**Job Description: Research Assistant or Research Officer – SUSTAIN Digital Modelling**

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| **Faculty:** | Faculty of Science and Engineering |
| **Department/Subject:** | Department of Computer Science |
| **Salary:** | *Grade 8: £39,105 to £45,163 per annum* |
| **Hours of work:** | Full time – 35 hours per week |
| **Number of positions:** | 1 |
| **Contract:** | This is a fixed term position until 30 September 2026 |
| **Location:** | This position will be based at the Bay Campus |

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| **Introduction** | Applications are invited for a Fixed Term Research Officer in Advanced Digital Modelling to enable a sustainable future and a transformation to net-zero.The new research officer will join Professor Beckmann and Professor Giannetti’s research group on *Hybrid AI for Industry and Society* at Swansea University, as well as the wider modelling, data and AI research community (first point of contact Professor Beckmann) and the wider materials and manufacturing research community (first points of contact will be Professor Giannetti and Professor Pleydell-Pearce) within the Faculty of Science and Engineering. The successful candidate will be responsible to conduct genuine research and innovation to enable knowledge driven Industry 4.0 capabilities that address sustainability and a transformation to net-zero. Key challenges that will be addressed include data integration, process modelling, product traceability, digital material passport, and will employ elements of semantic technologies and generative AI. The successful candidate will work closely with researchers focussed on data driven approaches, and academics and researchers in other UK universities contributing to SUSTAIN (see below). The successful candidate will have experience in applying AI and/or knowledge management systems to any sector, including health, transport, social science, etc.  This post is part of the EPSRC funded SUSTAIN Future Manufacturing Hub (<https://www.sustainsteel.ac.uk/>). SUSTAIN is an exciting collaborative project between the Universities of Swansea, Warwick and Sheffield working with the UK steel industry. This project will link to SUSTAIN’s UK Digital Steel Innovation Hub (<https://www.sustainsteel.ac.uk/data-driven-innovation>), supporting both grand challenges in the SUSTAIN Hub of ‘Zero Waste, Carbon Neutral Iron- and Steelmaking’ and ‘Smart Steel Processing’. The project is also linked to the Materials Made Smarter Research Centre as part of Made Smarter Innovation (<https://www.madesmarter.uk/made-smarter-innovation/research-centres/>), researching the emerging concept of Material Passports and their uses within the SUSTAIN and MMSC context as an enabler for sustainability and net-zero. As such, we are looking for candidates who are passionate about linking the fields of physics / knowledge driven approaches to modelling steel manufacturing through collaboration with other researchers and teams. |
| **Main Purpose of Post** | 1. Conduct research in semantic technology to enable Industry 4.0 capabilities, specifically hybrid AI and advanced analytics for steel manufacturing. 2. Be responsible for maintaining a working relationship to the SUSTAIN hub. 3. Work with industrial partners from the steel sector as fitting to the objectives of this project with a focus on the impact of the proposed research. 4. Drive an agenda for applying hybrid AI technology for the realisation of Industry 4.0 capabilities within the steel supply chain. |
|  | 1. Pro-actively contribute to and conduct research, including gather, prepare and analyse data and present results, exhibiting a degree of independence in terms of specifying the focus and direction of that research. 2. Prepare reports, draft patents and papers describing the results of the research, both confidential and for publication. The appointee is expected to be actively engaged in the writing and publishing of research papers, particularly those intended for publication in refereed (eg international) journals or comparable as a normal part of their role. 3. Be self-motivated, apply and use their initiative, aiming to determine suitable ways to tackle challenges and seeking guidance when needed. 4. Use creativity to analyse and interpret research data and draw conclusions on the outcomes. 5. Interact positively and professionally with other collaborators and partners within the Faculty, elsewhere in the University and beyond both in industry/commerce and academia. 6. Contribute pro-actively to the development of external funding applications to support their own work, that of others and the Faculty and the Institution in general. The appointee will be expected as a normal part of their work to be actively engaged in writing, or contributing to writing such applications. 7. Contribute to Faculty organisational matters in order to help it run smoothly and to help raise its external research profile. 8. Keep informed of developments in the field in both technical and specific terms and the wider subject area and the implication for commercial applications and the knowledge economy or academia. 9. When requested act as a representative or member of committees, using the opportunity to extend their own professional experience. 10. Demonstrate and evidence own professional development, identifying development needs with reference to Vitae Researcher Development Framework particularly with regard to probation, performance reviews, and participation in training events. 11. Maintain and enhance links with the professional institutions and other related bodies. 12. Observe best-practice protocols in maintenance and retention of research records as indicated by HEI and Research Councils records management guidance.  This includes ensuring project log-book records are deposited with the University/Principal Investigator on completion of the work |
| **General Duties** | 1. To promote equality and diversity in working practices and maintain positive working relationships. 2. To conduct the job role and all activities in accordance with safety, health and sustainability policies and management systems, in order to reduce risks and impacts arising from the work activity. 3. To ensure that risk management is an integral part of any decision-making process, by ensuring compliance with the University’s Risk Management Policy. 4. Any other duties as agreed by the Faculty / Directorate / Service Area. |
| **Person Specification** | **Essential criteria:**   1. A PhD (or similar research experience) in Computer Science or related subjects (e.g. physics, engineering or mathematics) 2. Evidence of active engagement, personal role, and contribution to writing and publishing research papers, particularly for refereed journals. 3. Evidence of the capacity for active engagement in designing research and writing, or contributing to writing, applications for external research funding. 4. Ability to demonstrate significant independence of focus and direction in research – determining ’what, why, when and with whom' to progress work. 5. Research background in an area of AI, and in integration of large data sets, or semantic technologies/knowledge management systems, or a closely related area. 6. Willingness and ability to work with industry with a focus on impact. 7. A commitment to continuous professional development   **Desirable Criteria:**   1. Experience of working collaboratively (e.g. within an academic consortium and with industrial partners). 2. Research experience in context of Industry 4.0, hybrid AI (like AI augmented by physics-based modelling approaches) or advanced analytics. 3. Experience of supervising undergraduate or postgraduate student projects 4. Knowledge of steel manufacturing processes and / or experience of working with the steel industry. |
| **Welsh Language Level** | Level 1 – ‘a little’ - pronounce Welsh words. Able to answer the phone in Welsh (good morning / afternoon). Able to use very basic every-day words and phrases (thank you, please etc.). Level 1 can be reached by completing a one-hour training course.  For more information about the Welsh Language Levels please refer to the Welsh Language Skills Assessment web page, which is available [here](https://www.swansea.ac.uk/welsh-language-standards/compliance/recruitment/). |
| **Additional Information** | Informal enquiries: Professor Arnold Beckmann [A.Beckmann@swansea.ac.uk](mailto:A.Beckmann@swansea.ac.uk) or Professor Cinzia Giannetti [C.Giannetti@Swansea.ac.uk](mailto:C.Giannetti@Swansea.ac.uk)  Shortlisting Date: 13/01/2025  Interview Date: 20/01/2025 |

  