Candidate Information

Position: Research Fellow
School/Department: School of Electronics, Electrical Engineering and Computer Science
Reference: 24/111988
Closing Date: Monday 15 July 2024
Salary: £40,134 per annum
Anticipated Interview Date: Tuesday 30 July 2024
Duration: Available until 31 December 2026.

JOB PURPOSE:

To be a highly productive, ambitious, and collaborative member of the Kelvin Living Lab for sustainability assisting in the development of research proposals and the planning and delivery of the research activity specifically characterising energy consumption of high-performance computing, developing dynamic frequency control, predicting and optimising efficiency of job scripts, and working with the Northern Ireland HPC team to transition these techniques into practice.

The post is a critical role, and as such, successful applicants will have responsibilities in independent research, planning, and collaboration.

MAJOR DUTIES:

1. Undertake research under supervision within a specific research project or as a member of a research team.
2. Design, develop and refine research on energy-efficiency in HPC using a range of experimental methods.
3. Carry out analyses, critical evaluations, and interpretations of experimental data and the literature using methodologies and other techniques appropriate to area of research for example dynamic voltage and frequency scaling, and using machine learning to assess energy-efficiency of job scripts and propose improvements to them.
4. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team (as appropriate) on outputs.
5. In consultation with the project team, promote research milestones and outputs at national and international conferences.
6. Assist grant holder in the preparation of funding proposals and applications to external bodies.
7. Carry out occasional educational supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a relevant PhD in computer science or computer engineering.
2. Substantial recent relevant research experience to include
   - Undertaking research into approaches for energy-efficient computing
   - A proven track record of undertaking analyses, critical evaluations, and interpretations of experimental data as relevant to the research project
   - Working effectively as part of a research team in the development and promotion of the research theme.
3. Strong publication record commensurate with stage of career.
4. Ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc.
6. Willingness to undertake additional training in research methods and other related skills as required.
7. Practical problem solving skills, independence of thought and initiative.
8. Ability to communicate complex information effectively in oral and written format.
9. Ability to build relationships to develop internal and external networks.

10.   Ability to assess and organise resources.

DESIRABLE CRITERIA:
1.   Research experience with energy- efficiency in the context of high- performance computing.
2.   Research experience with applying machine learning in the context of the optimisation of performance and/or energy-efficiency of computing systems.
3.   Participation in UKRI projects.
4.   Skills in software development (operating system kernel modules, language runtime systems); skills in parallel (multi-/many-core) performance analysis and optimisation.

ADDITIONAL INFORMATION:
Informal enquiries may be directed to Ivor Spence I.Spence@qub.ac.uk