



University of Oxford Department of Computer Science

Job description and selection criteria

Job title	Research Assistant
Division	MPLS
Department	Computer Science
Location	Wolfson Building, Parks Road, Oxford.
Grade and salary	Grade 7: Salary £29,541 – £36,298 p.a.
Hours	Full Time
Contract type	Fixed Term Contract up to 31st March 2014
Reporting to	Dr. Andrew Martin
Start date	As soon as possible

Introduction

The University

The University of Oxford is a complex and stimulating organisation, which enjoys an international reputation as a world-class centre of excellence in research and teaching. It employs over 10,000 staff and has a student population of over 21,000.

Most staff are directly appointed and managed by one of the University's 130 departments or other units within a highly devolved operational structure - this includes 5,900 'academic-related' staff (postgraduate research, computing, senior library, and administrative staff) and 2,820 'support' staff (including clerical, library, technical, and manual staff). There are also over 1,600 academic staff (professors, readers, lecturers), whose appointments are in the main overseen by a combination of broader divisional and local faculty board/departmental structures. Academics are generally all also employed by one of the 38 constituent colleges of the University as well as by the central University itself.

Our annual income in 2009/10 was £879.8m. Oxford is one of Europe's most innovative and entrepreneurial universities: income from external research contracts exceeds £367m p.a., and more than 60 spin-off companies have been created.

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

MPLS Division

The Mathematical, Physical, and Life Sciences Division (MPLS) is one of the four academic divisions of the University.

Oxford is widely recognised as one of the world's leading science universities. In the 2008 UK Research Assessment Exercise over 70% of research activity in MPLS was judged to be world-leading (4*) or internationally excellent (3*), and Oxford was ranked first in the UK across the mathematical sciences as a whole.

The MPLS division's ten departments and three 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. We have over 6,000 students and research staff, and generate over half of our funding from external research grants. Our research addresses major societal and technological challenges and is increasingly interdisciplinary in nature. We collaborate closely with colleagues in Oxford across the medical sciences, social sciences and humanities, as well as with researchers from around the world.

For more information, please visit:

<http://www.mpls.ox.ac.uk/>

Department of Computer Science

The Department of Computer Science (DoCS) was established in 1957. It is one of the UK's leading Computer Science Departments (ranked first in a number of newspaper rankings, and third in terms of research power). In the RAE in 2008, 80% of the submitted research was found to be in the top two tiers, either 4* (world-leading) or 3* (internationally excellent). Many members of the Department are active in externally sponsored research, with both government and industrial funding. At present there are 52 members of academic staff and over 80 research staff.

DoCS 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. It has a major role in the rapidly-developing field of e-Science alongside the Oxford e-Research Centre, an independent unit with which we share a building. This is an essentially inter-disciplinary activity which is at present attracting major funding from a number of sources. At present DoCS holds £37m in external research contracts.

Research in DoCS is currently managed in seven themes. *Software Engineering* (led by Professor Jim Davies), works on a wide variety of areas including e-Science and model-driven development; *Programming Languages* (led by Professor Jeremy Gibbons and including Dr Ralf Hinze and Professor Oege de Moor); Security (leader Professor Bill Roscoe, with Professor Sadie Creese leading a new Cyber Security Centre, and Professor Gavin Lowe); *Verification* (leader Professor Marta Kwiatkowska) covering probabilistic and software model checking (Professor Daniel Kroening) with time and concurrency (Professor Joel Ouaknine, Professor James Worrell, and Professors Roscoe and Lowe), and automated verification of hardware (Professor Tom Melham); *Computational Biology* (led by Professor David Gavaghan and including Professors Kevin Burrage and Helen Byrne) is one of the

world's leading groups building computational models of biological systems and is particularly well known for its work on the heart; and *Foundations, Logic and Structures*, (leader, Professor Samson Abramsky) which includes groups working on quantum information and computation (Abramsky and Professor Bob Coecke), game semantics and verification (Professor Luke Ong) and constraints (Professor Peter Jeavons); *Information Systems* (jointly led by Professors Georg Gottlob and Ian Horrocks and including Professor Stephen Pulman, who works on Computational Linguistics, and Professor Michael Benedikt). In addition the department has recently recruited Professors Mike Wooldridge (Agent Based Systems) and Elias Koutsoupias (Algorithms). A realignment of the themes is expected shortly.

For more information please visit: <http://www.cs.ox.ac.uk/>

Job description

Research topic	"Trust Domains" project
Principal Investigator / supervisor	Dr. Andrew Martin
Funding partner	TSB/EPSRC

Trust Domains is a collaborative project between the University of Oxford, Hewlett Packard Labs, Perpetuity Research and Consultancy, and the Universities of Birmingham and Aberdeen. The post-holder will work in Oxford.

The project aims to develop Trust Domains as a basic concept for separating information, processes, and concerns, and as a modelling and design paradigm for risk-tailored architectures. The project expects to provide security-enhanced, distributed containers for the next generation of composite electronic services for supporting collaboration and data exchange within and across multiple organisations. The Oxford contribution concentrates on the definition of architectures with measurable trust characteristics, and the delivery of one or more components which help to advance the state of the art in such systems.

Overview of the role

Responsibilities/duties

Holders of this post will be expected to undertake original research, under the direction of Dr Andrew Martin, in Oxford University Department of Computer Science. The research results will take the form of the preparation of reports, presentations, designs, prototype software, and academic papers, and the post-holders will need to take a central and self-organising role in this work.

Project staff will need to be willing and able to travel to project meetings elsewhere in the UK, to travel to international conferences, and to participate in phone and video conferences. An overview of the project can be found here:

http://www.hpl.hp.com/research/cloud_security/TrustDomains.pdf

Other duties of the successful candidate will include:

- Assistance in the supervision of post-graduate students working on related projects.
- The postholder will have the opportunity to teach. This may include lecturing, small-group teaching, and tutoring of undergraduates and graduate students.
- The postholder will carry out any other duties as are within the scope, spirit and purpose of the job as requested by their line manager or the Principal Investigators.

Selection Criteria

Essential:

- Master's degree or above in a relevant subject (or substantial equivalent experience)
- proven ability to work as part of a team
- evidence of ability to express themselves clearly in writing and oral presentations
- experience of software architecture
- demonstrated understanding of the core concepts of information security in a distributed systems context
- proven ability to implement prototype solutions using high-level programming languages and tools

Desirable:

- Trusted Infrastructure: appreciation of the principles of trusted computing
- Distributed Systems: understanding of current trends in cloud and virtualization architectures, identity management, access control, auditing,
- Experience of the field of digital provenance
- Secure System Design: architecture and design for security, privacy, usability issues in system design, trusted computing base minimization
- Software development in a web environment, with security-critical APIs
- PhD or equivalent experience in a these topics

Working at the University of Oxford

For further information about working at Oxford, please see:

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

Salary and Benefits

The post, which is a full time appointment, is funded by EPSRC and is available until 31st March 2014, has a salary on the University grade 07S scale (currently £29,541 - £36,298 p.a.). This includes membership of the University Superannuation Scheme (USS) and has an annual leave entitlement of 38 days per year (inclusive of all public holidays and university closed periods).

How to apply

If you consider that you meet the selection criteria, click on the **Apply Now** button on the 'Job Details' page and follow the on-screen instructions to register as a user. You will then be required to complete a number of screens with your application details, relating to your skills and experience. When prompted, please provide details of two referees and indicate

whether we can contact them at this stage. You will also be required to upload a CV and supporting statement. The supporting statement should describe what you have been doing over at least the last 10 years. This may have been employment, education, or you may have taken time away from these activities in order to raise a family, care for a dependant, or travel for example. Your application will be judged solely on the basis of how you demonstrate that that you meet the selection criteria outlined above and we are happy to consider evidence of transferable skills or experience which you may have gained outside the context of paid employment or education.

Please save all uploaded documents to show your name and the document type.

All applications must be received by **midday** on 19th June 2013.

Candidates must also ask their referees to consider this job description and email their reference directly to [**job06@cs.ox.ac.uk**](mailto:job06@cs.ox.ac.uk) or, alternatively, post or fax it to: The Administrator, Department of Computer Science, Wolfson Building, Parks Road, Oxford OX1 3QD, such that the reference arrives by, or shortly after, the advertised closing date. You will also be asked to provide reference details as part of the online application process and will be asked to indicate whether you are happy for us to contact your referees directly should they not provide a reference by the stated closing date.

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk

To return to the online application at any stage, please click on the following link

www.recruit.ox.ac.uk

Please note that you will be notified of the progress of your application by automatic e-mails from our e-recruitment system. **Please check your spam/junk mail** regularly to ensure that you receive all e-mails.