Oxford University Computing Laboratory

Project "VERIWARE: From software verification to everyware verification"

Two Grade 07S Post-doctoral Research Assistant Posts

Further Details

Professor Marta Kwiatkowska from the Oxford University Computing Laboratory (OUCL) has been awarded an ERC Advanced Investigator Grant to for the project "VERIWARE: From software verification to everyware verification". The goal of this project is the development of theoretical foundations and automated verification techniques for 'everyware', i.e. sensor-based ubiquitous computing devices. The project covers a broad range of topics including the following: models for ubiquitous computing devices; abstraction, refinement and synthesis; software verification; probabilistic verification; quantitative verification for resource-constrained systems; online verification techniques, e.g. those based on machine learning or statistical inference; verification algorithms for agent-based cooperation and negotiation; and applications. The focus will be on developing theoretical foundations, algorithms, implementation techniques and prototype software tools.

The VERIWARE team will be led by Professor Kwiatkowska and will include Dr David Parker, two doctoral students and the two postdoctoral researchers advertised here. The postdoctoral positions have been nominally assigned to (1) quantitative software verification, and (2) online verification. However, there is some flexibility in allocating the responsibilities and thus applications from suitably qualified candidates in neighbouring topics relevant to VERIWARE are invited.

The VERIWARE team will be members of the OUCL Verification theme. More information about research projects and members of the themes can be found at:

http://www.comlab.ox.ac.uk/research/verification/

In the context of this project, OUCL has openings for two post-doctoral research associates.

Main Duties and Responsibilities

Both roles will require the post-holders to undertake innovative research as defined by the project proposal and to work with colleagues to progress the objectives of the project as part of VERIWARE project team. The exact scope of the research will depend on the skills of the candidates appointed who will be expected to fulfil the selection criteria defined below. Both posts would be required to undertake some programming.

Candidates will be expected to initiate publication of research results in top ranking journals and present research results at leading conferences.

Selection Criteria

Applicants should have (or expect shortly to obtain)

- a doctoral degree in computer science, mathematics, or related discipline;
- excellent knowledge of theoretical computer science and formal verification;
- excellent scientific writing ability;
- publications in areas relevant to this project;
- good communication skills in English;
- ability and willingness to mentor or supervise doctoral students;
- if applying for the quantitative verification position, at least 2-3 years of postdoctoral experience and proven ability and willingness to participate in the development of experimental software.

Moreover, applicants will be preferred who are knowledgeable in at least two of the following areas:

- concurrency theory;
- static analysis;
- model checking;
- software verification;
- probabilistic verification;
- timed/hybrid automata;
- game theory;
- machine learning;
- statistical inference;
- programming and software engineering.

Salary and Benefits

The posts, which are full time, two-year appointments with a with the possibility of an extension depending on progress, have a salary on the University grade 7 scale (currently £28,983 to £35,646). This includes membership of the University Superannuation Scheme (USS) and has an annual leave entitlement of 38 days per year (inclusive of all public holidays and university closed periods).

Method of Application

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, and supported by a full curriculum vitae, together with the names and addresses of two referees. **Candidates should state clearly which post they are applying for.**

These should preferably be sent by email (most formats accepted) to:

Job10@comlab.ox.ac.uk

or alternatively, posted to: The Administrator, Oxford University Computing Laboratory, Wolfson Building, Parks Road, Oxford OX1 3QD.

Applications should be sent in time to arrive by the closing date of **23rd July 2010.** Applications received after this time may not be considered.

Candidates must also ask their referees to consider these further particulars and email their reference directly to **job10@comlab.ox.ac.uk** or, alternatively, post or fax it to the above address (fax (+44 1865 283532) such that the reference arrives by, or shortly after, the closing date.

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.

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/

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, but if the person appointed to the post is a migrant sponsored under the UK's new points-based

migration system, we are required to retain all applications for the duration of the sponsorship