Job Description

Summary

Job title	Senior Research Software Engineer with a focus on Machine Learning and AI applications
Division	MPLS
Department	Doctoral Training Centre
Location	1-4 Keble Road, Oxford OX1 3NP
Grade and salary	Grade 8: £48,235 - £57,255 p.a.
Hours	Full time
Contract type	**Open-ended, externally-funded**
Reporting to	Dr Martin Robinson
Vacancy reference	**178026**
Additional information	

The role

The post holder will be a senior member of the Oxford Research Software Engineering (OxRSE) Group, part of the Doctoral Training Centre in the University of Oxford. We work with research groups across the university to create, improve and maintain software used for world-class scientific research and translational projects, and provide consultation and training on best practices in research software development and reproducible research.

The post holder will provide RSE support to the Schmidt AI in Science Postdoctoral Fellowship programme at Oxford. Oxford will host 55 postdoctoral fellows over 6 years starting from March 2023, and OxRSE will be providing RSE support to the fellows via software consultancy and direct development support on their research projects, and via the delivery of training courses to the fellows, both those in Oxford and internationally.

In addition, the post holder will be responsible for the acquisition and management of other OxRSE projects based on the current project portfolio of the group, conduct research on topics within research software engineering or related to specific projects, supervise RSEs and Junior RSEs on projects, and lead in the development and delivery of training courses and workshops to other researchers within the University.

Responsibilities

- Provide RSE support as needed to the Schmidt AI in Science Postdoctoral Fellowship programme
- Collaborate with research colleagues across the university, establishing new research software projects to add to the Oxford RSE group's portfolio.
- Manage multiple projects within the current portfolio of the Oxford RSE group, working directly on projects and supervising RSEs and Junior RSEs.
- Design and implement high quality, reliable and maintainable software that will lead to specific research outcomes or enable the translational impact of existing research.
- Regularly write research articles at a national level, on topics in research software engineering and/or related to specific projects within the Oxford RSE portfolio.
- Generate research income via the establishment of new collaborative research projects and grant/fellowship applications (e.g., EPSRC's RSE fellowship).
- Assist in the management of the research budget for the group and manage the budgets for individual projects.
- Promote software engineering and reproducible research best practices within the University of Oxford and the wider UK and international research community.
- Act as a source of information and advice to other members of the group. Coach members of the group on specialist methodologies, programming languages or design patterns.
- Manage and deliver workshops and courses offered by the Oxford RSE group.
- Contribute to community activities such as seminars and networking events.
- Support the development, documentation, release and user support for software developed within the Oxford RSE group.
- Develop own personal skills in many areas of computational research and software development via independent study and training courses.

Selection criteria

Essential selection criteria

- Hold a PhD/DPhil with a significant computational component, with post-qualification research experience. Candidates without a PhD/DPhil but with substantial experience of software development in a research environment (e.g. Research MSc and 5 years industry experience in software development) will also be considered.
- Strong track record in both publications and released software projects.
- Demonstrated ability to design, implement and deploy a complex software engineering project while applying software engineering best practices and using common software architecture paradigms (e.g., Object-orientated programming).
- Experience working on and contributing significantly to a software project team, including mentoring less experienced developers (e.g., RSEs or research staff).
- Substantial experience with one programming language used for research (Python and C++ preferred, but also Rust, C, Fortran, Javascript, Java, Julia) and conversant with at least one more.
- Demonstrated ability to rapidly acquire fluent knowledge of new programming languages, libraries and platforms.
- Excellent communication skills, including the ability to communicate with researchers, write for publication, present research proposals and results, and represent the group at meetings.
- Enthusiasm for promoting software engineering best practices in academia and experience implementing these practices in collaborative projects with researchers.

Desirable selection criteria

- Experience in software development for AI and machine learning applications
- Experience in high performance computing (HPC)
- Holds a PhD/DPhil in an area of mathematical, physical or (non-medical) life science.
- Experience designing and/or delivering software training courses.

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.

About the Schmidt AI in Science Postdoctoral Fellowship Program

The Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship Program (part of the Schmidt Futures) at Oxford is part of a new international initiative to drive innovative use of Artificial Intelligence (AI) in STEM research (engineering, and the natural and mathematical sciences). Oxford will host c.55 postdoctoral fellows (totalling 110 years of research) over six years, and provide them with the tools to increase the scope and speed of their research through the application of AI. This prestigious Fellowship programme aims to accelerate scientific progress through the application of AI to STEM research, offering Fellows the opportunity to pursue an independent research path, whilst benefitting from a bespoke training programme, mentoring from leading Oxford researchers, and cohort learning through regular peer-to-peer activities across the Schmidt AI in Science Fellows at Oxford

For full information about the program at Oxford please visit the dedicated website for The Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship at Oxford.

For more information about the program in general, please visit The Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship Program website.

Doctoral Training Centre (DTC)

The DTC has been in existence since 2002 and has expanded and evolved according to the scientific and funding landscape. Originally admitting 20 DPhil students, the intake is now 90 - 100 per year.
The current programmes, offering 4-year interdisciplinary DPhil degrees to students of outstanding quality and achievement are:

- BBSRC Interdisciplinary Biosciences Doctoral Training Partnership
- BBSRC iCASE Studentship Programme

- EPSRC Sustainable Approaches to Biomedical Science Centre for Doctoral Training: Responsible and Reproducible Research
- NERC Environmental Research Doctoral Training Partnership
- Wellcome Trust 4-year Chemistry in Cells Programme
- UKRI AI Centre for Doctoral Training in AI for the Environment - Intelligent Earth
- UKRI Interdisciplinary Life and Environmental Science Landscape Award (ILESLA)
- Ellison – EIT Centre for Doctoral Training in the Fundamentals of AI

For all of these, students are based within the Doctoral Training Centre building for the first part of the programme, undertaking modular training courses to bridge the gaps in knowledge necessary to become successful interdisciplinary research scientists before embarking on the substantive research stage of the course within a host department of the University, at one of our collaborative institutions or embedded within one of our industrial partners for years 2 – 4 of the course.

In addition to DPhil training, the DTC also includes the Oxford Research Software Engineering Group (OxRSE), which currently consists of 14 team members with further growth expected over the next 3 years. Over the past decade, an increasing number of academic researchers in all disciplines have come to rely on bespoke and reliable digital tools and software in order to carry out their research. OxRSE was established to provide essential research software support. Working with research groups across the University, OxRSE creates, improves and maintains software used for world-class academic research and translational projects, and provides consulting and training on best practices in research software development and reproducible research. OxRSE has recently been identified as a unit of strategic importance within the University, with resources allocated to support rapid growth from the University's Strategic Research Fund (SRF). This will see OxRSE recruit a substantially larger research support team, and begin a programme of systematic engagement with the wider university to gauge and meet research software development needs

The administration and finances of the Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship, a program of Schmidt Futures, are also held within the DTC, bringing post-doctoral training into our portfolio.

For more information please visit: https://www.dtc.ox.ac.uk/

The Mathematical, Physical, and Life Sciences Division (MPLS)

The Mathematical, Physical, and Life Sciences (MPLS) Division is one of the four academic divisions of the University. Oxford is widely recognised as one of the world's leading science universities. The disciplines within the MPLS Division regularly appear at the highest levels in world rankings. In the results of the six-yearly UK-wide assessment of university research, REF2014, the MPLS division received the highest overall grade point average (GPA) and the highest GPA for outputs. We received the highest proportion of 4* outputs, and the highest proportion of 4* activity overall. More than 50 per cent of MPLS activity was assessed as world leading.

The MPLS Division's 10 departments and 3 interdisciplinary units span the full spectrum of the mathematical, computational, physical, engineering and life sciences, and undertake both fundamental research and cutting-edge applied work. Our research addresses major societal and technological challenges and is increasingly focused on key interdisciplinary issues. We collaborate closely with colleagues in Oxford across the medical sciences, social sciences and humanities, and with other universities, research organisations and industrial partners across the globe in pursuit of innovative research geared to address critical and fundamental scientific questions.

MPLS is proud to be the home of some of the most creative and innovative scientific thinkers and leaders working in academe. Our senior researchers have been awarded some of the most significant scientific honours (including Nobel prizes and prestigious titles such as FRS and FR.Eng) and we have a strong tradition of attracting and nurturing the very best early career researchers who regularly secure prestigious fellowships. The Division is also the proud holder of eight Athena Swan Awards (4 Silver and 4 Bronze) illustrating our commitment to ensure good practice and to encourage women in science at all levels in the division.

We have around 6,000 students and play a major role in training the next generation of leading scientists. Oxford's international reputation for excellence in teaching is reflected in its position at the top of the major league tables and subject assessments. MPLS academics educate students of high academic merit and potential from all over the world. Through a mixture of lectures, practical work and the distinctive college tutorial system, students develop their ability to solve major mathematical, scientific and engineering problems.

MPLS is dedicated to bringing the wonder and potential of science to the attention of audiences far beyond the world of academia. We have a strong commitment to supporting public engagement in science through initiatives including the Oxford Sparks portal (http://www.oxfordsparks.net/) and a large variety of outreach activities; these are crucial activities given so many societal and technological issues demand an understanding of the science that underpins them. We also endeavour to bring the potential of our scientific efforts forward for practical and beneficial application to the real world and our desire is to link our best scientific minds with industry and public policy makers.

For more information about the MPLS division, please visit: http://www.mpls.ox.ac.uk/

How to apply

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
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 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.

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 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.