



DEPARTMENT OF
**COMPUTER
SCIENCE**

University of Oxford Department of Computer Science

Job description and selection criteria

Job title	Global Cybersecurity Capacity Centre Research Fellow
Division	MPLS
Department	Computer Science
Location	Wolfson Building, Parks Road, Oxford.
Grade and salary	Grade 8: Salary £40,792 – £48,677 p.a.
Hours	Full Time
Contract type	Fixed term until 31 March 2020
Reporting to	Professor Michael Goldsmith
Vacancy reference	138270



The role

The Global Cybersecurity Capacity Centre (GCSCC) at the Department of Computer Science is looking to employ a Research Fellow to work within an interdisciplinary research team on cybersecurity capacity-building. Partly funded by the UK government and by the State Government of Victoria in Australia, the GCSCC is a programme of the Oxford Martin School, which specialises in supporting interdisciplinary research communities working to address the most pressing global challenges and opportunities of the 21st century. The GCSCC's aim is to understand and communicate how best to deliver effective cybersecurity across the world. We make this knowledge available to governments, communities and organisations to underpin an increase of their capacity in ways appropriate to ensuring a cyber space which can continue to grow and innovate in support of well-being, human rights and prosperity for all. To this end, the centre has developed a model (CMM) to measure a nation's cybersecurity maturity and is working with the international community to apply the model across the world, developing a close relationship with implementers in the field, as well as a constellation of regional centres.

The Centre's research focuses on five dimensions of capacity-building:

- National and international policy, and our ability effectively to deter and to defend against cyber- attacks.
- Society, culture and the susceptibility of people to cybercrime, and their views on what is acceptable in terms of apportioning responsibility for cyber risk and the use of cybersecurity tools.
- The availability of a high-quality cybersecurity-skilled workforce and leadership, across the public, private and voluntary sectors, and the underpinning educational and training platforms required to develop and support them.
- The legal and regulatory environments at large and their ability to stimulate good cybersecurity practice and generally to increase the resilience of cyber space and the people and organisations dependent upon it.
- Availability and use of technology, processes, business models and standards to support control of cyber risk in the home, in the enterprise, across national critical infrastructures and across international cyberspace.

This is an exciting opportunity for an experienced researcher with a strong methodological and/or theoretical background in one of the social or physical sciences, such as economics, political science, computer science, philosophy, cognitive or social psychology, law, geography, anthropology, international relations, development or sociology; and with an interest in research which matches one or more of the GCSCC's dimensions of capacity.

The key focus of this post will be to support the research programme of the Global Cybersecurity Capacity Centre, including:

- 40% of the work devoted to using statistical and other methods to investigate the data resulting from the CMM reviews and what it might tell about the relationships that exist between facets of national capacity in cybersecurity, as well as other socio-economic indicators of a country's context;
- 40% of the work for the development of a field-coding tool to support research by Oxford researchers and others around the world who are involved in collecting data in the field to support CMM reviews;
- 20% of the work to support the teaching of others on how to use the products of the Centre's research.

The successful candidate will work under the directorship of the Director of the GCSCC, Professor Sadie Creese, and the supervision of Professor Michael Goldsmith, with the

guidance of other senior academics and cybersecurity professionals who form the leadership (the Technical Board) of the GCSCC. You will be expected to regularly interact with stakeholders from across the world, who work in academia, industry, government, civil society groups, international development organisations and regional representatives. Applicants must therefore be keen to work as part of a collaborative team, be exceptionally able to deal with change and to learn about areas of cybersecurity not immediately within their domain of expertise; and be keen and able to travel on a regular basis.

The post is funded by the Foreign & Commonwealth Office of the UK and the State Government of Victoria in Australia and is fixed-term until 31 March 2020.

Research topic	Cybersecurity Capacity Building
Principal Investigator / supervisor	Professor Sadie Creese / Professor Michael Goldsmith
Project web site	https://www.cybersecurity.ox.ac.uk/research/global-security-cyber-capacity/ https://www.oxfordmartin.ox.ac.uk/cybersecurity/ https://www.sbs.ox.ac.uk/cybersecurity-capacity/content/front

Responsibilities

- To take responsibility for the delivery of the research plan working closely with Technical Board members of the GCSCC and as defined in the Centre's Research Strategy - working with key stakeholders to promote the thinking of the centre and the adoption of its capacity maturity model.

This will include:

- Statistical and other quantitative and qualitative methods of investigation to analyse the data resulting from the CMM reviews
- Support in developing a field-coding tool for capturing data from the field based on the CMM reviews
- Teaching of others on how to use the products of the Centre's research
- Identification of global cybersecurity capacity-building expertise
- Co-ordination of primary data collection exercises and fieldwork
- Work with partners and key stakeholders to promote a collaborative approach and uptake of the Centre's products
- Influencing and gaining the trust of internal and external partners in order to build and use extensive networks
- Development of written examples and case studies of cybersecurity capacity-building experience
- Further evolution of the cybersecurity capacity capability maturity model as necessary
- Assisting in the development of a framework for assessing cybersecurity harm against nations
- Supporting the convening of meetings of senior academics and members of the advisory board of the Centre, synthesising the ideas and knowledge generated within the research plan
- Developing knowledge-exchange resources in the form of written documents, downloadable media, and other content for the Centre's website and online portal
- Helping to provide the Portal Manager with material for dissemination

- To provide world-leading expertise in the area of cybersecurity capacity-building through a proven track record of research in one of more of the dimensions of focus for the Centre
- To work closely with the Technical Board and other researchers towards the analysis of the CMM data and the development of the CMM field-coding tool
- To agree clear task objectives, organise, and delegate work to other members of the research team and coach other members of the group on specialist methodologies or procedures
- To build the profile of the Centre through public engagements, conferences and publications as appropriate; writing publications at a national level for peer-reviewed journals, book chapters, and reviews; and whenever possible to present results at international conferences; considerable travel may be required.
- To participate actively in the Centre's programme of seminars and events, including those aimed at non-academic audiences.
- To help direct students and interns who are associated with the project by setting goals and managing the resources available.
- To participate in Centre administration, as required.
- To develop and implement new research methodologies and materials.
- To develop research questions within a specific context, to conduct individual research, analysing detailed and complex qualitative and/or quantitative data from a variety of sources, and to generate original ideas by building on existing concepts.
- To share responsibility for shaping the Centre's plans, writing of funding applications and budgeting for specific projects as part of sustainability-planning exercises.
- Carry out collaborative projects with colleagues in partner institutions, and research groups

Hazard-specific / Safety-critical duties

See: www.admin.ox.ac.uk/personnel/recruit/preempcheck/compulsorychecks/medical

This job includes the following hazards or safety-critical activities which will require successful pre-employment health screening through our Occupational Health Service before the successful candidate will be allowed to start work:

- Travel outside of Europe or North America on University Business

Selection Criteria

Essential:

- A post-graduate qualification in a relevant field (social or physical sciences, computer science, economics, political science, philosophy, cognitive/social psychology, law, geography, anthropology, international relations, development or sociology)
- Experience of working at a post-doctoral level in a research role (or industry equivalent)
- Theoretical and methodological grounding in one or more information systems or social science disciplines relevant to the dimensions of cybersecurity capacity being studied by the Centre;
- Ability to conduct quantitative, multivariate analyses as well as qualitative research;
- A distinguished research record in a relevant area with publication of articles in high-impact refereed journals; or industry equivalent
- Ability and willingness to address high-level influential audiences with authority;
- Sufficient specialist knowledge in their discipline to develop research projects and methodologies;
- An excellent track record of methodologically or theoretically innovative research;
- Proven interpersonal skills and the ability to interact effectively and confidentially with senior decision-makers and high-level partners;
- Outstanding communication and writing skills, with the ability to disseminate results of research to a variety of audiences and to frame recommendations at a national policy level;
- Excellent influencing skills and the commercial awareness necessary to develop existing and build new key stakeholder relationships and networks within the UK and internationally.
- Ability to take a proactive, enthusiastic and flexible approach to delivery, and to utilise new opportunities as they arise.
- Proven ability to think laterally and creatively, with the drive and initiative to work both independently and with the Centre's research team to maximise effectiveness
- Proven ability to work effectively with colleagues as part of a professional team;
- Willingness to participate in collaborative, multi-disciplinary research projects;
- Experience of research-planning and organisation;

Desirable:

- Experience of cybersecurity capacity-building activities;
- Experience of multi-disciplinary working;
- Proven ability to teach and supervise postgraduate students and undergraduate projects;
- A track record of writing successful applications for research funding.

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, and in providing all of our staff with a welcoming and inclusive workplace that supports everyone to develop and do their best work. Recognising that diversity is a great strength, and 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 £537m and ranked first in the UK for university spin-outs, with more than 150 spin-off 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

Department of Computer Science

The Department of Computer Science was established in 1957, making it one of the longest-established Computer Science departments in the country. It is one of the UK's leading Computer Science Departments (ranked first in a number of international rankings). The UK Research Excellence Framework (REF) in December 2014 resulted in 74 members of the Department having 53% of their research activity ranked in the top category of 4* (world-leading). Overall, we received an average of 3.34 across the Department (3* being internationally excellent). A significant majority of the Department are active in externally sponsored research, with both government and industrial funding.

The Department has close links with government, industry, and other departments within the University. Among the latter are Mathematics, Engineering, Physics, Statistics and a number of life sciences departments. The Department is housed across multiple sites within the University's South Parks Road Science Area, facilitating strong collaborative links with research groups and institutes in closely allied areas (including the Oxford Internet Institute and the Oxford e-Research Centre). This is an essentially inter-disciplinary activity which is at present attracting major funding from a number of sources. At present, the Department holds over £50m in external research contracts.

Research in the Department is currently managed in ten themes:

- *Algorithms & Complexity Theory* focusses on determining the inherent difficulty of computational problems, classifying problems according to this inherent difficulty, and designing and analysing algorithms that use computational resources as efficiently as possible;
- *Artificial Intelligence & Machine Learning* focuses on theoretical foundations, multiagent systems, deep learning and computational linguistics;
- *Automated Verification* investigates theory and practice of formal verification and correct-by-construction synthesis for software and hardware systems;
- *Computational Biology & Health Informatics* is concerned with computational approaches for biomedical research and healthcare innovation;
- *Cyber-Physical Systems* is focusing on intelligent and autonomous sensor systems with applications in positioning, healthcare, environmental monitoring and smart cities;
- *Foundations, Structures and Quantum* embraces interdisciplinary research, and has a particular interest in structural foundations of quantum computation;
- *Human-Centred Computing* covers human-computer interaction, social computing and world-wide web;
- *Information Systems* covers databases, knowledge representation and reasoning;
- *Programming Languages* covers functional programming, program analysis, and programming language foundations;
- *Security* specialises in cybersecurity, protocol analysis, systems security, trusted computing, human-centred security, and networking.

For more information, please visit: <http://www.cs.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 and the MPLS Division is home to our non-medical sciences, with 10 academic departments that 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 tackles major societal and technological challenges – whether developing new energy solutions or improved cancer treatments, understanding climate change processes, or helping to preserve biodiversity, 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.

The disciplines within the MPLS Division regularly appear at the highest levels in world rankings, with Oxford's Mathematical, physical and life sciences research judged best in the country according to the 2014 REF assessment exercise carried out by the Higher Education Funding Council for England (HEFCE).

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 and we have a strong tradition of attracting and nurturing the very best early career researchers who regularly secure prestigious fellowships and faculty positions. All academic departments in the Division also hold Athena Swan Awards, illustrating our commitment to ensure good practice and to encourage women in science at all levels in the division.

We have around 7,000 full and part-time students (including approximately 3,500 graduate 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 diverse 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 (www.oxfordsparks.ox.ac.uk) 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 bring the potential of our scientific efforts forward for practical and beneficial application to the real world and our desire, aided by the work of Oxford University Innovation and Oxford Sciences Innovation, is to link our best scientific minds with industry and public policy makers.

For more information about the MPLS division, please visit: www.mpls.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 should explain how you meet 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 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 (EJRA) for all academic posts and some academic-related posts. From 1 October 2017, 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+/.

From 1 October 2017, 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

University Club and sports facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a bar, café and sporting facilities, including a gym. 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 international staff (or those relocating from another part of the UK)

If you are relocating to Oxfordshire from overseas, or elsewhere in the UK, the University's International Staff website includes practical information related to moving to and settling in Oxford such as advice on immigration, relocation, accommodation, or registering with a doctor.

See: www.internationalstaffwelcome.admin.ox.ac.uk/

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 to settle into Oxford and to provide them with an opportunity to meet people in the area. See www.newcomers.ox.ac.uk/

Childcare

The University has excellent childcare services with 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.

Family-friendly benefits

The University subscribes to My Family Care (www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/) and staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' phone line and a wide range of guides and webinars through a website called the Work + Family space.

Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details including information about how to make contact, in confidence, with the University's Staff Disability Advisor.

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/

Other benefits

Staff can enjoy a range of other benefits such as free visitor access to the University's colleges and the Botanic Gardens as well as a range of discounts.
See www.admin.ox.ac.uk/personnel/staffinfo/benefits