



PhD positions

Department of Computer Science

Graduate Teaching Assistants package up to £13,590 and Home/EU fee waiver

Please note, if you are a national of non-EU country you will be responsible for any monetary difference between International and Home/EU fees.

Available for September/October 2011 start

Ref: SEN00181

At Leicester we're going places. Ranked in the top 12 universities in Britain our aim is to climb further. A commitment to high quality fused with an inclusive academic culture is our hallmark and led the Times Higher Education to describe us as "elite without being elitist".

Computer Science is offering the opportunity for seven exceptional students to pursue research leading to a PhD. We are inviting applications for four Graduate Teaching Assistant positions, two University-sponsored studentships, and a studentship sponsored by Microsoft Research. Specific information on each of these can be found below.

Candidates must submit a short statement (not more than half a page) outlining the topic in which they would like to do a PhD and one or two members of academic staff under whose supervision they would be willing to work. We are particularly interested in recruiting students interested to work on one of the topics indicated at <http://www.cs.le.ac.uk/news/topics2011> but candidates should feel free to contact staff to discuss other possible research areas.

This statement is NOT required if you are applying for the Microsoft Research PhD Fellowship only.

GTA appointments are subject to formal confirmation that you are registered, and continue to be registered for the duration of your post as a full time student with the University of Leicester. Please note the package mentioned is for the Graduate Teaching Assistant roles only as these roles are employed by the University of Leicester whereas the Studentships are not employed roles.

The University

There's never been a more exciting time to join us. At the University of Leicester we are enjoying research success on a world stage and gathering the awards and plaudits to match.

A judge in a recent awards ceremony described Leicester as "elite without being elitist". We are proud to be elite. But we are at least as proud to be an inclusive and progressive university. This commitment to high quality, an inclusive academic culture and belief in the synergy of teaching and research are our hallmarks. We believe that teaching is inspirational when delivered by passionate scholars engaged in world-changing research that is delivered in an academic community that includes postgraduate as well as undergraduate students.

Our approach to research yields great rewards. Our research impact, measured by citations per academic, is the sixth highest in the UK. Our success in the 2008 Research Assessment Exercise saw Quality Related research income rise by 18% placing us firmly amongst Britain's top 20 research universities by this measure. The RAE also revealed that Leicester is home to Britain's top-rated research department – Museum Studies – which has the highest concentration of world class research of any department of any discipline in the UK.

For a university that believes teaching and research are synergistic, it is pleasing that the National Student Survey reveals that 91% of full-time students are satisfied with their courses. Consistently amongst the best in the country, this 2009 result is matched only by Cambridge amongst mainstream universities in England.

Currently a university of 23,000 students, with a turnover of £230m and 3,800 colleagues, our future is bright. Our Strategic Vision describes our plans to invest a billion pounds in our estate as we transform our campus. Already ranked in the top-15 universities in Britain, by 2015 we aim to rise further to become top-10.

It is a cornerstone of our success that we are the only top-15 UK university to meet Government benchmarks on inclusivity.

As a group of talented individuals we are more diverse than ever and stronger for it. At Leicester we are proud of our distinct approach, our achievements and our ambitious plans. If you share our approach join us.

The Department of Computer Science

Computer Science is a young and dynamic department in the midst of rapid expansion in the scope of its research and teaching activities. In the Research Assessment Exercise of 2008, 95% of our activity was judged to be of international quality (with 65% being of international excellence or better, including 20% world leading). We have an ambitious plan of expansion that will establish us as a leading computer science department in the UK over the next few years. The Department currently consists of five Professors, one Reader, three Senior Lecturers, 11 Lecturers, two Teaching Fellows and one Demonstrator. There are also a number of research associates and visitors.

Research in the Department contributes to eight broad themes: Algebraic and Categorical Structures and Methods; Algorithm Design, Analysis and Engineering; Computational Complexity of Algebraic Structures; Deduction, Rewriting and Transformation; Interaction Design and Evaluation of Socio-technical Systems; Models of Software Intensive Systems; Optimisation and Heuristics; and Software Evolution. The department is involved in several national and international research projects and networks in areas that cross cut these themes, and it has research links with a number of international and UK research groups. Within the University, there are links with the departments of Mathematics, Physics and Astronomy, Engineering, the School of Biological Sciences, and the School of Archaeology and Ancient History. We are also members of the university's Institute of Finance and DigitUL – the university's interdisciplinary group on the Digital Economy. More details on the research within the department are available at <http://www.cs.le.ac.uk/research>.

The Department is housed in a purpose-built building, which includes office space for post-doctoral researchers and PhD students, a seminar room and a staff reading room. There is an active PhD programme involving over 30 students, some of which are on project scholarships or graduate teaching assistantships. Several internal and external seminar series, graduate lectures and reading groups make for a dynamic research environment in which staff and students can fulfil their potential. Leicester is also an active participant in the Midlands Graduate School, which organises advanced postgraduate courses for PhD students in nearby universities in the Midlands, including Sheffield, Nottingham, Loughborough and Birmingham.

In addition to undergraduate teaching, the Department participates in a number of postgraduate programmes, including the MSc in Advanced Computational Methods, the MSc in Advanced Computer Science, the MSc in Advanced Distributed Systems, the MSc in Advanced Software Engineering, the MSc in Agile Software Engineering Techniques, the MSc in Software Engineering for Financial Services, the MSc in Web Applications and Services, the MSc in Bioinformatics (with the School of Biological Sciences), the MSc in Financial Mathematics and Computation (with Mathematics) and the MSc in Mathematical Modelling and Scientific Computation (also with Mathematics).

University-sponsored studentships

Two three-year studentships are being made available to exceptional students who show the potential to make an outstanding contribution to computer science in one of the research areas of the Department. Applicants should have, or shortly be expected to obtain, a good (normally first class) BSc degree or equivalent in Computer Science or a cognate area. A Masters degree or equivalent postgraduate degree in Computer Science is highly desirable.

Before a studentship can be awarded the candidate must also undergo the formal PhD admission procedure to the University.

We are particularly interested in recruiting students interested to work on one of the topics indicated at <http://www.cs.le.ac.uk/news/topics2011> but candidates should feel free to contact staff to discuss other possible research areas.

Informal enquiries are welcome and should be made to Professor José Fiadeiro, Head of the Department of Computer Science, on jose@mcs.le.ac.uk.

Microsoft Research PhD Fellowship

The Microsoft PhD Scholarship Programme recognises and supports exceptional students who show the potential to make an outstanding contribution to science and computing. Each Microsoft scholarship consists of an annual bursary for up to a maximum of three years. In addition, every Scholar receives a laptop with a selection of software applications. During the course of their PhD, Scholars are invited to Microsoft Research in Cambridge for an annual Summer School that includes a series of talks of academic interest and posters sessions, which provides the Scholars the opportunity to present their work to Microsoft researchers and a number of Cambridge academics. Some of the Scholars may also be offered, at the discretion of Microsoft Research, an internship in one of the Microsoft Research laboratories. Internships involve working on a project alongside and as part of a team of Microsoft researchers. Scholars are paid during their internship, in addition to their scholarship bursary.

Applicants require a first-class Honours degree or equivalent in Computer Science or Mathematics, experience in programming and aptitude for mathematical subjects. A Masters degree is highly desirable. Experience in any of the following areas is relevant although not required: Logic, Model Checking, and Static Analysis.

Before the Scholarship can be awarded the candidate must also undergo the formal PhD admission procedure to the University.

The Scholar will work under the supervision of Dr. Nir Piterman on *Usage of Static Analysis for Model Checking Liveness Properties of Heap Manipulating Programs*. On behalf of Microsoft Research, the Scholar will be also supervised by Dr. Josh Berdine. The project aims to investigate the advantages of considering more expressive versions of Kripke structures (such as modal transition systems and disjunctive modal transition systems) as an abstraction domain for shape analysis.

The project has two facets:

- In the context of static analysis; study the principles for extending the functionality of static analysis tools such as TVLA with this ability and the implications regarding preservation of branching-time temporal-logic properties and their automatic extraction.
- In the context of model checking, study the additional opportunities afforded by the augmentation of abstract heap information with fairness information in order to enable model checking of general temporal logic specifications that rely on boundedness and finiteness of heaps.

This statement outlining your topic in which you would like to do your PhD is NOT required if you are applying for this Fellowship only.

Informal enquiries are welcome and should be made to Dr Nir Piterman on nir.piterman@leicester.ac.uk.

Graduate Teaching Assistant positions

A Graduate Teaching Assistant is expected to undertake research, normally leading to the award of a PhD degree in due course, as well as teaching, system development or other activities supporting the work of the Department and developing and enhancing its reputation, both internal and external to the University. The post holder will be ultimately responsible to the Head of the Department of Computer Science, but for teaching-related duties will report to the Directors of Teaching and for system development duties to the Coordinator of the Huxley Project.

These are fixed-term appointments for four years; this period is designed to allow sufficient time for a student to complete the research for a PhD whilst taking into account the teaching duties. Our intention is that, in addition to pursuing original research, the successful candidates will also obtain valuable experience in teaching or system development.

We are particularly interested in recruiting students interested to work on one of the topics indicated at <http://www.cs.le.ac.uk/news/topics2011> but candidates should feel free to contact staff to discuss other possible research areas.

Information about the various undergraduate degrees offered by the department may be found at: <http://www.cs.le.ac.uk/admissions/BSc>.

Principal Accountabilities (GTAs)

Teaching-related duties include:

- To undertake laboratory demonstration and support activities,

- To give tutorials and/or workshops, as appropriate, in support of the required teaching commitments and to be available for consultation by undergraduate students,
- To ensure that student feedback on teaching is sought, through questionnaires and other means, and to respond constructively to such feedback and to advice from peers,
- To maintain a broad knowledge of up-to-date research and scholarship in relevant fields to ensure that teaching meets the standards expected within a research-led University,
- To undertake academic duties (e.g. providing feedback to undergraduate students on formatively assessed coursework, to participate in the assessment of oral presentations by undergraduate students and to undertake invigilation duties where appropriate) required to sustain the delivery of high quality teaching,
- To support and comply with the University and departmental teaching quality assurance standards and procedures including the provision of such information as may be required by the Department or the University,
- To engage in continuous professional development, for example through participation in relevant staff development programmes,
- To provide support, where necessary, to Departmental admissions and/or outreach activities,
- To provide support, where necessary, to the development of Departmental systems for academic-related activities,
- To ensure compliance with health and safety requirements in all aspects of work.

Qualifications, Knowledge and Experience Required (GTAs)

Essential

- Should have, or shortly be expected to obtain, a good (normally first class) BSc degree or equivalent in Computer Science or a cognate area *
- Outstanding promise of research achievement*
- Research interests in one or more research themes of the Department*

Desirable

- Have, or be close to completing, a good Master's or equivalent postgraduate degree in Computer Science or cognate area.
- Experience in teaching undergraduate or postgraduate students in tutorials.
- Experience in IT system development
- A track record in developing and delivering high quality research.

Skills, Abilities and Competencies (GTAs)

Essential

- Potential to initiate, develop and deliver high quality research in Computer Science in one of the research themes of the Department, likely to lead to the award of a PhD under supervision of an academic staff **
- Ability to teach undergraduate students in laboratories, tutorials and other classes,
- High standard of written communication skills,*

- Good effective oral communication oral skills, presentation and training skills,
- Good interpersonal skills,
- Ability to work independently as well as part of a team on research and teaching related activities,
- Competency in IT and familiarity with a computerised environment*.
- A commitment to high quality teaching

Desirable

- Prior Teaching Experience
- Ability to work as part of a team on system development related activities

(* Criteria to be used in shortlisting candidates for interview)

Informal enquiries are welcome and should be made to Professor José Fiadeiro, Head of the Department of Computer Science, on jose@mcs.le.ac.uk

Applications

For further information and to apply on-line, please visit our website: www.le.ac.uk/joinus

The closing date for applications is midnight on Sunday 15th May 2011

Interviews are anticipated to be held during the week of 06 June 2011

Candidates must submit a short statement (not more than half a page) outlining the topic in which they would like to do a PhD and one or two members of academic staff under whose supervision they would be willing to work. We are particularly interested in recruiting students interested to work on one of the topics indicated at <http://www.cs.le.ac.uk/news/topics2011> but candidates should feel free to contact staff to discuss other possible research areas.

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Please note that you can apply for one, two or all three posts if you wish and you will be asked which posts you are interested in when applying online.

Candidates short-listed for the interview will be contacted by the University. If you do not receive a communication from the University within 4 weeks of the closing date, please assume that your application has been unsuccessful.
