Job title | Senior Software Engineer
---|---
Division | Medical Sciences
Department | Nuffield Department of Medicine
Location | Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, Old Road Campus, Headington, Oxford, OX3 7LF
Grade and salary | Grade 8: £41,526 - £49,533 per annum (with a discretionary range up to £54,131 p.a)
Hours | Full time
Contract type | Fixed term for 3 years
Reporting to | Dr Jerome Kelleher
Vacancy reference | 142918

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. Income from external research contracts in 2016/17 exceeded £564m and we rank first in the UK for university spin-outs, with more than 130 companies created to date. 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.
Medical Sciences

The Medical Sciences Division is an internationally recognized centre of excellence for biomedical and clinical research and teaching. We are the largest academic division in the University of Oxford. World-leading programmes, housed in state-of-the-art facilities, cover the full range of scientific endeavour from the molecule to the population. With our NHS partners we also foster the highest possible standards in patient care.

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

Nuffield Department of Clinical Medicine (NDM) …fostering your career in science

The Nuffield Department of Clinical Medicine (NDM) is one of the largest departments of the University of Oxford and is part of the Medical Sciences Division, with responsibility for a significant part of the teaching of clinical students within the Medical School.

NDM has significant financial turnover and complexity, resulting from its diverse research portfolio, its geographical spread and its close links with NHS funding and strategic teams involved in the development and delivery of increasingly integrated clinical research platforms. For more information please visit: http://www.ndm.ox.ac.uk/home

The Nuffield Department of Clinical Medicine has been presented with a Departmental Athena SWAN Silver award in recognition of the commitment made to promote gender equality through our organisational and cultural practices and our efforts to improve the working environment for both men and women. For more information please see our Departmental Athena SWAN pages: https://www.ndm.ox.ac.uk/working-for-ndm/aboutndmatheneswan/

Oxford Big Data Institute

The Big Data Institute (BDI) is a state-of-the-art building at Oxford University's Old Road Campus which opened in April 2017. This interdisciplinary research centre focuses on the analysis of large, complex, heterogeneous data sets for research into the causes and consequences, prevention and treatment of disease. To this end, BDI researchers develop, evaluate and deploy efficient methods for acquiring and analyse information for large clinical research studies. These approaches are invaluable in identifying the associations between lifestyle exposures, genetic variants, infections and health outcomes around the globe.

Research is conducted in four general themes: genomics, population health, infectious disease surveillance, and methodology (including informatics, statistics, and engineering). Big Data methods could transform the scale (breadth, depth and duration) and efficiency (data accumulation, storage, processing and dissemination) of large-scale clinical research. The work of the BDI requires people and projects that span traditional departmental
BIG DATA INSTITUTE

boundaries and scientific disciplines, supported by technical resources to handle the vast quantities of data they generate.

Under the leadership of Professor Gil McVean (Director) and Professor Martin Landray (Deputy Director), the BDI will comprise around 350 researchers (approx. 30 research groups) drawn from a wide range of departments and will form an analytical hub, deeply connected to the wider experimental and clinical community in Oxford and beyond.

For more information please visit: http://www.bdi.ox.ac.uk/

Overview of the role

Genomic datasets are growing exponentially, largely driven by applications in human health and curiosity about our past. Present day methods for storing and processing genomic big data are struggling to cope, and the projected computing costs over the coming years are enormous. The succinct tree sequence is a new data structure that promises to reduce these storage and processing requirements by orders of magnitude. Tskit is a suite of tools based on Python and C built around this data structure, which is being used to advance cutting-edge research into evolutionary biology, human health, and the history of humans and other species.

You will join and help to lead the tskit open-source project, a globally distributed team of scientists and engineers developing the next generation of tools for genomic big data. You will be based at Oxford University's Big Data Institute, joining an interdisciplinary community of scientists and engineers using cutting-edge data science methods to tackle important problems in biomedical research.

You will develop quality high-performance software and help to manage a growing open-source community as a member of an interdisciplinary and geographically distributed team.

Responsibilities/duties

- Lead development and maintenance of the tskit library and related packages, working closely with a diverse and geographically distributed team of scientists and engineers.
- Assist in researching, developing and implementing efficient algorithms for processing large-scale genomic data.
- Manage and extend state-of-the-art development infrastructure using cloud services for continuous integration testing, code quality tests, linting etc.
- Actively participate in the tskit-dev open source community, (e.g. reviewing Pull Requests on GitHub), helping to foster a diverse and welcoming community.
- Advise, supervise and aid in training of junior staff and visiting workers
BIG DATA INSTITUTE

- Contribution to the ideas, development and strategic planning of the group
- Contribute to the production of scientific reports and publications

Selection criteria

Essential

- A degree in Computer Science, Mathematics or related subject.
- In-depth knowledge of algorithms and data structures.
- Significant expertise and experience in Python
- Experience in C or some other high-performance programming language.
- Excellent communication and interpersonal skills to enable working with a geographically distributed community of developers with varying programming skill levels.
- Demonstrable ability to organise and prioritise work efficiently whilst delivering results to the required standard and to an agreed schedule

Desirable

- Experience of contributing code/documentation to open source projects
- Experience of contributing to open source community efforts through organising hackathons, onboarding new community members, answering questions on GitHub/Stack Overflow, etc.
- Previous research experience.
- Knowledge of evolutionary biology and/or genomics.

How to apply

Before submitting an application, you may find it helpful to read the ‘Tips on applying for a job at the University of Oxford’ document, at https://www.ox.ac.uk/about/jobs/research/
If you would like to apply, click on the **Apply Now** button on the ‘Job Details’ page and follow the on-screen instructions to register as a new user or log-in if you have applied previously. Please provide details of two referees and indicate whether we can contact them now.

You will also 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).

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

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

All applications must be received by **midday** 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 departments.*

*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)*

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk. Further help and support is available from www.ox.ac.uk/about_the_university/jobs/support/. 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.
Important information for candidates

Pre-employment screening

Please note that the appointment of the successful candidate will be subject to standard pre-employment screening, as applicable to the post. This will include right-to-work, proof of identity and references. 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/.

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:
www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/

For existing employees, any employment beyond the retirement age is subject to approval through the procedures: www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/.

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 www.admin.ox.ac.uk/personnel/staffinfo/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 www.sport.ox.ac.uk/oxford-university-sports-facilities.

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 www.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 www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/.

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 www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/.

Childcare

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 www.admin.ox.ac.uk/childcare/.

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 www.admin.ox.ac.uk/eop/disab/staff.

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 www.admin.ox.ac.uk/eop/inpractice/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.