**Job Description**

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

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

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| Combine expertise in programming with a detailed understanding of research in [**add specialist area**] to translate research needs into HPC applications in support of the Pan Wales ‘Supercomputing Wales’ project – either by porting existing code or designing and developing new software from scratch. To lead or work within research projects and take responsibility for significant parts of large software development projects for HPC architectures and/or lead multi projects. To contribute to the research record of the School through commitment to carrying out research leading to the publishing of work in high-quality journals, produce high quality reports for research collaborators and contribute to the identification of new projects and funding 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 within [**add specialist area**] * To independently develop research objectives within [**add specialist area**], projects or proposals for own or joint research including research funding acting as a Principal Investigator (PI) as required * To generate and pursue independent and original research ideas in the field of research and support the initiation of new lines of research in related areas * To pro-actively contribute to and conduct software analysis, including the collation, preparation and analysis of data, generating original ideas and presenting results * To prepare reports, draft patents and papers describing the results of the software development, which may be either confidential or for publication * To proactively engage the research community in Supercomputing Wales initiatives, identify projects falling in the Supercomputing Wales remit, organise plans for successful involvement of the consortium in those projects and collect the resulting outputs and targets * To be actively engaged in the writing and publishing of reports and research papers, particularly those intended for publication in refereed (e.g. international) journals or comparable * To disseminate research findings using appropriate and effective national and international publications, research seminars, meetings and conferences * To drive forward and pro-actively conduct research and development (R&D), including the gathering, preparation and analysis of data and presentation of results, exhibiting a significant degree of independence in terms of specifying the focus and direction of that research * To manage, supervise and develop other research staff within own research projects where this is consistent with the aims of the Supercomputing Wales project * To provide guidance to students in own specialist area   **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 develop research networks through regular national/international conference/seminar presentations * 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 in a related subject area or relevant industrial experience   Knowledge, Skills and Experience   1. Recognised as an authority in the field of parallel-programming skills and software engineering techniques to support HPC-enabled research activities in [**add specialist area**] 2. An established expertise and proven portfolio of research and/or relevant industrial experience within the following research fields:  * xxxxxxx * xxxxxxx  1. Proven substantial record of publications in high-impact national journals. 2. Proven ability attain competitive research funding along with a strong portfolio of research grants   Communication and Team Working   1. Proven ability in effective and persuasive communication 2. Proven ability to lead and develop a research team 3. Proven ability to develop networks in order to contribute to long term developments 4. Proven ability to lead and develop project teams, with the 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 teaching and research activities of the School. 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. |