Senior Research Software Engineer (Research Computing Team)
REQ230211

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

IT Services are integral to the continued success of Loughborough University, rated a top 10 university in all major league tables. We work closely with all of our partners from across the University to support digital transformation and deliver outstanding levels of service that are recognised as the best in the country by our students in the National Student Survey. We are at the forefront of supporting the digital campus, protecting and securing our IT systems and developing strategies to take us forward in a rapidly evolving world. Our Director is currently a trustee of UCISA and we actively support professional development at all levels.

During the Covid-19 pandemic, we enabled staff and students to work successfully from anywhere and were key to a response which has been widely acknowledged as sector leading. We offer flexible working to IT colleagues where possible and understand the importance of a good work/life balance. In addition to working for an employer of choice on a stunning East Midlands campus, we offer an excellent range of benefits to our employees and pride ourselves on being family friendly.

An exciting opportunity has arisen to join our in-house team and the details are below. We particularly welcome applications from women and BAME communities as we are actively seeking to make our team more diverse. Please contact the recruiting manager for an informal chat if you are considering an application.

Job Description

Job Grade: Management and Specialist MA7

Job Purpose

To take a guiding role in providing research software engineering support to researchers across Loughborough University and more widely in support of our HPC Midlands+ activities. The role will provide excellent knowledge and skills in development, support and training of research computing techniques including parallel programming, algorithms and software engineering for the University. The role will also be responsible for engaging in national and international activities, including the research software engineering network. This post will be part of a team of four individuals in the Research Computing team and will work closely with colleagues across the University on the support of research.

Job Duties

- Work with Loughborough University researchers to build and maintain readable, reliable and efficient research software.

- Collaborate with research colleagues from across Loughborough University to construct, improve, and maintain codes used for modelling, analysis and simulation in Loughborough University research.

- Rapidly assimilate research context through publications and conversation with research groups, understand the computational algorithms, requirements and interfaces needed within the research effort, and construct high-quality software for research colleagues which will result in a sustained impact on their research programme.

- Work to improve reliability and performance for parallel codes, while maintaining readability and structure, on the LU High Performance Computing platform, the HPC Midlands+ Tier 2 system, and other external facilities to which Loughborough University researchers have access, including national supercomputing facilities such as other Tier 2 centres and ARCHER 2.

- Teach Loughborough University research staff and students the effective use of software for research, through leading hands-on training sessions covering topics in programming and software engineering best practice. Organise and support community building events.

- Provide consulting on software practices, techniques, design, and architecture to research groups, helping to build well-structured and maintainable research software.

- Continually study new and existing technologies, tools and ideas in research computing, maintaining expertise in many areas of computational research.

- Build and maintain relationships within the research and e-Infrastructure communities in Loughborough University and beyond, seeking opportunities to contribute to research, and to generate and prepare opportunities for new research projects and funding.

- Contribute to the wider ecosystem of support for computational research in Loughborough University, working with departmental and group colleagues, departmental IT staff and other colleagues to help build integrated systems and services which meet the needs of researchers.

- Support release and dissemination of Loughborough University research software, through open source, scholarly, and commercial channels, ensuring codes are easy to deploy and install.

- Explain and document the software they help create, contributing to research publications and code documentation, and user support for codes they create and maintain.

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.

HPC Midlands+ Tier 2 Centre

Loughborough University is a member of the Sulis HPC Midlands+ Tier 2 Centre in partnership with the Universities of Warwick, Aston, Birmingham, Coventry, Leicester, Nottingham and Queen Mary.

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

The line manager for this role will be the Research Computing Team Manager.

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	PhD degree in a computationally based field or equivalent professional experience (several years experience programming for Research and Development in an academic or industrial setting).	1
	Experience as a researcher or of working closely with researchers and contributing to research through software development.	1,3
	Experience of analysing, researching and solving complex programming problems.	1,3
	Experience using Unix-based operating systems and Unix system tools and utilities.	1,3
	Experience running or developing training courses, or organising community events.	1,3
Skills and abilities	Expertise in using and developing scientific applications to produce research outputs.	1,3
	Advanced skills in C++ and/or Fortran 2003.	1
	Expertise in the advanced use of high-level dynamic languages for numerically-intensive research, preferably Python.	1,3
	Expertise in writing computational GPU software or optimising its use.	1,3
	Knowledge of and commitment to software development best practice including issue tracking, testing, documentation, version control, build automation and continuous integration.	1,3
	Expertise in several specialist areas of technical computing from the list below. While no single specialism is essential, candidates must be able to demonstrate parallel programming experience and completion of significant work using several of these technologies: – MPI – OpenMP – CUDA, OpenCL, OpenACC – make, CMake – Parallel debuggers and profilers – Parallel visualisation – Parallel numerical algorithms and libraries – Advanced parallel programming with high level languages	1,3

	– Virtualisation in an HPC environment, for example with Singularity or Docker.	
	Excellent written and verbal communication skills including the ability to effectively present complex or technical information to a range of audiences.	1,3
	Excellent time management.	3
Training	A willingness to undertake further training and to learn and adopt new procedures as and when required.	1,3
	Ability to assimilate technical information and keep up-to-date and learn about new developments in computational research.	1,3
	Ability to rapidly acquire fluent knowledge of new programming languages, libraries and platforms.	1,3
Qualifications	Postgraduate degree with a significant computational component.	1

Desirable Criteria

Area	Criteria	Stage
Experience	Experience of technologies supporting software re-use and deployment.	1,3

Conditions of Service

The position is FULL TIME and OPEN-ENDED. Salary will be on MANAGEMENT & SPECIALIST GRADE 7, £43,414– £51,805 per annum, at a starting salary to be confirmed on offer of appointment. A market supplement could be available for the preferred candidate based on their experience to ensure we can make an offer that aligns with the market rate for the role.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff/Operational and Administrative 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/