OXFORD UNIVERSITY COMPUTING LABORATORY

Efficient Verification of Software with Replicated Components Project

Grade 7 Research Assistant

Further Particulars

The Automated Formal Verification Group is offering a postdoctoral position at Oxford University's Computing Laboratory. The position is associated with the EPSRC project "Efficient Verification of Software with Replicated Components", under the supervision of Daniel Kroening, which will investigate automated techniques to improve the quality of software.

The project concerns the development of tools for the analysis of software that makes uses of multiple threads of execution. We are particularly interested in software in which a component (e.g., a server thread) is replicated multiple times. The project lies at the intersection of several topics – symmetry reduction, decision procedures, and abstraction techniques.

A three-year research position is available to work on both the fundamental theory as well as the tool implementation. The ideal candidate has a background on program analysis or compiler construction, formal methods, practical aspects of shared-variable concurrency, and has documented programming skills in C++. Candidates with a background in embedded systems, e.g., automotive, railway, or avionic control systems are especially encouraged to apply.

Qualifications, Training and Experience:

Essential

- A first degree in Computer Science or related discipline
- Applicants should have, or be about to obtain, a doctorate in computer science or a related discipline
- Strong programming experience in C/C++
- Strong communication skills (in English), as the post requires presentations at conferences and review meetings
- Strong techical writing skills (in English), documented by publications in conferences or journals
- A research record in one or more of the following areas:
  - verification/testing,
  - programming languages,
  - embedded systems,
  - operating systems

In addition, the ideal candidate will have the following skills:

- Prior experience with tools for formal methods or systematic system validation (testing)
- Basic knowledge of Model Checking algorithms, propositional SAT, BDDs, and decision procedures

Salary and Benefits

Salary will be on the University grade 7 scale (currently £28,839 - £30,594 p.a.). The post is available from 1st February 2009, is pensionable, includes an annual leave entitlement of 38 days per year inclusive of public holidays and university closed periods and is tenable for up to three years.

Application Procedure

Applications should be in the form of a letter of application (clearly stating the post title) setting out how the candidate meets the selection criteria, outlining the proposed contribution to be made, and supported by a full curriculum vitae, together with the names and addresses of two referees. These should be emailed (most formats accepted) to job01@comlab.ox.ac.uk or alternatively, posted to: The Administrator, Oxford University Computing Laboratory, Wolfson Building, Parks Road, Oxford, OX1 3QD, to arrive by **Monday 1st December 2008**.

Candidates must ask their referees to consider the further particulars and email the reference directly to job01@comlab.ox.ac.uk or alternatively to the above address (fax (+44 1865 273832) so that references arrive by the closing date.

Applicants who would need a work visa if appointed to the post are asked to note that under the UK's new points-based migration system they will need to demonstrate that they have sufficient points, and in particular that:

(i) they have sufficient English language skills (evidenced by having passed a test in basic English, *or* coming from a majority English-speaking country, *or* having taken a degree taught in English)

and

(ii) that they have sufficient funds to maintain themselves and any dependants until they receive their first salary payment.

Further information is available at:

http://www.ukba.homeoffice.gov.uk/workingintheuk/tier2/generalarrangements/eligibility/.

Data protection

All data supplied by applicants will be used only for the purposes of determining their suitability for the post and will be held in accordance with the principles of the Data Protection Act 1998 and the University's Data Protection Policy unless the person appointed to the post is a migrant sponsored under the UK's new points-based migration system where we are required to retain all applications for the duration of the sponsorship.

The policy and practice of the University of Oxford require that all staff are offered equal opportunities within employment. 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. Subject to statutory provisions, no applicant or member of staff will be treated less favourably than another because of his or her age, sex, marital or civil partnership status, sexual orientation, religion or belief, racial group or disability.