



JOB DESCRIPTION

Job title	Postdoctoral Research Officer, The Oxford Martin Programme on Technological and Economic Change
Division	Social Sciences
Department	Oxford Martin School
Location	INET Oxford, Eagle House, Walton Well Road
Grade and salary	Grade 7: £31,076-38,183 p.a.
Hours	Full-time
Contract type	Fixed-term for 2 years
Reporting to	Professor Doyne Farmer
Vacancy reference	128904
Additional Information	It is hoped the successful candidate will start work at the beginning of September 2017.

The role

The successful candidate will participate in a project to better understand the origin and impact of disruptive technologies. The project will look at how technologies evolve and how this is reflected in broader economic outcomes, applying tools from network analysis and time series forecasting to large-scale databases such as patent records.

The project involves developing new theoretical frameworks, e.g. generalising input-output analysis in an evolutionary context, developing new taxonomies for technologies, and applying these ideas to better understand economic growth and predict technological evolution and its consequences. There will be a focus on specific technologies, such as energy and energy storage technologies, new manufacturing and robotics, and artificial intelligence.

The successful candidate will be based at the Institute for New Economic Thinking at the Oxford Martin School, University of Oxford, and will work with Professor Doyne Farmer and his team.

The successful candidate should have the ability to undertake highly innovative research in the economics of innovation and technological change, and have strong skills in mathematics, programming, and large-scale data analysis.

The candidate should have (or be about to finish) a PhD/DPhil in a field of quantitative science such as physics, economics, mathematics, computer science, biology, statistics or engineering.



Responsibilities

- Manage and undertake own academic research and write articles for publication in scientific journals
- Contribute to management and coordination of research activities, administrative activities and grant reporting.
- Initiate and join collaborative projects and act as a source of information and advice to other members of the group
- Disseminate the research as appropriate and in particular present research outputs at conferences, workshops and to stakeholders.
- Develop ideas for generating research income and assist in applications for research grants

Selection criteria

Essential

- Hold a relevant PhD/DPhil, or be in the final stages of submitting the PhD/DPhil thesis, with a reasonable expectation that the degree will have been awarded by September 2017
- Experience in building mathematical models and analysing data
- Excellent quantitative and programming skills
- Ability to manage own research and administrative activities
- Fluency in written and spoken English, and excellent communication skills

Desirable

- Background in Economics
- Knowledge of technological change
- Knowledge of machine learning and/or natural language processing techniques
- Knowledge of evolutionary modelling and complex networks analysis
- Good publication track record on relevant topics
- Experience with interdisciplinary research and communication to an interdisciplinary audience

About 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

Oxford Martin School

No other university, anywhere in the world, hosts a research organisation like the Oxford Martin School. Our community of more than 200 researchers, from Oxford and beyond, are working to address the most pressing global challenges and opportunities of the 21st century.

The School was founded with the belief that this century, and specifically the next few decades, is a crucial turning point for humanity. The sheer speed of change means that we now have the power to destroy possibilities for future generations. Equally, we have the potential to dramatically improve the wellbeing of people across the planet.

It is this combination of urgency and optimism that characterises all our work at the Oxford Martin School.

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

The Oxford Martin Programme on Technological and Economic Change

The Oxford Martin Programme on Technological and Economic Change will provide unique insights into how the global economy is likely to change over the coming years. It will consider a range of revolutionary technologies and consider their impact on economic growth, employment, inequality, productivity, consumption, investment, the structure of firms and on the growth of markets. The main focus will be on the most significant economies (USA, China, India, UK and Europe, Japan) but the impact on key emerging markets will also be examined.

Led by Professor Ian Goldin, the Programme will offer fresh perspectives on disintermediation of existing businesses, opportunities and risks posed by technology and the relationship of technological and economic change to political and regulatory environments.

The exponential improvement in computing power already has led to radical breakthroughs in machine intelligence, with autonomous vehicles and the disintermediation of long established business models by companies such as Airbnb and Uber indicative of the revolutions to come. Progress in genetic sequencing and nano materials will have transformative effects upon health and medicine, as well as agriculture. Robotics, the internet of things and 3D printing will transform manufacturing, supply chains and control systems. Meanwhile, dramatic improvements in the efficiency of renewable energy sources and the need to rapidly reduce carbon emissions are leading to radical changes in energy, transport, food and other systems.

New technologies have the potential to fundamentally disrupt economic growth, investment, savings, consumption, employment, incomes, pensions, careers and productivity. Yet our understanding of what this will mean for the global economy, and how it will impact on markets, cities and societies is, at best, limited.

The Oxford Martin Programme on Technological and Economic Change aims to identify the key technological disruptors and consider their impact on the global economy and society.

The programme is unique in its approach of combining the expertise of leading scientists and technology experts with economists and other social scientists..

Focusing mainly, but not exclusively, on the largest economies (USA, China, India, Japan, UK and Europe), the researchers will seek to answer a number of questions, such as:

- What can we learn from previous periods of disruptive technological change and how is this period of disruption different?
- Is innovation slowing down or speeding up, and, if it is accelerating, how do we explain stagnant productivity growth in many leading economies?
- What new business models might emerge from developing technologies, and what can we learn from the impact of new technologies on existing businesses?
- What is disruptive technological change likely to bring for key sectors and firms, and which cities and countries are likely to be the winners and losers?
- What impact will disruptive technologies have on jobs, employment and inequality?
- What is the implication of these disruptions for savings and investment, and could these technologies lead to stagflation, unemployment and more unequal growth?
- What is the implication of rising life expectancy for pensions, retirement and savings?
- What are the risks posed by new technologies themselves, for example 'runaway' artificial intelligence and cyber warfare?
- How quickly will fossil fuels be replaced and what are the technological and economic prospects for renewables and batteries and the implications of rapid decarbonisation?
- How can policy, regulatory and other interventions shape and affect technological change?

The programme will provide fresh insights into the nature of rapid technological and economic change, and its implications for policy makers, government, business, investors and society. It will provide perspectives on education, skills and infrastructure, and investigate potential changes required to frameworks for intellectual property, competition and regulation to enhance productivity, savings, investment and more equitable growth. It will also investigate whether traditional measures of GDP and productivity adequately take account of the different dimensions of progress and technological change.

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/research/.

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, supporting statement, a one-page summary of your research interests, and a writing sample to illustrate your ability to write accurately and communicate effectively, and especially to promote new ideas or translate complex scientific concepts to a broad audience (no more than 1000 words). The sample can be in the form of a press release, policy briefing, website article summary or other appropriate communications style.

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 four documents (CV, supporting statement, one-page summary of research interests and writing sample) **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/.