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**Job Description**

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| **Job title:** | **Research Infrastructure Engineer** |
| **Department/School:** | **Digital, Data & Technology Department (DDaT)** |
| **Responsible to:** | **Director of Research Computing** |
| **Grade:** | **G7** |

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| **Background Information** |
| The Research Computing team is a key part of the university's efforts to utilise computational methods for knowledge advancement. We work closely with faculty and students across disciplines, tailoring solutions to their specific requirements.  We develop robust solutions that elevate research capabilities. Our goal is to streamline technology processes, allowing researchers to concentrate on their core inquiries. |

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| **Job purpose** |
| The Research Infrastructure Engineer will be part of a team responsible for the development and maintenance of the University’s High-Performance Computing (HPC) services and Research Storage services, which support the University’s varied research portfolio.  The post-holder will apply in-depth technical expertise to resolve complex problems, support an active and growing user community, generate innovative ideas and will help to enhance the delivery of the HPC and storage services. |

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| **Source and nature of management provided** |
| Director of Research Computing |
| **Staff management responsibility** |
| None |

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| **Special conditions** |
| You will from time to time be required to undertake other duties of a similar nature as reasonably required by your line manager. This will form part of your substantive role and you will not receive additional payment for these activities.  This post may be identified as one requiring the post holder to work outside of the standard university hours, including evenings or weekends. Reasonable notice will be given should this become a requirement of the role.    Annual leave may be restricted during peak workload periods.  The post-holder will ensure full compliance with all Data Protection laws and any relevant University policies and guidelines.  In addition to university provided training and development, you will undertake sufficient personal and professional development as required, ensuring skills and knowledge are up to date so that the role is performed to the required level. |

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| **Main duties and responsibilities** | |
| **1** | **Systems development and administration:**   * Methodically investigate, analyse and review current systems and processes. Ensure monitoring of quality and performance of systems, in relation to their contribution to desired service levels. Ensure system security and system sustainability and documentation in accordance with agreed standards and procedures. * Ensure systems change management is carried out in accordance with agreed standards and procedures. Create and manage test and development environments to allow system improvements to be made with minimum impact on services. * Design, script, code, test and document the deployment and development of Open Source, commercial and custom software, using agreed standards and tools, to achieve well-engineered bespoke solutions, especially when linking together existing systems or providing novel interfaces to existing data. * Liaise with an active community of Research Computing users and help facilitate their research through technical knowledge transfer and effective support. Analyse their needs and provide appropriate technical advice, training, hands-on assistance or specialist support where required. |
| **2** | **Service management:**   * Provide advice and assistance associated with the planning, design and improvement of service and component availability, including the investigation of all breaches of available targets with the instigation of remedial activities following agreed change standards and procedures. * Employ through-life planning models to ensure information systems continuously meet business needs. Advise customers of supplier product developments and upgrades, advising on implementation. * Develop implementation plans for dealing with complex requests for change, evaluate risks to integrity of infrastructure, review the effectiveness of change implementation, and suggest improvements to departmental procedures governing change management. |
| **3** | **Technical specialisms:**   * Provide and maintain stable HPC and research storage services and ensure maximum availability and operation of the service. * Provide pro-active technical support to an active user community. Assisting users with utilising the resources, script and parallel code compilation, debugging and optimisation, advising on best practices and use of the scheduling system. * Development and tuning of the scheduling configuration for optimum throughput. Collection of utilisation statistics and identification and resolution of operational problems with the cluster. * Propose and develop innovative solutions to enrich the user experience and to enhance service delivery. |
| **4** | **Additional duties and responsibilities:**   * Support outreach activities to enable exploitation of cloud research services by a broader, and potentially non-traditional, user-base. * Represent the University’s interests within the HPC community, linking with regional and national HPC centres, working with HPC Special Interest Group, assisting with presentations at conferences etc. * Undertake research into suppliers, markets and product and service categories, to inform and develop purchasing strategy and sourcing plans. Create specifications for procurement of key products and services. * Take responsibility for the definition, documentation and satisfactory completion of medium-scale projects identifying, accessing and managing risks to the success of the project. Ensure that realistic project and quality plans are prepared and maintained and provide regular and accurate reports to stakeholders as appropriate. * You will from time to time be required to undertake other duties of a similar nature as reasonable required by your line manager. |
| **5** | **Relationships:**   * Be a trusted advisor and advocate between IT and key University stakeholders. * Support and maintain the interface between DDaT and UoB departments. * Build strong relationships with colleagues across DDaT. |
| **6** | **General:**   * Undertake any other activities assigned from time to time by the University. * Occasional travel may be required, for example to user groups or conferences. * The post holder is required to always follow University policies and procedures and take account of UoB guidance. |
| **Commitment to the University’s Effective Behaviours Framework**  As a holder of the Association of University Administrators Mark of Excellence Award, the University has identified a set of effective behaviours which we value and have found to be consistent with high performance across the organisation. Professional Services staff are expected to exhibit these behaviours with a commitment to on-going personal development in these areas. Further details are outlined in the person specification. | | |

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**Person Specification**

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| **Criteria: Qualifications and Training** | **Essential** | **Desirable** |
| Educated to degree level or equivalent qualification or experience in a related field | X |  |
| Professional project management qualification, such as Agile foundation, PRINCE2 foundation |  | X |
| ITIL (Version 3 or later) Foundation Level Qualification |  | X |

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| **Criteria: Knowledge and Experience** | **Essential** | **Desirable** |
| Experience of IT project management and more generally change management within a large organisation | X |  |
| Experience in the design and the delivery of training courses | X |  |
| Detailed knowledge and experience of administering Linux servers and a working knowledge of Windows operating system | X |  |
| Familiar with HPC technologies, including provisioning, job schedulers and low-latency interconnects | X |  |
| Experience with HPC Job schedulers such as SLURM, PBS and IBM LSF. | X |  |
| Azure experience to include setup and configuration of subscriptions, resource groups, VNETs, virtual machines, NSGs, security policies, image management, Azure Blob, Azure Files |  | X |
| Experience with Azure DevOps and Agile working practices, CI/CD pipelines and working with Infrastructure-as-code (Azure CLI, Azure PowerShell, Chef, Ansible) |  | X |
| Working knowledge and experience of performant storage solutions (such as Lustre, BeeGFS, GPFS, NetApp) |  | X |
| Knowledge of HPC cluster management software such as Bright Cluster Manager and Azure Cycle Cloud |  | X |
| Knowledge and experience in using one or more scripting languages, such as Bash, Python and SQL | X |  |
| Advanced skills in at least one programming language, such as Python, C, C++, FORTRAN, R |  | X |
| Understanding of parallel programming methodologies | X |  |
| Experience of designing, building and maintaining bespoke IT solutions, e.g., virtual machines, web services, REST APIs |  | X |
| A sound understanding of the UK HE context |  | X |

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| **Criteria: Skills and Aptitudes** | **Essential** | **Desirable** |
| Excellent oral, interpersonal and written communication skills | X |  |
| Proven ability to develop and maintain professional working relationships and collaborations with academics and researchers | X |  |
| Technical competence and proven troubleshooting skills | X |  |
| Ability to organise and prioritise own workload to meet required deadlines | X |  |
| Ability to learn / adapt to new technologies and concepts | X |  |
| Proven project management skills | X |  |
| Flexibility and adaptability and an ability to cope with a busy workload | X |  |
| Innovation and developing creative solutions | X |  |
| Enthusiasm and self-motivation | X |  |
| Ability to be an effective team worker | X |  |

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| **Effective Behaviours Framework**  The University has identified a set of effective behaviours which we value and have found to be consistent with high performance across the organisation. They do not examine technical competence, rather they identify the behaviour patterns that are valued due to them being consistent with high performance across the organisation. Part of the selection process for this post will be to assess whether candidates have demonstrably exhibited these behaviours previously. |
| **Managing self and personal skills:**   * Willing and able to assess and apply own skills, abilities, and experience. * Being aware of own behaviour and how it impacts on others. |
| **Delivering excellent service:**   * Providing the best quality service to all students and staff and to external customers e.g., clients, suppliers. * Building genuine and open long-term relationships in order to drive up service standards. |
| **Finding innovative solutions:**   * Taking a holistic view and working enthusiastically and with creativity to analyse problems and develop innovative and workable solutions. * Identifying opportunities for innovation. |
| **Embracing change:**   * Adjusting to unfamiliar situations, demands and changing roles. * Seeing change as an opportunity and being receptive to new ideas. |
| **Using resources:**   * Making effective use of available resources including people, information, networks, and budgets. * Being aware of the financial and commercial aspects of the University. |
| **Engaging with the big picture:**   * Seeing the work that you do in the context of the bigger picture e.g., in the context of what the University/other departments are striving to achieve and taking a long-term view. * Communicating vision clearly and enthusiastically to inspire and motivate others. |
| **Developing self and others:**   * Showing commitment to own development and supporting and encouraging others to develop their knowledge, skills, and behaviours to enable them to reach their full potential for the wider benefit of the University. |
| **Working with people:**   * Working co-operatively with others to achieve objectives. * Demonstrating a commitment to diversity and applying a wider range of interpersonal skills. |
| **Achieving results:**   * Planning and organising workloads to ensure that deadlines are met within resource constraints. * Consistently meeting objectives and success criteria. |