

Job Description

Job Title:	Senior Research Infrastructure Engineer
Department/Division/Faculty:	Research Computing Service (RCS) / Information and Communications Technologies (ICT)
Campus/Location:	South Kensington Campus
Job Family/Level:	Professional Services Level 4 (Salary scales)
Responsible to:	Research Computing Platforms Team Lead
Line Management for:	N/A
Key Working Relationships (Internal):	Research community at Imperial College and colleagues within ICT
Key Working Relationships (External):	Suppliers and vendors
Contract type:	Full time and open ended

Purpose of the Post

Imperial College London is a world leading, top ten university and is home to the greatest concentration of high-impact research of any UK university. The Research Computing Service (RCS) provides support for High-Performance Computing, a team of Research Software Engineers, and support for a growing number of research applications that support the research data lifecycle.

Here is an opportunity for a technically skilled professional to support world leading research. As a Research Infrastructure Engineer your role will be key to developing and supporting high-performance computing and associated research data platforms at Imperial both on-premise and in the cloud. You will ensure researchers, whatever their field, have access to the most appropriate equipment and technology for their work.

The role provides opportunities to learn and develop new skills, working as part of a team of research computing specialists, and as part of the broader RCS and Imperial College ICT team.

Research Computing Services HPC estate is a large, heterogeneous system with both proprietary and commodity clusters. It includes high-throughput capacity, high-end capability, GPU compute and large-memory services and is tailored to support the diverse computing needs of the research community.

The evaluation and integration of new technology plays a major part in provisioning research computing systems. This role provides the opportunity to develop on-premise HPC and evaluate and implement new cloud-based technologies. Together with our team of analysts, you will provide advice to researchers.

Key Responsibilities

- Be responsible for the installation, configuration, and support of services as required within the central Research Computing Services platform team.
- Work with vendors and ICT's Technology Office to design, implement and upgrade services using change management and revision control processes to ensure that changes are properly tracked and available for audit when required.
- Analyse and troubleshoot system issues, defining, and resolving complex issues.
- Develop innovative solutions to continuously improve HPC and address shortfalls in provision.

- Work closely with other ICT staff, including Infrastructure Technology, Security and Governance teams.
- Understand the importance of security and seek specialist security advice to secure systems.
- Maintain a knowledge of technical developments, tools, and ideas in HPC, attending seminars, conferences, technical briefings, and other community events.
- Work flexibly as a part of the RCS Platforms Team, supporting the group's activities and undertaking individual projects.
- Write and maintain documentation on system design and management processes to ensure knowledge is accessible and disseminated appropriately within the team.
- Deliver a high-quality service through a collaborative approach and outstanding analytical skills.
- Take an active part in meetings, representing the College, and facilitating collaboration between partners.
- Assist researchers to utilise the HPC resource, providing subject matter expertise support to the Research Computing Analysts.

Person Specification

Requirements	Essential (E)/ Desirable (D)
Candidates/post holders will be expected to demonstrate the following:	
Education	
A degree in a scientific or technical discipline or corresponding relevant experience	E
Experience	
Experience in designing and implementing services and where vendors' options are limited, proposing new features and facilities.	E
Experience in evaluating hardware and software technologies and selecting those which best fit the requirements.	E
Experience of working in a customer orientated support service or a research/technology environment, with a positive attitude to delivery.	E
Practical experience of using Linux and HPC clustered computing software stacks such as provisioning, monitoring, parallel command execution and scheduling/queuing solutions	E
In-depth knowledge of HPC system architecture, both proprietary and commodity clustered computing solutions, including current interconnect technologies such as "high-speed" Ethernet or InfiniBand and, large-scale storage systems running Lustre or Spectrum Scale.	D
Experience of MPI library implementation and knowledge of parallel methodologies.	D
Proficiency in scripting languages such as Python or Bash shell.	D
Experience in training junior staff in technical specialities.	D
Experience of producing documentation, web pages and training materials.	D
Knowledge	
Knowledge of HPC environments, parallel programming methodologies and service components.	E
Knowledge of operational software in an HPC environment, as used for monitoring, parallel command execution and job scheduling such as PBSPro, Slurm and Moab.	E
Knowledge and experience of debugging applications.	E
Knowledge and experience of managing large-scale storage solutions.	D
Familiar with configuration management systems such as Ansible, Puppet or Salt.	D
Familiar with the DevOps and Agile development culture.	D
Understanding of cloud computing, virtualisation, and container technologies, including experience of commercial platforms.	D

Awareness and working knowledge of ITIL best practice.	D
Skills & Abilities	
Excellent interpersonal skills with the ability to persuasively communicate complex technical information effectively to a diverse range of stakeholders, including those without a technical background .	E
Demonstrable problem-solving abilities, including proven ability to use initiative, creative thinking, and self-directed learning to resolve unfamiliar issues.	E
Awareness of cost and budgets, working within budgetary constraints, suggesting alternatives as appropriate.	E
Able to use testing and evaluation methods for problem solving.	E
A team player who collaborates and supports the team and researchers.	E

Further Information

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Imperial College is committed to equality of opportunity and to eliminating discrimination. All employees are expected to follow the [Imperial Values & Behaviours framework](#). Our values are:

- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all College policies and regulations paying special attention to: Confidentiality, Conflict of Interest, Data Protection, Equal Opportunities, Financial Regulations, Health and Safety, Information Technology, Smoking, Private Engagements and Register of Interests. They must also undertake specific training and assume responsibility for safety relevant to specific roles, as set out on the [College Website Health and Safety Structure and Responsibilities](#) page.

We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We therefore encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender identity, sex, or sexual orientation. We are an [Athena SWAN Silver Award](#) winner, a [Disability Confident Leader](#) and a [Stonewall Diversity Champion](#).

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