Job description and selection criteria

Job title	Software Developer – 3D Image Analysis
Division	Medical Sciences
Department	Nuffield Department of Women's & Reproductive Health
Location	The Big Data Institute
Grade and Salary	Grade 7: £36,024- £44,263 (with a discretionary range to £48,350) **per annum**
Hours	Full-time (*applications for flexible working arrangements are welcomed and will be considered in line with business needs*)
Contract type	Fixed Term for 12 months
Reporting to	Dr Michael Suttie
Vacancy reference	168758

The Post

Overview of the Role

This role will suit either a research scientist with experience in software development, or a developer with a research interest. We are part of a global consortium, funded by the National Institutes of Health (NIH), investigating the effects of prenatal alcohol exposure on the face and brain using 3D image analysis. Our software, developed in-house, uses 3D images taken from stereo photogrammetric camera systems to analyse and detect facial differences in those with prenatal alcohol exposure. Previous work has utilised this technology in a research setting, however, we now wish to redevelop these tools to integrate into a clinical setting to assist with diagnosis and screening.

You will be responsible for the implementation and testing of desktop (C++ and Python based) and potentially mobile computing (IOS) applications for the detection of facial differences using 3D imaging. This will require leveraging new innovative technologies for 3D image capture, restructuring existing software and introducing new features.

The successful applicant will report to Dr Michael Suttie, and the estimated start date is 1st Nov.

Responsibilities

- Further develop existing Python and C++ based software tools for 3D facial analysis

- Lead the technical design, coding, testing and maintenance of Front-end and Back-end applications

- Algorithm design and implementation

- Front end UI design and development.

- Test and integrate new 3D imaging technologies

- Develop bespoke IOS based applications

- Work with clinicians and researchers to ensure software is meeting the end-user requirements

- Participate in scientific discussion, with regard to new software technologies and clinical research applications, and make substantial contributions to research publications and technical reports

Selection criteria

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; you should list each of the criteria in turn, and explain briefly how your skills and experience match these requirements.

Essential

1. A good degree in Engineering, Computer Science, or similar, or equivalent experience in software development

2. Experience in software development using C++ and Python

3. Strong mathematical background with knowledge of 3D geometry, computer vision or imaging

4. Experience with machine learning techniques such as convolutional neural networks, classification algorithms, or

5. Experience of developing parallel computing algorithms

6. Creativity, multi-criteria problem solving and interest in learning new techniques and concepts

7. Experience in algorithm design and implementation

8. Good communication skills

   Desirable

1. Experience in 3D imaging techniques, photogrammetry, 3D points and surfaces processing, 3D reconstruction

2. Strong programming background on other Back-end technologies (e.g. Python, Django, Flask, SQL, Docker)

3. Experience in developing IOS apps

4. Cloud processing and server side implementation

5. Strong diagnostic and problem-solving capability

6. Knowledge or experience of imaging libraries such as VTK (highly desirable), ITK or graphics libraries/platforms such as OpenGL, CUDA.

Pre-employment screening

All offers of employment are made subject to standard pre-employment screening, as applicable to the post.

If you are offered the post, you will be asked to provide proof of your right-to-work, your identity, and 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 so that we can discuss appropriate adjustments with you), and a declaration of any unspent criminal convictions.

We advise all applicants to read the candidate notes on the University's pre-employment screening procedures, found at: www.ox.ac.uk/about/jobs/preemploymentscreening/.

How to apply

Applications are made through our e-recruitment system and you will find all the information you need about how to apply on our Jobs website https://www.jobs.ox.ac.uk/how-to-apply. You should list each of the criteria in turn, and explain briefly how your skills and experience match these requirements.

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 note that if you do not upload a supporting statement, we will be unable to consider your application.**

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

Help and support is available from: https://hrsystems.admin.ox.ac.uk/recruitment-support

If you require any further assistance please email recruitment.support@admin.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 e-recruitment system to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

Assessment

It is anticipated that interviews for this post will take place on 1st December 2023. You will be notified by 24th November 2023 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.

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 all academic posts and some academic-related posts. The University has adopted an EJRA of 30 September before the 69th birthday for all academic and academic-related staff in posts at **grade 8 and above**. The justification for this is explained at: https://hr.admin.ox.ac.uk/the-ejra

For **existing** employees, 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 **grades 1–7** 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.

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.

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 dependents. 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 My Family Care, 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.