.

Can the project/internship be completed part-time:

We would be happy to accommodate you if you wish to undertake the placement on a part-time basis by extending the duration of the project while maintaining the same research objectives, training opportunities and expected outputs. The project has been designed around retrospective datasets and computational analysis, making it well suited to flexible working patterns.

To accommodate this, the research milestones would be redistributed over the extended placement. You would continue to receive regular supervision through weekly meetings, alongside day-to-day support as and when needed. You would also participate in lab group meetings and research seminars, ensuring the same opportunities for scientific development, networking, and multidisciplinary engagement as a full-time intern.

Can host institution provide accommodation for the duration of the internship programme:

There may be a possibility of student accommodation being available during the internship. However, this will depend on the exact dates of the internship and if these dates overlap with the University terms dates. We can investigate this possibility while working with your availability to undertake the internship.

Stipend offer for this internship:

'Real Living Wage' (£13.45/hour) for 35 hours/week - a stipend of £3,766 over 8 weeks

Internship placement requirements

Eligibility criteria:

To be eligible for the internship, you must meet the following criteria:

- Must be in your penultimate or final year of undergraduate study, or a graduate who has yet to, but wants to pursue a MSc and/or PhD and a career in prostate cancer research.
- Must be currently studying towards, or hold, a relevant STEM undergraduate degree in the UK. Graduates must have received a minimum 2:2 grade.
- Must be a permanent resident in the UK, be eligible for home fee status and not have any restriction on their right to work in the UK.
- Must self-identify as being from a Black background, including a mixed background, for example: Black British, Black Welsh, Black African, Black Caribbean, Black Other and Mixed Black background.
- Must be a British citizen and have 'Home' tuition fee status.
- Must be free to attend a laboratory placement between July and August 2027.

STEM undergraduate degrees that would be suitable for an intern matched with this project/placement to hold or be undertaking:

We would welcome applicant from the following backgrounds:

- Physics / Medical Physics
- Computer Science / Artificial Intelligence / Data Science
- Biomedical sciences with a strong computational/quantitative component
- Engineering

No prior clinical or pathology knowledge is required or expected.

Interview and recruitment processes for this placement:

Based on previous intern process we would follow the proposed process:

1. Initial shortlisting of the applicants against key essential criteria: reason for applying, relevant developing technical skills, enthusiasm.
2. Invite shortlisted candidate to a (online) interview with lead supervisors. Questions will evaluate technical skills developing in their undergrad degree, understanding of the project, what they hope to achieve in the internship.
3. Offer made to the strongest candidate and constructive feedback provide to all other interviewees.

Timelines will be agreed with PCUK. Expected that application window to close approximately 8 weeks prior to expected start date and interviews to be held six weeks prior. We can be flexible with start dates based on candidates availability over the internship period.

Internship additional information

Relocation

If you are required to relocate to undertake this internship, you may be eligible to claim relocation costs. Your commute must exceed 1.5 hours each way and you must demonstrate that daily commuting is impractical due to time, cost, or transport availability.

Eligible relocation costs:

Category	Amount over 8-week placement
Accommodation	£1,800
Travel	£100
Moving/setup	£150
Local transport	£160
Total	£2,210

Requirements for requesting relocation costs:

Proof of Expenses - Reimbursement requirements: Receipts for accommodation, travel, or moving costs. Signed lease or booking confirmation.

Type of Costs Covered - Usual eligible costs: Temporary accommodation (short-term rental, student housing); Travel to and from the internship location (start/end of program); local transport. Not usually covered: Food and daily living expenses; Luxury accommodation upgrades; Costs without receipts

Tax Considerations - In some cases, relocation support may be treated as taxable income. This can apply to lump sum payments or un-evidenced payments.

Please note in your application if you require relocation costs for a placement you are applying for. Please note, there is only budget for a finite number of relocation costs, so not all requests can be accepted.

Project-external development opportunities and support

As part of this internship, the Windsor Fellowship and Prostate Cancer UK will offer the following development opportunities and support:

- The Windsor Fellowship will provide pastoral support in personal and professional development throughout the duration of the internship.
- Internship Programme alumni will be enrolled onto Prostate Cancer UK's [Researcher Mentoring Scheme](#).
- Alumni will be invited to Prostate Cancer UK researcher events and conferences.
- Interns will be supported by a Prostate Cancer UK grant manager before and throughout the duration of the internship.
- Prostate Cancer UK will provide interns with support and guidance in finding postgraduate opportunities (e.g. PhD studentships).

Code of conduct

1. Interns are expected to abide by the host organisation's employee manual, code of conduct, or similar standards (including dress code, where applicable) that apply to interns and/or employees at the site.
2. Interns must act in a professional and ethical manner including being punctual, dressing appropriately, fulfilling commitments, meeting deadlines, and maintaining a cooperative attitude.
3. Interns understand that permissible absences from the internship site include illness and serious circumstances, and that they will notify their host institution in a timely manner should these situations occur.
4. Interns must maintain confidentiality of any information gained regarding the host organisation's clients, projects, work, and personnel. Additionally, interns will respect copyright laws and intellectual property rights.
5. Interns understand that information about the host organisation should not be broadcast in public spaces, including online platforms such as YouTube, Facebook, X, blogs, websites, or message boards without expressed written authorisation of the host institution.
6. Interns will seek feedback from lead applicant(s), accept suggestions and constructive criticism, and strive to improve performance.
7. Interns must immediately report to the host institution or Prostate Cancer UK with any concerns about an internship placement, including requests to engage in unethical or illegal activities, exposure to sexual harassment, discrimination or unsafe situations, or any other circumstances that create an uncomfortable environment for the intern.

Interns recognise that the host institution and/or employer have the right to terminate the internship experience at any time if it is deemed by Prostate Cancer UK or the host institution that the intern has violated the code of conduct or otherwise negatively compromised the internship programme and/or host organisation.