Job description and selection criteria

Job title	Clinical Data Scientist/Analyst
Division	Medical Sciences
Department	Nuffield Department Women's & Reproductive Health (NDWRH)
Location	Level 3, Women's Centre, John Radcliffe Hospital, Headington, Oxford
Grade and salary	Grade 7: £36,024 to £44,263
Hours	Full time
Contract type	Fixed-term for 1 year in the first instance with the possibility of a further extension
Reporting to	Dr Gabriel Davis Jones and Professor Manu Vatish
Vacancy reference	174359

The Role

Overview of the Role

The Nuffield Department of Women's & Reproductive Health (NDWRH) is seeking a full-time Clinical Data Scientist to process and analyse data stored within the Oxford University Hospital NHS Foundation Trust's (OUH) Electronic Patient Record (EPR) system. This role is pivotal in extracting valuable insights from complex datasets, contributing to the development of cutting-edge clinical research studies, and supporting high-impact research projects aimed at improving health outcomes for mothers, babies, and families. The group currently hosts one of the world's largest repositories of pregnancy data, including various biosignals, clinical data, genetic information, and imaging data, encompassing hundreds of thousands of pregnancies. This vast and comprehensive resource supports innovative research and groundbreaking studies in women's and reproductive health. The role will involve making these data and associated documentation ready for scientific interrogation, AI model development, and advanced statistical analysis, ensuring that the data can be effectively utilised to drive forward clinical and scientific discoveries.

This is an exciting opportunity to work in a high-impact field, contributing to advancements in women's and reproductive health using state-of-the-art research. The successful candidate will join a collegial environment with many learning and networking opportunities. The team comprises a diverse mix of clinicians, data scientists, fundamental science researchers, AI researchers, and students, fostering an inclusive and friendly culture that promotes collaboration and professional development.

The Data Scientist will work on a diverse array of projects, ranging from large-scale studies to targeted smaller analyses and health services research. This role offers the chance to engage with cutting-edge research methodologies and data analysis techniques, providing a dynamic and intellectually stimulating work environment. The successful candidate will also collaborate with international institutions, contributing to innovative research. Attention to detail, a strong and meticulous work ethic, and an appreciation for patient data protection and confidentiality are paramount. Due to data security considerations, remote or hybrid work arrangements are not possible for this position.

Additional benefits of the role include access to state-of-the-art technological resources and tools, opportunities for professional development through workshops, seminars, and conferences, and the chance to be part of innovative projects that have a direct impact on public health. The department offers mentorship opportunities, and there are numerous chances for co-authoring and publishing in high-impact journals. The collaborative environment and the opportunity to work with leading experts in various fields further enhance the professional growth prospects for the successful candidate.

Interested individuals are encouraged to visit this website to gain an understanding of some of the work we do: http://bit.ly/3Wa8jMT

This role is ideal for a proactive individual who is passionate about data science and its application in improving healthcare outcomes. The position provides ample opportunities for professional growth and the development of technical and analytical skills in a supportive and collaborative environment. It is particularly suitable for someone aspiring to pursue a PhD in the future in data science, health informatics, or AI, offering a strong foundation in advanced data analysis, AI model development, and innovative research methodologies.

Responsibilities

- Curate large and complex datasets from various clinical databases, with data extraction performed by dedicated clinical data managers.
- Process and clean data to prepare for scientific studies, AI model development, and advanced statistical analysis.
- Advance the development of open-access online data dictionaries and repositories.
- Collaborate with multidisciplinary teams to leverage collective expertise and develop custom datasets tailored for specific research projects.
- Generate novel insights from healthcare data through advanced analytical techniques.
- Develop bespoke data processing algorithms, including time series and image biosignal data.
- Generate meticulous documentation for datasets, ensuring clarity, accuracy, and reproducibility.
- Engage with stakeholders across various departments to understand their data needs and deliver tailored data solutions.
- Participate in the dissemination of research findings through publications and presentations, attending international conferences, and contributing to the broader academic community.
- Drive or collaborate on the scientific publication of academic works.
- Give presentations to other academics on findings within the data, sharing insights and contributing to knowledge exchange.
- Ensure attention to detail, a strong work ethic, and adherence to patient data protection and confidentiality.
- Maintain high standards of data quality within both source systems and processed data, advising on areas impacted by poor data quality and promoting best practices and improvements.
- Provide support for other research staff as required.

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.

Essential

1. An advanced degree (e.g. PhD) in Computer Science, Data Science, Engineering, or a related field, or equivalent experience.

2. Demonstrably strong analytical and computer skills, including high proficiency in Python, SQL, and experience with data management and analysis tools.

3. Proven significant experience in processing and analysing large and complex healthcare datasets including time series biosignals, with experience in cardiotocography (CTG) data.

4. Familiarity with web tools such as Sphinx for documentation purposes, including knowledge of reStructuredText, Markdown, HTML, and CSS, as well as version control tools like GitLab and GitHub.

5. Demonstrable experience in developing and maintaining data documentation, including data dictionaries, metadata repositories, and generating meticulous documentation for datasets.

6. Ability to work effectively as part of a multidisciplinary and multicultural team, with a willingness to support team members and excellent interpersonal, written, and oral communication skills.

7. Ability to maintain confidentiality and adhere to data security and protection regulations and best practices, including experience with anonymisation, pseudo-anonymisation, and masking procedures for personally identifiable information.

8. Familiarity with electronic health records (EHR) systems, particularly in a hospital or clinical setting.

9. Proven organisational skills with a methodical approach to work, efficient time management, and accurate and systematic record-keeping skills, including professional documentation of analytical work using common industry-standard tools.

10. Ability to work independently and with minimal supervision, with strong problem-solving skills and the ability to troubleshoot technical issues related to data management and analysis.

11. Demonstrated experience in developing bespoke data processing algorithms, including for time series and image biosignal data, and generating novel insights from healthcare data through advanced analytical techniques.

12. Interest in gaining an understanding of the clinical aspects of the data involved.

Desirable

1. Demonstrated experience working with patient healthcare data, ensuring data integrity and confidentiality.

2. Understanding and practical experience with machine learning techniques and their application in healthcare data analysis.

3. Knowledge of healthcare data standards and coding systems, such as ICD-10, SNOMED CT, and HL7, to ensure consistent and accurate data representation.

4. Experience in clinical research and handling large datasets, contributing to high-impact studies.

5. Previous experience in a teaching hospital or academic medical centre, collaborating with clinical and research staff.

6. Proven ability to work under pressure and meet deadlines, maintaining high standards of work quality and accuracy.

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 dependents). **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 **Monday 16th August 2024**.

You will be notified by **Monday 19th August 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 and will be asked to undertake a test beforehand.

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 Candidate Section | McQuaig.

You can find more information and guidance about the recruitment and selection process at the Nuffield Department of Women's & Reproductive Health at Candidate Briefing — Nuffield Department of Women's & Reproductive Health (ox.ac.uk).

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 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 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.