

Research Associate (Automated NDT)

Department	Advanced Forming Research Centre, Department of Design, Manufacture and Engineering Management (www.strath.ac.uk/dmem/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Research	Reference No	91035
Reports To	The Head of Department, through the AFRC Chief Operating Officer and Team Leader	Grade:	7
Salary Range:	£31604 - £38833	Contract Type:	Fixed Term (24 months)
FTE:	1 (35 hours/week)	Closing Date	Wednesday, 1 November 2017

Job Advert

The University of Strathclyde in Glasgow possesses a large internationally rated Engineering Faculty with a proud history of successful joint ventures with industrial and enterprise partners. As a part of the University's strategic development the Advanced Forming Research Centre (AFRC) has been established at Inchinnan near Glasgow's International Airport in partnership with multi-national companies such as Rolls-Royce and The Boeing Company. The AFRC is the embodiment of over £30 million collaborative investment by Industrial, Academic and Government partners to establish a world leading research facility for forging and forming technologies. Since 2011 it has been a part of the High Value Manufacturing Catapult.

The AFRC is seeking to recruit a Research Associate to participate in a directly funded industrial research project focused on automation of Non-Destructive Testing (NDT) inspection processes. 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); or have equivalent relevant experience in addition to a relevant Degree. You will have demonstrable capability in industrial robotic programming (KUKA) and automation, combined with precision instrumentation for NDT applications. You will have a fundamental understanding of the complexities of ultrasonic wave propagation in complex geometry materials and you will have excellent mechanical and electric engineering skills. You will have experience in low-level industrial robot control and industrial safety systems for robotics in addition to experience in non-destructive testing ultrasonic NDT. You will have a developing ability to conduct individual research work, to disseminate results and to prepare research proposals. 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 Associate will be required to travel to partner sites for technical meetings and project demonstrations on a monthly 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.

Job Description

Brief Outline of Job:

Under the guidance of an AFRC Team Leader, the Research Associate will lead an AFRC research project and the development and operation of the AFRC automated NDT cell, including knowledge exchange with AFRC partners and customers. In particular, the post holder will be expected to lead and contribute to manufacturing engineering research programmes with a specific focus on programming multiple industrial robots in an industrial environment and collect ultrasonic NDT 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 daily basis; undertaking extensive low-level programming and instrument interfacing; responsible for the interpretation of NDT data and reporting scientific results to the supervision team, industrial stakeholders, and the overall programme 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.	Use expert knowledge to develop new techniques in industrial robot programming based on fundamental knowledge of forward and inverse kinematics
2.	Interpret ultrasonic phased array data in complex materials
3.	Undertake instrumentation interfacing and low-level programming
4.	Identify relevant funding opportunities (commercial and CR&D) in the relevant technology area and develop consortia around funding opportunities. Contribution to proposal development.
5.	Responsible for the development, maintenance and adherence to quality systems within the workshop areas of the AFRC with support from the AFRC Quality Team.
6.	Responsible for developing relationships in support of automation and NDT, including AFRC member companies, to maintain positive working relationships and partnerships and the development of collaborative project opportunities.
7.	Plan and manage own workload, with guidance from the Team Lead or Programme Management as required.
8.	Write up reports, individually or in collaboration with colleagues, for external organisations, and further write up findings for additional dissemination (e.g. professional publications or peer review journal publication) as appropriate.
9.	Present complex information at external and internal events to communicate AFRC capability periodically.
10.	Responsible for developing links across the wider university community and external organisations, for the creation of collaborative project opportunities and development of subsequent funded work programmes.
11.	Build contacts internally and externally, and participate in networks for the exchange of information, form relationships with customers, suppliers and colleagues for future collaboration.
12.	Undertake research in novel approaches to robotic programming, continually updating knowledge in the field.
13.	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.
14.	Assisting in the training and development of staff and external clients in manufacturing engineering methods and processes.
15.	Contribute to collaborative decision making with colleagues on academic/engineering content in areas of research and knowledge exchange.
16.	Contributing to the overall AFRC growth by working as an integral part of the AFRC team effort, inputting to the research programme, capability development and departmental administrative activities, as necessary, to meet strategic objectives.
17.	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)

E.1 Good first degree (minimum class 2:1 in a relevant engineering discipline i.e. mechanical engineering, physics, electrical or manufacturing engineering, or equivalent industry experience.

E.2 PhD in relevant engineering discipline (e.g. physics, control engineering, automation, mechanical & electrical engineering), or equivalent relevant work experience.

D.1 Chartered Engineer/Scientist, member of professional body in an appropriate discipline.

Experience

E.3 Significant experience in industrial robot programming (KUKA), combined with precision instrumentation for NDT applications

E.4	Professional experience in low-level industrial robot control.
E.5	Significant professional experience in industrial safety systems for robotics
E.6	Knowledge and experience of non-destructive testing ultrasonic NDT applied in an industrial context.
E.7	Knowledge and experience of the integration of multiple complex measurement systems and associated metrology methods
D.2	Knowledge and experience of working with the High Value Manufacturing Catapult
D.3	Experience of delivering commercial projects using automation and/or NDT and/or Metrology
Job Related Skills and Achievements	
E.8	Evidence of contribution to the successful planning and delivery of projects within an academic or industrial environment.
E.9	An ability to plan and organise own workload effectively with general supervision from senior colleagues.
E.10	Experience of knowledge exchange related activities, an ability to disseminate results and to contribute to research and commercial proposals.
E.11	Track record of safety considerations in industrial automation
E.12	A fundamental understanding of the complexities of ultrasonic wave propagation in complex geometry materials
E.13	Developing ability to conduct individual research work, to disseminate results and to prepare research proposals.
Personal Attributes	
E.14	Excellent verbal and written communication skills, with an ability to interact with a range of stakeholders in both industry and academia.
E.15	An ability to work independently and as part of a team, through participation in collaborative projects, and developing evidence of leadership.
Other Relevant Factors	
D.4	Evidence of the ability to work in a team and to listen, engage, persuade, and present complex information in an accessible way to a range of audiences
D.5	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 permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter as a single document 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 Danny McMahon, Metrology and Digital Manufacturing Team Lead (Daniel.mcmahon@strath.ac.uk, 0141 534 5575).

Conditions of Employment

Conditions of employment relating to the Research staff category can be found at: [Conditions of Employment](#)

Probation

Where applicable, the successful applicant will be required to serve a 9 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 early November 2017.

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.

