



## Job description and selection criteria

<b>Job title</b>	Researcher on FADAMS
<b>Division</b>	MPLS
<b>Department</b>	Computer Science
<b>Location</b>	Wolfson Building, Parks Road, Oxford.
<b>Grade and salary</b>	Grade 7: £31,604 - £38,833 p.a.
<b>Hours</b>	Full Time
<b>Contract type</b>	Fixed term for up to 2 years, as soon as possible, with the possibility of extension until May 2021
<b>Reporting to</b>	Professor Dan Olteanu
<b>Vacancy reference</b>	132919

### The role

The project FADAMS is supported by an ERC consolidator grant for five years starting June 1, 2016. It will bring together a group of enthusiastic researchers at both postdoctoral and doctoral level who together with Principal Investigator Dan Olteanu and his academic and industrial collaborators will work on the following objectives:

- To investigate fundamental challenges in scalable data management at the confluence of structural compression, distribution, and approximation for database and machine learning workloads.
- To build a system that incorporates the techniques and algorithmic insights on distributed and approximate processing of factorized data.

Current research results on these objectives can be found on the web page of the FDB research project: <http://www.cs.ox.ac.uk/projects/FDB/index.html>.

The appointed researchers are expected to collaborate full-time with Professor Dan Olteanu and his academic and industrial collaborators, publish research findings, build and demonstrate systems prototypes in top conferences and journals in Computer Science.



The successful candidates are expected to have a strong publication record in at least one of: theoretical computer science (including database theory), algorithms, machine learning and/or strong system-building skills.

<b>Research topic</b>	FADAMS: Foundations of Factorised Data Management Systems
<b>Principal Investigator / supervisor</b>	Professor Dan Olteanu
<b>Funding partner</b>	European Research Council

## Responsibilities

- Manage own academic research and administrative activities. This involves small-scale project management in order to co-ordinate multiple aspects of work to meet deadlines.
- Perform research independently and in collaboration with the other researchers in FADAMS.
- Design solutions to problems in the considered areas. Such solutions may include: proofs of formal statements, design and implementation, testing, and benchmarking. This may require to contribute ideas for new research projects within the scope of FADAMS and adapt existing or develop new scientific techniques.
- Develop ideas for generating research income, presenting detailed research proposals to senior researchers.
- Act as a source of information and advice to other members of the group on scientific procedures and experimental techniques.
- Disseminate research results through publication in peer-reviewed journals, conferences, workshops, through invited seminars and tutorials and through software demonstrations and posters at such conferences and public meetings.
- Assistance in the supervision of post-graduate students working on related projects.
- Participate in regular meetings with colleagues and industrial partners in Oxford and elsewhere.
- 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 Principal Investigator.

## Selection Criteria

- A PhD (or very close to completion) in Computer Science
- Research expertise in at least one of the following areas: theoretical computer science, databases, algorithms, distributed systems, and machine learning
- A documented track record of the ability to conduct and complete research projects, as witnessed by published peer-reviewed work in tier-1 conferences and journals (according to the experience of the candidate)
- Ability to manage own academic research and associated activities
- Ability to contribute ideas for new research projects and research income generation
- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings

## Desirable selection Criteria

- Experience of independently managing a discrete area of a research project

## 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 2014/15 exceeded £522.9m and ranked first in the UK for university spin-outs, with more than 130 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](http://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 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. At present there are 69 members of academic staff and almost 100 research staff.

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 seven themes:

- *Algorithms* (led by Professor Leslie Ann Goldberg) covers computational complexity, algorithmic game theory, and constraint satisfaction;
- *Automated Verification* (led by Professor Marta Kwiatkowska) covers probabilistic and software model checking, time and concurrency, and hardware;
- *Computational Biology* (led by Professor David Gavaghan) 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;
- *Foundations, Logic and Structures* (led by Professor Samson Abramsky) includes groups working on quantum information and computation, game semantics, and verification;
- *Information Systems* (led by Professor Ian Horrocks) has groups working on databases, knowledge representation and reasoning, multi-agent systems, and computational linguistics;
- *Programming Languages and Software Engineering* (led by Professor Jeremy Gibbons) covers model-driven development, functional programming, program analysis, cyber physical systems, social computing, and web science;
- *Security* (led by Professor Bill Roscoe) 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. The disciplines within the MPLS Division regularly appear at the highest levels in world rankings. In the results of the six-yearly UK-wide assessment of university research, REF2014, the MPLS division received the highest overall grade point average (GPA) and the highest GPA for outputs. We received the highest proportion of 4\* outputs, and the highest proportion of 4\* activity overall. More than 50 per cent of MPLS activity was assessed as world leading.

The MPLS Division's 10 departments and 3 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. Our research addresses major societal and technological challenges 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.

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 (including Nobel prizes and prestigious titles such as FRS and FR.Eng) and we have a strong tradition of attracting and nurturing the very best early career researchers who regularly secure prestigious fellowships. The Division is also the proud holder of eight Athena Swan Awards (4 Silver and 4 Bronze) illustrating our

commitment to ensure good practice and to encourage women in science at all levels in the division.

We have around 6,000 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 major 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 (<http://www.oxfordsparks.net/>) 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 endeavour to bring the potential of our scientific efforts forward for practical and beneficial application to the real world and our desire is to link our best scientific minds with industry and public policy makers.

For more information about the MPLS division, please visit: <http://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/](http://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](mailto: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](http://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/](http://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 69<sup>th</sup> 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+/](http://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+/](http://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](http://www.club.ox.ac.uk) and [www.sport.ox.ac.uk/oxford-university-sports-facilities](http://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/](http://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/](http://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](http://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/](http://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](http://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/](http://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](http://www.admin.ox.ac.uk/personnel/staffinfo/benefits)