

Job description and selection criteria

Summary

Job title	Postdoctoral Research Associate in Ultrasound Image Analysis
Division	Medical Sciences
Department	Nuffield Department of Women's & Reproductive Health (NDWRH)
Location	Women's Centre, John Radcliffe Hospital, Headington, Oxford
Grade and salary	Grade 7: £36,024 - £44,263 with a discretionary range to £48,350 per annum
Hours	Full time <i>Applications for flexible working arrangements are welcomed and will be considered in line with business needs.</i>
Contract type	Fixed-term until 30 th September 2025. Start date ASAP
Reporting to	Principal Investigator, Professor Sally Collins
Vacancy reference	174579

The role

The Nuffield Department of Women's & Reproductive Health seeks to appoint a Postdoctoral Research Associate for an exciting international project investigating the application of 3D ultrasound to analyse the placenta, funded by the National Institute of Health's Human Placenta Project (HPP). This collaborative work with Hackensack Medical Centre, New Jersey, aims to combine state-of-the-art image processing techniques with a large volume of early pregnancy 3D ultrasound scans. The candidate will be responsible for the implementation of new automated software tools for placental image analysis. These tools will be developed to provide high quality measurements of 3D scans using image segmentation and analysis.

The associate's primary focus will be the construction and development of methods to analyse the placenta using image analysis tools. In combination with new imaging data and the application of machine learning methods the main duty for the associate would be the development of an open-source library that will be rolled out to clinical community. This work will provide the opportunity to develop a real-world machine learning system that will solve an understudied clinical problem using a large amount of data.

This unique role will be based at the John Radcliffe Hospital, Oxford where the associate will work in a multidisciplinary group.

Responsibilities

- Investigate the application of 3D ultrasound to analyse the placenta
- Implement new automated software tools for placental image analysis by adaptation of existing or development of new medical image analysis techniques
- Construct and develop methods to analyse the placenta using bespoke image analysis tools
- Develop an open-source library that will be rolled out to clinical community
- Collaborate in the preparation of scientific reports and journal articles
- Act as a source of information and advice to other members of the group on scientific protocols and experimental techniques
- Contribute ideas for new research projects
- Carry out collaborative projects with colleagues in partner institutions, and research groups
- Represent the research group at external meetings/seminars, either with other members of the group or alone

Selection criteria

You will be asked to upload a CV and supporting statement as part of your online application.

Applications will be judged only against the criteria that are set out below. Applicants should ensure that their application shows very clearly how their skills and experience meet these criteria within the supporting statement. This should describe, with specific examples, how you meet each item listed below. See <https://www.jobs.ox.ac.uk/cv-and-supporting-statement> for further guidance on writing an effective supporting statement.

Essential selection criteria

1. PhD (or near completion) or equivalent professional experience in a related technical area such as image processing, medical image analysis, machine learning or computer vision.
2. Strong mathematical or programming background with experience in development of solutions to imaging problems or similar challenges.
3. Fluency in standard scientific programming languages such as C, C++, Python, Java.
4. Ability to communicate and work in a multi-disciplinary team of engineers and clinicians.
5. A good balance between having the drive to move the project forward and the patience to deal with high levels of detail.

Desirable selection criteria

Please note that the criteria listed below would be an advantage in this role, but you do not need to meet them to be eligible to apply.

1. Understanding of Django or other web programming tools/languages.
2. Use of version control systems (Mercurial, Git).

3. A proven track record in the development of machine learning or image segmentation algorithms.
4. Exposure to image processing libraries and tools such as ITK, VTK, Slicer 3D, Docker and CMake.
5. Experience in viewing and annotating medical images.
6. Strong publication history in either machine learning or medical imaging fields. This includes open-source systems or libraries along with more traditional routes to publication such as journal and conference papers.

Pre-employment screening

Standard checks

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at: <https://www.jobs.ox.ac.uk/pre-employment-checks>

About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information, please visit www.ox.ac.uk/about/organisation.

Nuffield Department of Women's & Reproductive Health (NDWRH)

The Nuffield Department of Women's & Reproductive Health (NDWRH) is one of the largest and most successful academic departments in the world in its field. There are approximately 160 people working in the department, including senior academic staff, research support staff, clerical and technical staff, and graduate students (including clinicians) carrying out research towards a higher degree. There are also a number of visiting researchers from many parts of the world. The average annual income is approximately £10 million, of which over 75% comes from outside sources.

NDWRH encompasses multi-disciplinary research across the full spectrum of women's health. Our work has four overarching themes; Cancer, Global Health, Maternal & Fetal Health and Reproductive Medicine & Genetics. We focus on genetic studies, the dissection of molecular, biochemical and cellular mechanisms underlying normal and

aberrant reproductive tissue function, and clinical studies in women's health, assisted reproduction and pregnancy, as well as growth and development across the first 1000 days of life.

The clinical and laboratory programmes are based in the Women's Centre, John Radcliffe Hospital; Weatherall Institute of Molecular Medicine; Winchester House, and the Big Data Institute, and there are collaborations with the School's Institutes, the University's Science Departments and with researchers outside Oxford, in both the UK and abroad, especially in low-middle income countries.

For more information please visit: www.wrh.ox.ac.uk

The University of Oxford is a member of the [Athena SWAN Charter](#) and holds an institutional Bronze Athena SWAN award. NDWRH holds a departmental Silver Athena award in recognition of its efforts to introduce organisational and cultural practices that promote gender equality in SET and create a better working environment for both men and women.

How to apply

Assessment

Interviews for this post will take place on the second or third week of September 2024. You will be notified by 12th September 2024 if you have been shortlisted for interview.

During the interview, you will be asked questions based around the selection criteria listed in this job description.

If you are selected for interview you will be invited to disclose any special requirements which we might need to consider in relation to the interview arrangements, for example, in the case of disability, access to facilities or equipment. These will not be taken into account in the selection process.

In advance of the interview, you will be asked to complete an online McQuaig Word Survey. You can read more about McQuaig at <https://mcquaig.co.uk/candidate-section/>.

You can find more information and guidance about the recruitment and selection process at the Nuffield Department of Women's & Reproductive Health at <https://www.wrh.ox.ac.uk/candidate-briefing>.

Applications are made through our online recruitment portal. Information about how to apply is available on our Jobs website <https://www.jobs.ox.ac.uk/how-to-apply>.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

As part of your application you will be asked to provide details of two referees and indicate whether we can contact them now.

You will be asked to upload a CV and a supporting statement. The supporting statement must explain how you meet each of the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants)

Please upload all documents **as PDF files** with your name and the document type in the filename.

All applications must be received by **midday** UK time on the closing date stated in the online advertisement.

Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing department(s).

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments).

If you need help

Application FAQs, including technical troubleshooting advice is available at: <https://staff.web.ox.ac.uk/recruitment-support-faqs>

Non-technical questions about this job should be addressed to the recruiting department directly to recruitment@wrh.ox.ac.uk.

To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.

Please note that you will receive an automated email from our online recruitment portal to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

Important information for candidates

Data Privacy

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: <https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy>. The University's Policy on Data Protection is available at: <https://compliance.admin.ox.ac.uk/data-protection-policy>.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for very senior research posts at **grade RSIV/D35 and clinical equivalents E62 and E82**, which with effect from 1 October 2023 will be 30 September before the 70th birthday. The justification for this is explained at: <https://hr.admin.ox.ac.uk/the-ejra>.

For **existing** employees on these grades, any employment beyond the retirement age is subject to approval through the procedures: <https://hr.admin.ox.ac.uk/the-ejra>.

There is no normal or fixed age at which staff in posts at other grades have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

Equality of opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

Benefits of working at the University

Employee benefits

University employees enjoy 38 days' paid holiday, generous pension schemes, travel discounts, and a variety of professional development opportunities. Our range of other employee benefits and discounts also includes free entry to the Botanic Gardens and University colleges, and discounts at University museums. See <https://hr.admin.ox.ac.uk/staff-benefits>

University Club and sports facilities

Membership of the University Club is free for all University staff. The University Club offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See www.club.ox.ac.uk and <https://www.sport.ox.ac.uk/>.

Information for staff new to Oxford

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University's Welcome Service website includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See <https://welcome.ox.ac.uk/>

There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependants. See <https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme>

Family-friendly benefits

With one of the most generous family leave schemes in the Higher Education sector, and a range of flexible working options, Oxford aims to be a family-friendly employer. We also subscribe to the Work+Family Space, a service that provides practical advice and support for employees who have caring responsibilities. The service offers a free telephone advice line, and the ability to book emergency back-up care for children, adult dependents and elderly relatives. See <https://hr.admin.ox.ac.uk/my-family-care>

The University has excellent childcare services, including five University nurseries as well as University-supported places at many other private nurseries.

For full details, including how to apply and the costs, see <https://childcare.admin.ox.ac.uk/>

Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. For further details, including information about how to make contact, in confidence, with the University's Staff Disability Advisor, see <https://edu.admin.ox.ac.uk/disability-support>

Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at <https://edu.admin.ox.ac.uk/networks>

The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation run by volunteers that aims to assist the partners of new staff settle into Oxford, and provides them with an opportunity to meet people and make connections in the local area. See www.newcomers.ox.ac.uk.