



Job Description



OXFORD INTERNET INSTITUTE

Job title	Data Scientist
Division	Social Sciences Division
Department	Oxford Internet Institute
Location	OII North, 34 St Giles, Oxford
Grade and salary	Grade 7: £31,076 to £38,183 per annum
Hours	Full-time or Part-time considered
Contract type	Fixed-term (7 months full-time or longer if part-time)
Reporting to	Professor Mark Graham
Vacancy reference	126926
Research topic	The Economic Geography of the Darknet
Principal Investigator	Professor Mark Graham
Funding partner	The funds supporting this research project are provided by The Alan Turing Institute and Google.

Overview of the role

The Oxford Internet Institute is launching a new project to map and measure trade on the darknet. Relatively little is known about the geography of this global trade. Although the strong anonymity on darknet markets severely limits data collection about the geography of consumption of products such as drugs and weapons, there is a large amount of data available about the sale of such goods and services.

This project seeks to employ techniques from computational social science and digital geography in order to achieve two primary objectives. First, we seek to scrape relevant geographic information from datasets of darknet sales, building re-usable data at the country level (e.g. 'the number of heroin sellers based in every country', 'the total number of vendors selling weapons in every country' etc.). Second, we seek to map, visualize, and analyse those data using multiple variables (the various categories of products and services) to ask 'what is the geography of illicit products and services?' We further hope to ask 'does the online trade of illicit goods and services have a significantly different geography from conventional mappings of that trade?' In other words: can data from the darknet be used as a proxy for more traditional (and much harder to collect) data about illegal economic activities?



Responsibilities/duties

The main duties of this post are:

1. Analyse and extract information from structured and unstructured large-scale data sets.
2. Drive the collection of new data and the refinement of existing data sources.
3. Generate innovative ideas, and work with a team of scholars from around Oxford to execute computation research related to development.
4. Maintain state-of-the-art knowledge and contribute to technical discussions and reviews as an expert in related areas of responsibility.
5. Develop the Oxford Internet Institute's research academic profile through publications in peer reviewed journals and conference proceedings.
6. Participate in collaborative research projects and in applications for research grants.
7. Participate actively in the OII's programme of seminars and events, including those aimed at non-academic audiences.
8. Such other comparable duties as may be required by Prof Mark Graham.

Selection criteria:

Essential

- Postdoctoral (or equivalent) standing in a discipline relevant to the study of Internet-based behaviour and relationships.
- Theoretical and/or methodological grounding within a relevant discipline.
- Demonstrated experience with GIS and geographic visualisation.
- Advanced skills in a scripting language such as Python.
- Experience with Hadoop or other MapReduce paradigms and associated tools such as Pig, Hive, etc.
- Strong background in the fundamentals of data visualization.
- Experience handling gigabyte and terabyte size datasets.
- Proven ability to work effectively with colleagues and as part of a professional team.
- Ability to disseminate results of research to a variety of audiences.
- Proven ability to teach and supervise postgraduate students.
- Willingness to participate in collaborative, multi-disciplinary research projects.

Desirable

- Experience with Hadoop or other MapReduce paradigms and associated tools such as Pig, Hive, etc.
- Experience with GNU R.
- A proven track record of publication.
- A proven track record of methodologically or theoretically innovative research.
- Success in applications for research grants.
- Experience in teaching courses at postgraduate level.

Working at the University of Oxford

In line with the University's Code of Practice for the Career Development of Research Staff, this position provides opportunities for personal and professional development. The position provides allowances to that end:

- a small part of your official work time each week can be set aside for you to use at your discretion on career development activities, such as writing papers unrelated to the project;
- qualified candidates will have opportunities to supervise graduate students and gain experience in graduate teaching in the department's extremely popular MSc and doctoral courses;
- the lively seminar and event programme of the department and Oxford's wider academic community provides plenty of opportunities for learning and networking.

For further information about working at Oxford, please see

www.ox.ac.uk/about_the_university/jobs/research/

The University

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 2014/15 exceeded £522.9m 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

Social Sciences Division

The Oxford Internet Institute is a department within the Social Sciences Division, one of four academic Divisions in the University, each with considerable devolved budgetary and financial authority, and responsibility for providing a broad strategic focus across its constituent disciplines.

The Social Sciences Division represents the largest grouping of social sciences in the UK. It is home to a number of outstanding departments and to the internationally ranked Law Faculty; all are committed to research to develop a greater understanding of all aspects of society, from the impact of political, legal and economic systems on social and economic

welfare to human rights and security. That research is disseminated through innovative graduate programmes and enhances undergraduate courses. For more information please visit <http://www.socsci.ox.ac.uk/>

The Oxford Internet Institute (OII)

The Oxford Internet Institute has expanded rapidly since its founding in 2001 to become a world-leading centre for the multidisciplinary study of the Internet and society, with activities focusing on research, post-graduate teaching and policy-making and practice.

The OII aims to bring about a greater understanding of the various social factors that are shaping the Internet and their implications for society. Central to this vision is a view of the Internet as a phenomenon that goes far beyond its technical capabilities to encompass all the people, services, information, and technologies that are intertwined in this 'network of networks'. Excellence in research underpins the Institute's collaborative and teaching activities. Wide-ranging collaborative relationships with experts from academia, government, business, and industry in the UK and around the world also play a central role in its strategic drive.

The OII's research strategy has targeted areas critical to the public interest, where the design and use of the Internet and related technologies are likely to contribute to a substantial restructuring of social practice and institutional arrangements. Having developed critical mass in these areas, the OII's strategy for the next five years is geared towards deepening and extending the range of grant-funded research around each theme and disseminating the outputs in high-quality journals, while ensuring that research helps inform and shape policy and practice.

Research at the OII focuses on 8 research clusters:

- **Connectivity, Inclusion & Inequality:** understanding the shifts in the power dynamics caused by information and communication technologies.
- **Digital Knowledge and Culture:** charting the on-going digital transformations of the sciences, social sciences, arts and humanities, and their implications.
- **Digital Politics & Government:** investigating political behaviour, digital government and government-citizen interactions in the age of the internet, social media and big data.
- **Education, Well-Being and Digital Life:** addressing the psychological, social and educational implications of the Internet, for people of all ages, across the full lifespan, with a particular focus on children and young people.
- **Ethics and Philosophy of Information:** investigating the ethical, epistemological, logical and ontological aspects of information, its sciences, phenomena and dynamics.
- **Internet Economics:** understanding the economic and social implications of new business models, new market structures, and new types of economic activity.
- **Information Governance & Security:** analysing the challenges created by the digitisation of information, seeking solutions through new governance rules, processes and institutions, and investigating the relationship between emerging technologies, their design, and information security and privacy.
- **Social Data Science:** seeking a quantitative understanding of how individuals behave and interact in society.

In all its research, the OII aims to operate at the cutting edge in both quantitative and qualitative methodologies that cut across disciplines and topics. Methodological innovation is vital given the changing nature of the Internet and advances in ICTs which both necessitate and facilitate the development of new techniques. OII researchers are developing methodologies such as the embedding of ICTs for real time observation of social phenomenon; webmetric techniques for observing the underlying structure of the web presence of social institutions; artificial intelligence design; experimental research; on-line action research; content analysis; investigation of virtual environments; and online survey research.

For more information about the Oxford Internet Institute please visit <http://www.oii.ox.ac.uk>

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 www.ox.ac.uk/about/jobs/supportandtechnical/.

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/](http://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 be notified of the progress of your application by automatic emails from our e-recruitment system. **Please check your spam/junk mail** regularly to ensure that you receive all emails.

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 for all academic and academic-related posts (grade 6 and above), for which the retirement date is the 30 September immediately preceding the 68th birthday. The justification for this is explained at: www.admin.ox.ac.uk/personnel/end/retirement/revisedejra/revaim/.

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

There is no normal or fixed age at which **support staff** in posts at **grades 1–5** have to retire. Support staff may retire once they reach the minimum pension age stipulated in the Rules of the pension scheme to which they belong.

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

Training and Development

A range of training and development opportunities are available at the University. Further details can be found at www.ox.ac.uk/staff/working_at_oxford/training_development/index.html.

For research staff only: Support for Research Staff

There is a particularly wide range of support for career development for research staff. Please visit: www.ox.ac.uk/research/support-researchers to find out more.

Pensions

The University offers generous occupational pension schemes for eligible staff members. Further details can be found at www.admin.ox.ac.uk/finance/epp/pensions/pensionspolicy/.

Information for international staff *(or those relocating from another part of the UK)*

A wealth of information is available on the University's International Staff website for staff who are relocating to Oxford from abroad, at www.admin.ox.ac.uk/personnel/staffinfo/international/.

The University of Oxford Newcomers' Club

The Newcomers' Club is aimed at helping partners of newly-arrived visiting scholars, graduate students and academic members of the University to settle in and to meet people in Oxford.

Transport schemes

The University offers a range of travel schemes and public transport travel discounts to staff. Full details are available at www.admin.ox.ac.uk/estates/ourservices/travel/.

University Club and University Sports Facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a Club bar, a cafe and sporting facilities, including a gym. See www.club.ox.ac.uk for all further details.

University staff can use the University Sports Centre at discounted rates, and have the chance to join sports clubs. Please visit www.sport.ox.ac.uk/oxford-university-sports-facilities.

Childcare and Childcare Vouchers

The University offers quality childcare provision services at affordable prices to its employees. For full details about the services offered, please visit www.admin.ox.ac.uk/childcare/. **NB: Due to the high demand for the University's nursery places there is a long waiting list.**

The University also offers nursery fee payment schemes to eligible staff as an opportunity to save tax and national insurance on childcare costs. Please visit www.admin.ox.ac.uk/childcare.

Disabled staff

The University is committed to supporting members of staff with a disability or long-term health condition and has a dedicated Staff Disability Advisor. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details.

BUPA - Eduhealth

Bupa Eduhealth Essentials private medical insurance offers special rates for University of Oxford staff and their families www.eduhealth.co.uk/mini-site/.

All other benefits

For other benefits, such as free entry to colleges, the Botanic Gardens and staff discounts offered by third party companies, please see www.admin.ox.ac.uk/personnel/staffinfo/benefits/.