**Job Description**

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| Job Title | Supercomputing Wales – Research Software Engineer (Research Associate) |
| Career Pathway | Academic |

**Main function** (one or two sentences)

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| Combines expertise in programming with a detailed understanding of research in [INSERT AREA HERE] to translate research needs into High Performance Computing (HPC) applications in support of the Pan Wales ‘Supercomputing Wales’ project – either by porting existing code or designing and developing new software from scratch – and carrying out supporting work, providing advice, guidance and support, leading small scale project activities and supporting the development of research grant applications in [**add specialist area**]. To pursue excellence in research and to inspire others to do the same. |

**Main Duties and Responsibilities** (six to twelve bullet points including clinical duties where appropriate)

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| **Research**   * To undertake the development and implementation of high quality reusable software and techniques for high performance computing and data-analysis to support research projects within [**add specialist area**] * To conduct and support research activities in [**add specialist area**] and contribute to the overall performance of the School, University and wider Supercomputing Wales project * To develop research objectives and proposals for own or joint research including research funding proposals * To undertake administrative tasks associated with research projects, including the planning and organisation of the project and the implementation of procedures required to ensure accurate and timely reporting * To undertake performance analysis and the interpretation of domain specific results from computational simulations. * To prepare thorough working plans showing activity, delivery of outputs and monitoring details for proposed projects. * To assist researchers in preparing papers for publication in refereed journals and applications for research grants. Identify and pursue registration of intellectual property (IP) where appropriate, with support of institutional IP specialists. * To prepare research ethics and research governance applications as appropriate. * To review and synthesise existing research literature within the field. To prepare reports on a quarterly basis showing progress of domain specific activities, particularly collaborative software development projects, which make a contribution to Supercomputing Wales against planned targets, outputs and finance.   **Internal & External Interaction**   * To build and create networks both internally within the School, across Cardiff University through the DII (Data Innovation Institute) and across Wales through the Supercomputing Wales Pan Wales project, to influence decisions, explore future research requirements, and share research ideas for the benefit of Supercomputing Wales and associated collaborative research projects. * To engage effectively with industrial, commercial and public sector organisations, professional institutions, other academic institutions etc., regionally and nationally to raise awareness and the profile both of the Supercomputing Wales project and the School to cultivate strategically valuable alliances, and to pursue opportunities for collaboration across a range of relevant activities. These activities are expected to contribute to the Supercomputing Wales project and the School to enhance their regional and national profiles. * To participate wherever appropriate in School research activities.   **Other**   * To support wider Supercomputing Wales project development by supporting domain specific research users in engaging with the project, for example liaising with them to prepare detailed programmes of work, monitor progress of project activities and to collect evidence for the delivery of targets and outputs. * To carry out a range of duties at a strategic and technical level involving visiting other Supercomputing Wales consortium partners, attendance at events, presenting at conferences and meetings, hosting visits and giving advice on activities of value to the project and/or the University. * To liaise with academic and other staff within the University and other stakeholders in order to ensure consistency and accuracy in the monitoring, reporting and evidence gathering aspects of HPC software development projects. * To undergo personal and professional development that is appropriate to and which will enhance performance. * To participate in School administration and activities to promote the School and its work to the wider University and the outside world. * Any other duties not included above, but consistent with the role. |

**Person Specification**

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| Essential Criteria (maximum of 10) |
| Qualifications and Education   1. Postgraduate degree at PhD level (or substantial progress towards the award of a PhD) in a related subject area or relevant industrial experience   Knowledge, Skills and Experience   1. Substantial knowledge and experience of programming skills and software engineering techniques to support HPC-enabled research activities in [THE SPECIFIC RESEARCH AREA], with specific knowledge of [INSERT DOMAIN SPECIFIC LANGUAGES HERE] 2. An established expertise and portfolio of research and/or relevant industrial experience within the following research fields:  * xxxxxxx * xxxxxxx  1. Knowledge of current status of research in specialist field 2. Proven ability to publish in national journals, providing support to research teams with preparing papers resulting in publications 3. Ability to understand and apply for competitive research funding, providing support to research teams with their applications   Communication and Team Working   1. Proven ability in effective and persuasive communication 2. Ability to supervise the work of others to focus team efforts and motivate individuals   Other   1. Proven ability to demonstrate creativity, innovation and team-working within work |
| Desirable Criteria (if appropriate) |
| 1. Relevant professional qualification(s) 2. Evidence of collaborations with industry 3. Proven ability to work without close supervision 4. Proven ability to adapt to the changing requirements of the Higher Education community 5. Evidence of ability to participate in and develop both internal and external networks and utilise them to enhance the research activities of the School and wider Supercomputing Wales project 6. A willingness to take responsibility for academically related administration |

**Additional Information**

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| Supercomputing Wales is a strategic programme of investment in Higher Education intended to change the way supercomputer facilities are used to support research activities in Wales. The programme is led by Cardiff University, in a consortium with Aberystwyth, Bangor and Swansea Universities, and HPC Wales Ltd.  With an estimated total cost of close to £15m, the programme will fund the purchase and running of new High Performance Computing (HPC) equipment, along with necessary technical posts to support the operation of the equipment. The programme will also support a new cohort of ‘Research Software Engineers’ to work with academic researchers to develop software codes and algorithms using the supercomputing facilities.  The programme targets include capturing more research funding for Wales, creating more highly-skilled research jobs, and increasing collaborations with other research-active partners, all built on improved HPC capacity provided through Supercomputing Wales. The programme will be part-funded by the European Regional Development Fund via Welsh Government (c. £9m in total), and by the university partners. |