Department of Computer Science
School of Science

Research Associate

REQ181008

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

The Department of Computer Science is part of the School of Science at Loughborough. The Department is looking to expand its strengths in the areas of Networking, Internet Computing, Cyber Security, AI and Robotics. Successful candidates will be able to work alongside existing researchers in these areas at Loughborough.

Job Description

Job Grade: Specialist and Supporting Academic 6

Job Purpose:

The role involves working on a research and development project funded by the Engineering and Physical Sciences Research Council (EPSRC) - FRµIT: The Federated Raspberry Pi Micro-Infrastructure Testbed (EP/P004024/1), in close collaboration with project partners as well as researchers within the School.

Low-cost, low-power embedded devices are ubiquitous. This big collection of resourceful compute and storage remain unharvested because there are some obstacles that prevent widespread system adoption, including complexity of the software infrastructure and a lack of robust frameworks for updating, securing, and managing globally distributed systems with intermittent connectivity, in particular since traditional 'fat' software does not run well on single micro-infrastructure nodes.

The project will focus on research and development of an open-source infrastructure management framework that manages and facilitates large-scale, geo-distributed and federated micro data centres. In addition, the role also involves disseminating research outcomes and applying research funding from external sources.

Working as part of a team, you will not only research the area, but also be involved in the practical development of real solutions for some of the most important micro cloud computing challenges we are likely to face in the future.

Project objectives will include:

- Research and development of an open-source software infrastructure that enables the management and redeployment of federated micro-data centres.
- Provident of shared micro-testbeds for other researchers to use, and high-level patterns for these researchers to deploy similar systems for themselves.
- Evaluation of the developed software system through identified case studies.
- The dissemination of research work.
- Attainment of external funding for research and development.

The project will provide an opportunity to work on challenging problems in large scale networked system in conjunction with cloud federation, containerisation, software defined network (SDN) and network function virtualisation (NFV).

Job duties:

- Undertake research in the areas of cloud resource management, light-weight resource virtualisation, software defined networking, network function virtualisation.
- Design, development and evaluation of software using a variety of tools and techniques.
- Manage and maintain hardware facilities used for the project.
- Timely completion of regular reports and specified deliverables (including software deliverables) in relation to the project.
- Close collaboration with other members of the project team to further the research objectives.
- Disseminate the research and development work.
- Produce research output subject to rigorous peer-review and editorial processes.
- Present progress reports and research findings to colleagues and other researchers.
- Deliver seminars and technical training to colleagues, users and other researchers.
- Deliver papers/talks at scientific conferences and meetings.
- Write technical briefs for colleagues and detailed software design briefs.
- Liaise with colleagues both within and outside the university.
- Participate in networks within the university and externally to build relationships to facilitate exchange of information and funding applications.
- Contribute to collaborative decision about the future direction of the research.
- Advise other researchers (particularly postgraduate students) on experimental design, equipment etc. to aid their decisions.
- Plan, prioritise and organise your own work and resources to achieve agreed objectives.
- Use initiative and creativity to resolve problems, e.g. develop new research techniques, adapt solutions to the availability of technical resources, and develop new software, protocols or formalisms.
- Identify appropriate existing methods of investigation based on the project objectives.
- Make appropriate use of computing and electronic equipment.

Points to Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to Dr Posco Tso, Lecturer; and the PI at Loughborough.

Person Specification

Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Experience of undertaking research in one of the following (or related) areas: networked systems, cloud computing, software defined networking and network function virtualisation.	1
	Experience of publishing research results in peer-review journals and conferences.	1, 3
	Experience of disseminating research results via talks/seminars.	1, 2, 3
	Experience of supervising undergraduate/MSc students.	1, 3
	Good analytical research skills.	2, 3
	Problem solving using computer science techniques.	1, 2, 3
	Experience in developing software on Linux/Unix platforms.	1, 2, 3
	Experience in development software for Distributed/Networked systems.	1, 2, 3
Skills and abilities	Good programming skills in C/C++, Python, Java, etc.	1, 3
	Ability to work independently and with minimal supervision.	1, 2, 3
	Good team worker and good interpersonal skills.	2, 3
	Evidence of good communication skills.	2, 3
	Willingness to work closely with other members of the project team.	2, 3
Qualifications	Good first degree in a relevant subject (computing, maths, science).	1
	Candidates will be expected to hold a PhD in computer science or a related area.	1

Desirable Criteria

Area	Criteria	Stage
Experience	Experience in research leading to publication.	1
	Experience of researching in one or more of the following areas: Data centre resource management, Network policies management, Cyber Security, Software engineering.	1, 2
	Evidence of publications in a relevant area.	1
	Experience of engaging general public in research projects.	1, 2
	Experience of software development in OpenStack/CloudStack/Docker or similar tools.	1, 2, 3
	Experience of hardware development.	1, 2, 3
	Experience of using software development suite, e.g. IDE, Git, Mercurial.	1, 2, 3

	Experience of writing research proposal(s).	1, 2
	Experience of adopting open source projects to research projects.	1, 2, 3
	Experience of constructing research testbed.	1, 2, 3
	Experience of using network simulation tools.	1, 2, 3
Skills and abilities	Evidence of project management skills.	1, 3
	Agile software development, validation and evaluation.	1, 2
	Software and hardware co-development.	1, 3

Conditions of Service

The position is full time and fixed term for 6 months. However, due to funding end date restrictions this term length may be reduced should there be delays in candidates taking up the role. Salary will be on Specialist and Supporting Academic Grade 6, (£30,395 - £39,609) annum, subject to an annual pay award, at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Grade 6 and above staff, details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available at http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements.
We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see http://www.lboro.ac.uk/services/hr/athena-swan/

Application

The closing date for receipt of applications is **7 January 2019.**