Job description and selection criteria

Job title	Marie Skłodowska-Curie Innovative Training Network Early-Stage Researcher (ESR) Fellowship
Division	MPLS
Department	Computer Science
Location	Wolfson Building, Parks Road, Oxford.
Remuneration	See remuneration and benefits below
Hours	Full Time
Contract type	Fixed term for 3 years
Reporting to	Professor Blanca Rodriguez Professor of Computational Medicine Wellcome Trust Senior Research Fellow in Basic Biomedical Sciences
Vacancy reference	145058

The role

Research topic	Computational Cardiovascular Science
Principal Investigator / supervisor	Professor Blanca Rodriguez Professor of Computational Medicine Wellcome Trust Senior Research Fellow in Basic Biomedical Sciences
Funding partner	EC

Overview of the role, Initial training activities [and any secondment periods]

The successful applicant will be working as part of a Marie Skłodowska-Curie Innovative Training Network within the project "PersonalizeAF", whose overall vision is to change the paradigm of classification and diagnosis of atrial fibrillation by delivering a precision medicine strategy based on the personalized characterization of each atrial substrate and disease manifestation. The fellow will be part of the Computational Cardiovascular Science team (www.cs.ox.ac.uk/ccs), supervised by Professor Blanca Rodriguez. The fellow will be considered to be both a registered student of the University being enrolled for a comprehensive PhD/DPhil training in Computer Science and also employed as a worker. The aim of fellow's specific project will be to develop human atrial modelling and simulation technology informed by experimental and clinical datasets and to investigate interpatient variability in ionic mechanisms, atrial fibrillation patterns, and treatment efficacy after administration of drugs.

*Alongside research work, the department provides training in teaching skills, and there are opportunities to take part in teaching activities in the department, such as undergraduate classes and laboratory demonstrating, and tutorial teaching in colleges. However, please note that under the terms of the EC grant Marie Curie students may **not** be paid for any teaching or other activities carried out over and above the full-time requirements of the post.*

Responsibilities

- Manage own research and administrative activities, within guidelines provided by senior colleagues
- Determine the most appropriate methodologies to test hypotheses, and identify suitable alternatives if technical problems arise
- Select, follow, and adapt experimental protocols
- Gather, analyse, and present scientific data from a variety of sources
- Contribute to software development in the area of embedded technologies and quantitative verification/synthesis
- Contribute to scientific reports and journal articles and the presentation of data/papers at conferences
- Use specialist scientific equipment in a laboratory environment
- Represent the research group at external meetings/seminars, either with other members of the group or alone
- Contribute to discussions and share research findings with colleagues in partner institutions, and research groups
- Assist in the supervision of post-graduate students working on related projects.
- The post holder will have the opportunity to teach. This may include lecturing, small-group teaching, and tutoring of undergraduates and graduate students.
- The researcher 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.

Hazard-specific / Safety-critical duties

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:

- Lone Working
- Travel outside of Europe or North America on University Business

Eligibility criteria

Under the terms of the EC funding, to be eligible for this post candidates:

- at the time of the fellowship start date, **must not** already be in possession of a PhD or have more than 4 years of full-time equivalent research experience as measured from the award date of your Master's degree
- **must not** have been resident in the UK for more than a total of 12 months in the past three years up to the fellowship start date as the scheme aims to promote mobility within the research community

To be eligible candidates must also be accepted by the University of Oxford as a DPhil student and continue to be a registered student for the duration of the employment contract. Candidates will be assisted with the graduate admissions process. All graduate awards are subject to the Examination Regulations currently in force: see www.admin.ox.ac.uk/examregs/

Selection criteria

Essential

To be eligible for this post candidates must also be accepted by the University of Oxford as a DPhil student and continue to be a registered student for the duration of the employment contract. Candidates will be assisted with the graduate admissions process. All graduate awards are subject to the Examination Regulations currently in force: see http://www.admin.ox.ac.uk/examregs/.

Under the terms of the EC funding, which aims to promote mobility within the research community, to be eligible for the post you must **not** have been resident in the UK for more than a total of 12 months in the past three years up to the start date. Persons who would have obtained a doctorate or had more than 4 year's full time research experience at the start date are ineligible. The latest possible start date is 1st July 2020.

- A good degree (or very close to completion) in one of the following fields: engineering, computer science, physics, or mathematics. Candidates from related scientific disciplines are welcome to apply.
- Must satisfy University's admissions requirements for DPhil study**.
- Willing to work (or working towards) a doctorate in a specialist discipline.
- Experience of software programming (and preferably on Graphic Processing Units).
- Ability to manage own research and administrative activities.
- Excellent communication skills, including the ability to write text that can be published, present data at conferences, and represent the research group at meetings
- Experience of following and adapting protocols and selecting appropriate experimental methodologies

Desirable

- Experience in biophysical modelling and simulation.
- Experience of building image-based anatomical models.
- Experience of actively collaborating in the development of research articles for publication.
- Experience of working in a research team and contributing ideas for new research projects.

** Candidates will need to make a second online application for the DPhil in Computer Science by clicking on this link: Graduate Admissions application. Candidates must satisfy the usual requirements for studying for a doctorate at Oxford. For further details on the University's DPhil in Computer Science which gives details about entry requirements, please click here: http://www.ox.ac.uk/admissions/graduate/courses/dphil-computer-science

Payment arrangements and benefits

Fellows are first and foremost registered students of the University. They are also employed by the University as workers. However, the student status takes precedence.

The total amount allocated for this *Fellowship* (based on 36 months) under the *EC Grant Agreement* is €186,172.56 (€204,172.56 if eligible for the Family allowance). The financial award is composed of a number of fixed allowances. Allowance eligibility depends on the personal circumstances of the fellow:

Living Allowance: total amount € 54,857.52 per year. This figure is inclusive of the UK country coefficient of 139.8%.

Mobility Allowance: total amount € 7,200 per year.

Family allowance: total amount € 6,000 per year (eligibility depends on supporting evidence that at the time the fellowship starts the fellow is married, in a partnership equivalent to marriage in the country it was formalised or have dependent children).

Eligibility for and amounts of these allowances are fixed under the terms of the *EC Grant Agreement* for the duration of the Fellowship.

The fellow's gross remuneration is derived from the sum of the Living and Mobility allowances (and the Family allowance, if applicable). However, please note that these gross amounts are subject to compulsory employer **and** employee deductions, currently:

- statutory employer **and** employee National Insurance contributions;
- statutory employee income tax deductions: and
- employer and employee superannuation (pension) contributions.

All payments are made monthly in arrears in Pounds Sterling, including during any secondment periods outside of Oxford. The exchange rate used will be the University of Oxford's rate applicable to the ITN project; the exchange rate may be subject to variation throughout the period of the award.

Due to the EC's requirements fellows are paid at a rate of unit cost allowances as set by the EC rather than according to the University's normal employment terms, and the fellowships therefore carry only statutory employment entitlements, i.e. 28 days paid holiday (including bank holidays), statutory sick pay and statutory family (i.e. maternity, paternity, shared parental) leave and pay entitlements.

The fellows are not eligible for the University's own contractual sickness or family leave schemes.

Fellows will be automatically enrolled into the University Superannuation Scheme (USS) – and both employer and employee deductions will be made from the total amount awarded. For further information see http://www.admin.ox.ac.uk/finance/pensions/uss/ .

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 £564m 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

The Computational Cardiovascular Science team

The Computational Cardiovascular Science (CCS) group is part of the British Heart Foundation (BHF), Centre of Research Excellence (CRE) at Oxford, and includes scientists based at the Departments of Computer and Engineering Science, with strong links with the Departments of Cardiovascular Medicine and Physiology, and established collaborations with clinical and experimental collaborators in academia, hospitals, pharmaceutical companies and regulatory agencies. The CCS group's main research focus is in the integration of computational methods in cardiovascular research to augment and expand the information extracted from a range of experimental and clinical data including biosignals and medical images. Research funding into the CCS group, awarded over the last 10 years exceeds £8 million from a wide range of sources including the EPSRC, MRC, BBSRC, Wellcome Trust, BHF, Archer, the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), the Royal Academy of Engineering, the Royal Society, EU Funding (FP7, Horizon 2020 and IMI2) and Pharma Industry.

For more information visit www.cs.ox.ac.uk/ccs

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. 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 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. 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/.

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 three 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/.

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: www.admin.ox.ac.uk/councilsec/compliance/gdpr/privacynotices/job/. The University's Policy on Data Protection is available at: www.admin.ox.ac.uk/councilsec/compliance/gdpr/universitypolicyondataprotection/.

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 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

Membership of the University Club is free for all University staff. The University Club provides 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 www.sport.ox.ac.uk/oxford-university-sports-facilities.

Information for international staff

The University offers support and advice to international staff, including a visa loan scheme to cover the costs of UK visa applications for staff and their dependents. See www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/.

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 www.welcome.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 service through which staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' advice service and a wide range of guides and webinars through a website called the Work+Family space.
See: www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/.

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 www.admin.ox.ac.uk/eop/disab/staff.

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/.

Additional benefits

Staff can enjoy a range of other benefits and discounts, including free entry to the Botanic Gardens and University colleges, and discounts at University museums.
See www.admin.ox.ac.uk/personnel/staffinfo/benefits.