Senior In-Process Inspection R&D Engineer

Department	Electronic and Electrical Engineering (www.strath.ac.uk/engineering/electronicelectricalengineering/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	554484
Reports To	Head of Department through Professor Charles MacLeod	Grade:	8*
Salary Range:	£36,024 - £56,021*	Contract Type:	Fixed Term (24 months)
FTE	3x 1 FTE although applications are welcome for those seeking part-time opportunities or job shares	Closing Date	12/10/2023
Holidays	31 days + 11 statutory holidays Option to purchase additional holidays	On Site Facilities	Car parking, sports centre, catering
Pensions	Contributory pension scheme available to all staff including generous employer contribution.		
Training	Professional Development with Organisational and Staff Development Unit (OSDU) plus external training if required		
Family Friendly Benefits	Generous parental leave provision, on-campus nursery and options for flexible working		
Health and Wellbeing	University Sport centre, Occupational Health service, access to health and wellbeing events, cycle to work scheme, Employee Assistance Programme, agile working and established carers support network and carer friendly policies		

Job Advert

The Sensor Enabled Research & Control Hub (SEARCH) at the University of Strathclyde are seeking to recruit a number of Senior R&D Engineers to develop, manage and coordinate R&D activities focused on in-process inspection of fusion welding and additive manufacturing operations within large multi-partner collaborative research projects.

SEARCH focusses on automated in-process inspection of high-value components at the point of manufacture, working alongside industrial partners in the Energy, Marine, Defence and Aerospace sectors. Featuring a new £2.1M laboratory and housing state-of-the-art equipment, SEARCH aims to deliver impact at pace and scale to key external partners.

Traditionally, the welding or additive manufacture and inspection of such components are distinctly separate manufacturing processes. This ultimately limits productivity and throughput along with increased re-work if defects are only detected post-build. We are investigating novel in-process ultrasonic inspection directly at the point of joining and deposition. This allows detection of imperfections and flaws as they occur, reducing rework and removes redundant mid-stage inspections, delivering high-quality components right, first time.

You will form part of an amazing, diverse and inclusive team of talented people consisting of 8 academics, over 35 researchers/PhD Students and multiple technicians that provide specialist knowledge and technical expertise across a range of innovative technologies.

As a SEARCH R&D Engineer, you'll have a role that's out of the ordinary - Working alongside SEARCH colleagues you will ensure the latest cutting-edge novel innovations and impact are delivered to industry and society within the agreed budget, timescales and quality. Daily activities within the role will include one or more of the following depending on skills and experience:

- design and development of high-temperature, in-process phased array ultrasonic transducers, mechanical sensor rig and deployment devices
- programming of welding and inspection systems
- collecting inspection data from industrial components
- interpreting the inspection results.

You will be lead and be responsible for aspects related to the successful operation and industrial deployment of in-process Non Destructive Testing/Evaluation (NDT/E) systems, including setup, programming, data collection and safety and as such duties could involve both mechanical and electrical systems. You will be motivated by the aim of acquiring, interpreting and reporting scientific in-process inspection results to the supervision team, industrial stakeholders, and the overall project team. Scientific publication and dissemination of results will be required, through both academic journals and conferences.

To be considered for the role, you will have a good honours degree and PhD / higher degree (or equivalent professional experience) in appropriate discipline. (e.g. mechanical & electrical engineering, physics, automation); or have equivalent relevant experience in addition to a relevant Degree. You will have an ability to conduct individual research work, manage and supervise other researchers, disseminate results and be responsible for acquisition of funding (as PI/Co-I). You will have excellent written and verbal communication skills, with an ability to listen, engage and persuade and to present complex information in an accessible way to a range of audiences, and you will have the ability to work as part of a team, integrating with existing research team members and collaborating effectively with both academic and industrial partners.

The Senior R&D Engineer will be required to travel to partner sites for technical meetings and project demonstrations on a regular basis and, as such, applicants must be willing and able to travel. Applications from candidates with a valid UK driving licence are therefore desirable.

While the initial post is for an initial 24-month period, the project is part of a much larger body of work and as such it is anticipated that continued employment would continue past this initial phase.

* Whilst Senior R&D Engineers/Knowledge Exchange Fellows are sought for these positions, applications from candidates at R&D Engineer/Knowledge Exchange Associate level may also be considered. Dependent on the profile and experience of the candidate the appointment may be made at a lower level (KE07 salary scale £36,024 - £44,263) and duties will be adjusted to reflect the grade of the post.

Main Activities/Responsibilities: (Specific activities dependent on skills/experience)

1.	Develop new transducers for automated in-process inspection during welding and additive manufacturing
2.	Develop new automated deployment techniques for in-process inspection during welding and additive manufacturing
3.	Develop and code new automated ultrasonic signal processing approaches for in-process inspection during welding and additive manufacturing
4.	Interpret ultrasonic phased array data in complex in-process welding applications.
5.	Undertake systems engineering activities including sensor integration, robotic NDE deployment, instrumentation interfacing and Graphical User Interface (GUI) development
6.	Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration. Join external networks to share information and ideas, inform the development of research objectives and to identify potential sources of funding.
7.	Identify sources of funding and lead the development of proposals to attract funding and research students, as appropriate to the discipline.
8.	Plan and manage project, own and team workload.
9.	Contribute in a developing capacity to Department, Faculty and University administrative and management functions and committees.

Person Specification

Educational and/or Professional Qualifications
(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1	Honours Degree in appropriate discipline
E2	Master's degree (PhD preferred) in a relevant discipline or equivalent significant professional experience (e.g. physics, control engineering, automation, mechanical & electrical engineering).

D1	Membership of relevant Chartered/professional bodies (including Higher Education Academy).
Experience	
E3	Experience in Computer Aided Design (CAD) of inspection sensors & systems
E4	Experience in ultrasonic sensor design and deployment including simulation, scan planning, signal interpretation and defect classification
D2	Programming experience (LabView, C++)
D3	Experience in sensor deployment systems, including either industrial robots (ideally KUKA) or mechanical jigs/tracks.
E5	Experience of the integration of multiple complex measurement systems within industrial automation systems
D4	Experience in automated welding and additive manufacturing and systems
Job Related Skills and Achievements	
E6	Ability to deliver projects to industrial customers i.e. to specification and within set timescales
E7	Track record of safety considerations in industrial automation
E8	Developing ability to conduct individual research work, to disseminate results and to prepare research proposals.
D5	A fundamental understanding of ultrasound
D6	Excellent mechanical or electric engineering skills
Personal Attributes	
E9	Self-starting capability on complex projects
E10	Ability to work effectively within a team environment
E11	Excellent written and verbal communication skills, with an ability to listen, engage and persuade and to present complex information in an accessible way to a range of audiences.
E12	An ability to plan and organise own workload effectively
Other Relevant Factors	
E13	Willing and able to travel to partner sites for technical meetings and project demonstrations
D7	Valid UK driving licence

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (http://www.strath.ac.uk/hr/workforus).

Informal enquiries about the post can be directed to Prof. Charles MacLeod , Professor (charles.macleod@strath.ac.uk).

Conditions of Employment

Conditions of employment relating to the Research staff category can be found at: Conditions of Employment.

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found here.

Pre-employment health screening*

An offer of appointment will be subject to a medical assessment by Occupational Health. An individual who accepts an offer of employment must complete a confidential medical questionnaire and forward it to the Occupational Health Nurse within 5 days of receipt. If further information is required the individual may be contacted by the OHN or a Medical Advisor and a personal appointment with the individual may be arranged. An unconditional contract of employment will not be issued until

Human Resources receives confirmation that applicant is fit to undertake the duties of the post. *Required for appointment to Grade 8.

Probation

Where applicable, the successful applicant will be required to serve a 12 month probationary period. For Grade 7 appointments, the probationary period shall be 9 months.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from Payroll and Pensions.

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Interviews

Formal interviews for this post will be held on 11/05/2023.

Equality and Diversity

The University of Strathclyde is a socially progressive institution that strives to ensure equality of opportunity and celebrates the diversity of its student and staff community. Strathclyde is people-oriented and collaborative, offering a supportive and flexible working culture with a deep commitment to our equality, diversity and inclusion charters, initiatives, groups and networks.

We strongly encourage applications from Black, Asian and minority ethnicity, women, LGBT+, and disabled candidates and candidates from lower socio-economic groups and care-experienced backgrounds.

University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. Our Values have been derived from how we act and how we expect to be treated as part of Strathclyde.