Research Fellow – Robotic NDT

Department	Electronic and Electrical Engineering (www.strath.ac.uk/eee/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Research	Reference No	100007
Reports To	The Head of Department, through Professor Gareth Pierce	Grade:	8
Salary Range:	£39,992 - £49,149	Contract Type:	Fixed Term (Until January 2019)
FTE:	1 (35 hours/week)	Closing Date	Friday, 5 January 2018

Job Advert

The Centre for Ultrasonic Engineering (CUE), based in the Department of Electronic & Electrical Engineering (EEE) at the University of Strathclyde is seeking to recruit a Research Fellow to develop, manage and coordinate a multi-partner collaborative research project focused on autonomy in Non-Destructive Testing (NDT) inspection processes.

Daily activities within the role will include the programming of multiple industrial robots in an industrial environment, and collecting sensor data (including ultrasound surface geometry and vision) from a variety of test specimens using these robot systems and interpreting experimental results. You will be responsible for aspects related to the operation of robotic NDT cells, including programming, data collection and safety and as such duties can involve both mechanical and electrical systems. You will undertake extensive low-level programming and NDT instrument interfacing, motivated by the aim of acquiring, interpreting and reporting scientific NDT results to the supervision team, industrial stakeholders, and the overall project management team. Scientific publication and dissemination of results will be required, through both academic journals and conferences.

To be considered for the role, you will be educated to a minimum of PhD level in a relevant subject (e.g. physics, control engineering, automation, mechanical & electrical engineering)You will have demonstrable capability in industrial robotic programming and automation for precision instrumentation such as NDT and metrology applications. You will have experience in ultrasonic NDT techniques and the complexities of ultrasonic wave propagation in complex geometry materials. You will have programming skills in low level interfacing including C , C++, C# and Matlab. You will be an emerging independent researcher, developing your own research area and managing associated research programmes. You will have an ability to conduct individual research work, manage and supervise other researchers (staff and students), disseminate research results and to prepare and be responsible for acquisition of research 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 Research Fellow 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 and access to their own vehicle are therefore desirable. The position will entail working both at the Glasgow City Centre campus, and at the Advanced Forming Research Centre near Glasgow International Airport.

Job Description

Brief Outline of Job:

To programme multiple industrial robots in an industrial environment and collect ultrasonic NDT and surface metrology data from a variety of test specimens, interpreting experimental results; responsible for all aspects of the operation of the NDT cell, including programming, data collection and safety; responsible for troubleshooting both mechanical and electrical systems on a

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daily basis; undertaking extensive low-level programming and instrument interfacing; responsible for the interpretation of data and reporting scientific results to the supervision team, industrial stakeholders, and the overall project management team; scientific publication and dissemination of results through academic journals and conferences; to engage where required in relevant teaching, professional and knowledge exchange activities; and to input to administrative activities.

Main Activities/Responsibilities:

1.	Develop new techniques in robotics and NDT research, applying appropriate approaches to identify areas for research and develop new research methods and extend the research portfolio.
2.	Undertake research in 3D surface metrology.
3.	Interpret ultrasonic phased array data in complex materials.
4.	Software development (Matlab, LabView, C++).
5.	Undertake instrumentation interfacing and low-level programming.
6.	Engage as an independent researcher in individual and collaborative research, establishing a distinctive programme of research and disseminating results through regular publications in high impact journals, books and conference proceedings.
7.	Manage a research team (students and staff), providing direction, support and guidance.
8.	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.
9.	Identify sources of funding and lead the development of research proposals to attract funding and research students, as appropriate to the discipline. Apply, as Principal Investigator or Co-Investigator, to appropriate external bodies for research funding and manage grants awarded.
10	Participate in Departmental teaching and project supervision.
11.	Plan and manage project and own workload.
12.	Contribute in a developing capacity to Department/School, Faculty and/or University administrative and management functions and committees.
13.	Working on-site (city centre and AFRC) in an industrial environment at numerous site locations.
14.	Engage in continuous professional development.

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	A minimum of 2:1 Honours Degree in appropriate discipline
E2	PhD Degree in a relevant discipline or equivalent 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 industrial automation systems and robot programming (ideally KUKA) – preferably in an industrial environment
E4	Extensive Programming experience (Matlab, LabView, C++)
E5	Extensive Experience in non-destructive testing ultrasonic NDT – preferably in an industrial environment
E6	Experience of planning and organising workload, including the ability to supervise and delegate work.
D2	Experience of multi/inter-disciplinary research.
D3	Experience in surface geometry measurement and metrology
D4	Experience of the integration of multiple complex measurement systems

Job Related Skills and Achievements

E7   Ability to deliver projects to industrial customers i.e. to specification and within set timescales

E8   Track record of safety considerations in industrial automation

E9   Developing ability to lead and conduct individual research work, to disseminate results and to prepare and submit research proposals.

E10 A fundamental understanding of ultrasound

E11 Experience of managing and supervising staff and students

E12 A body of published research in high quality publications demonstrating standards of excellence.

D5   Knowledge of 3D systems, machine vision and metrology

D6   Excellent mechanical and electric engineering skills

Personal Attributes

E13 Self-starting capability on complex projects

E14 Ability to work effectively within a team environment

E15 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.

E16 An ability to plan and organise own workload effectively

E17 Research interests consistent with the strategic direction of the Department/School.

Other Relevant Factors

E18 Willing and able to travel to partner sites for technical meetings and project demonstrations

D7   Valid UK driving licence with access to own vehicle

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted before interview 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 Professor Gareth Pierce, (0141 548 2617, s.g.pierce@strath.ac.uk).

Conditions of Employment

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

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.

Probation

Where applicable, the successful applicant will be required to serve a 12 month probationary period.

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 in January 2018.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.