Candidate Information

Position: Research Fellow
School/Department: School of Electronics, Electrical Engineering and Computer Science
Reference: 19/107162
Closing Date: Wednesday 20 February 2019
Salary: £33,199 - £39,610 per annum (potential to progress to £43,266 per annum through sustained exceptional contribution)
Anticipated Interview Date: Monday 04 March 2019
Duration: 15 months

JOB PURPOSE:

To contribute to the Horizon 2020 project OPRECOMP "Open transPREcision COMPuting" by designing and implementing novel policies and a novel programming model for transprecision computing. To be an active member of the OPRECOMP consortium and the HPDC research cluster, assisting in the production of internationally leading research output and the development of new research proposals in the broader area of experimental computing systems research.

MAJOR DUTIES:

1. Analyse a range of applications with potential for transprecision computing in terms of the trade-off between accuracy and QoS, performance and energy-efficiency.
2. Experiment with various hardware and software techniques for transprecision computing.
3. Design and implement a runtime system and programming model that enables programmers to express opportunities for tuning the precision of algorithms.
4. Investigate policies and techniques for tuning the precision of algorithms to optimise for high-end (HPC) computing and low-end (embedded) computing.
5. Develop and plan an area of personal research and expertise, and/or undertake research under supervision within a specific research project or as a member of a research team.
6. Design, develop and refine experimental system software, and conduct research experiments with this software in order to obtain reliable data.
7. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to experimental computing systems research.
8. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
9. Prepare, often in consultation with the supervisor, material for publication in national and international journals and presentations at international conferences.
10. Assist grant holder in the preparation of funding proposals and applications to external bodies
11. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget.
12. Carry out occasional undergraduate (final year, MEng) project supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
13. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.

Planning and Organising:

1. Plan for project deliverables in timescales ranging from three to twelve months in advance and contribute to research group planning.
2. Plan for the use of research resources, laboratories and workshops where appropriate.
3. Plan own day-to day activity within framework of the agreed research programme.

4. Plan up to a year in advance to meet deadlines for journal publications and to prepare presentations and papers for conferences.
5. Coordinate and liaise with other members of the research group over work progress.

Resource Management Responsibilities:
1. Configure, install and upgrade experimental computing facilities, including servers, networking equipment and storage systems, along with the necessary software libraries.
2. Ensure research resources are used in an effective and efficient manner.
3. Provide guidance as required to support staff and any students who may be assisting with research.

Internal and External Relationships:
1. Liaise on a regular basis with colleagues and students in the HPDC Cluster, the School of EEECS and other faculties in Queen's University Belfast to build research collaborations.
2. Join external international networks such as HiPEAC, ETP4HPC, and PRACE for training and sharing information and ideas.

ESSENTIAL CRITERIA:
1. Have or be about to obtain a relevant PhD in Computer Science, Computer Engineering, or a related field.
2. At least 3 years of research experience in developing systems software (runtime systems, operating systems); in approximate computing; or in any discipline that involves precision-aware computing (e.g.: data analytics, machine learning, scientific computing). Experience in performance analysis of software and systems.
3. Ability to contribute to research management and administrative processes.
4. Contribute to the School's outreach programme by links with industry, community groups etc
5. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
6. Ability to communicate complex information clearly.
7. Ability to build contacts and participate in internal and external networks.
8. Demonstrable intellectual ability.
9. Ability to assess and organise resources.
10. Ability to travel and present at international conferences and meetings.

DESIRABLE CRITERIA:
1. Research experience in compilation; or in parallel and distributed computing
2. Experience in EU or RCUK projects, in particular in project task management and reporting through periodic deliverables. Experience working with external industrial or academic partners.
3. Experience in working in collaborative software development and/or managing software development teams.
4. Experience in producing timely technical documentation on research projects (deliverables, reports).
5. Experience with presentations of research outputs in conferences, workshops, or seminars.