

Research and Development Engineer

Department	National Manufacturing Institute Scotland (NMIS) (https://www.nmis.scot/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	455967
Reports To	Theme Lead	Grade:	7
Salary Range:	£33,309 - £40,927	Contract Type:	Open Contract
FTE:	1	Closing Date	Wednesday, 10 August 2022

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 part of the University's strategic development the National Manufacturing Institute Scotland has been established.

The National Manufacturing Institute Scotland (NMIS) is a bold and ambitious industry-centred project to create an international centre of advanced manufacturing expertise and excellence where industry, academia and public-sector support agencies work together to transform skills, productivity and innovation, making Scotland and the UK a global leader in advanced manufacturing.

NMIS is delivered in partnership through Scottish Enterprise. NMIS is a truly collaborative project, with partners including the Scottish government, Scottish Enterprise, Highlands and Islands Enterprise, Skills Development Scotland, the Scottish Funding Council, Renfrewshire Council and the UK government through the High Value Manufacturing Catapult. The University of Strathclyde is the host University for NMIS, which will link to the wider academic communities in Scotland through the Scottish Research Partnership in Engineering and across the UK High Value Manufacturing Catapult network.

NMIS will encompass a dedicated facility that will house the Manufacturing Skills Academy (MSA), Digital Factory and the Innovation Collaboratory. Along with this dedicated new facility, existing and developing research centres will also be part of the broader NMIS Group including the Advanced Forming Research Centre (AFRC) and the Lightweight Manufacturing Centre (LMC).

For more information, visit the National Manufacturing Institute Scotland (NMIS) Website:
<https://www.strath.ac.uk/workwithus/nationalmanufacturinginstitutescotland/> or email NMIS-recruitment@strath.ac.uk

Within the Digital Factory, the Digital and Metrology Team is seeking to appoint a Research and Development Engineer to support industrial research programmes within the Metrology Technical Theme. The candidate will play a key role in sustaining and developing metrology research themes and will work across a range of projects, supporting internal projects, SMEs and OEMs. Working at the cutting edge of dimensional measurement technology, the post holder will work with colleagues in NMIS, industrial partners and metrology equipment manufacturers to establish and support industrially relevant research projects.

To be considered for the role, you will be educated to PhD level in an appropriate discipline (i.e. dimensional metrology, NDT, mechanical engineering) or have significant relevant industrial experience in addition to a Degree. You will have a track record of providing tailored measurement solutions in academic and/or industrial settings which have solved existing measurement problems (e.g. bottlenecks, poor accuracy, accessibility, etc.) and ensured that measurement data has been reliable. You will

have significant knowledge and experience in capturing, handling, manipulating and analysing 3D data sets of different types (point clouds, meshes, CAD) and you will have working knowledge and experience in at least two of the following areas:

- Marker-based and markerless photogrammetry
- Dynamic optical tracking (DIC, multi-camera photogrammetric methods, etc.)
- Reverse engineering
- Drone-based sensor delivery and measurement
- Optical surface geometry reconstruction methods (e.g. structured light, laser line scanner)
- Civil infrastructure laser scanning and BIM modelling
- Coordinate measurement machine programming

You will have the ability to plan and organise your own workload, possess excellent problem-solving abilities and have the ability to work as part of a team. You will have excellent written and verbal communication skills, with an ability to interact with, inform and persuade a variety of stakeholders and to present complex information and data in an accessible manner to a range of audiences.

Whilst not essential for the role, applications are welcomed from candidates who have practical working knowledge of at least one of the following: GOM software and hardware, Hexagon software and hardware, Polyworks, Spatial Analyzer or CAD software (preferably Solidworks).

Job Description

Brief Outline of Job:

Under the guidance of the Metrology Theme Lead, to support and lead programmes of research within NMIS and to support the delivery of measurement services to a range of customers. To collaborate with other teams, themes and research centres to ensure that knowledge exchange advances the research themes of NMIS. To support and lead the development of NMIS metrology capability, with a focus on a number of research themes. This will involve developing personal technical expertise, equipment capability, executing internal research projects and delivering directly and CR&D funded projects.

Main Activities/Responsibilities:

1.	Use expert knowledge to conduct measurement tasks on specialised metrology equipment and provide expert knowledge and advice to external partners and customers.
2.	Conduct industrial collaborative engineering research, including determining appropriate research methods and contributing to the development of new measurement methods.
3.	Liaise with equipment suppliers and NMIS member companies to maintain positive working relationships and partnerships and develop collaborative project opportunities.
4.	Identify sources of funding and contribute to the securing of funds for research and development activities, including drafting grant proposals and planning for future proposals.
5.	Build contacts internally and externally, and participate in networks for the exchange of information, form relationships with customers, suppliers and colleagues for future collaboration.
6.	Plan and manage own workload, with guidance from the Theme Lead or Project Lead as required.
7.	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.
8.	Respond to industrial enquiries for assistance in support of challenges and preparation of statements of work, quotations and funding applications.
9.	Present complex information at external and internal events to a range of audiences to communicate NMIS capability and project results.
10.	Identify areas of research or capability gaps within metrology and draft proposals to fill this gap including identifying potential sources of funding.
11.	Assist in the training and development of staff and external clients in manufacturing engineering methods and processes.
12.	Contribute to collaborative decision making with colleagues on academic/engineering content in areas of research and knowledge exchange.

13.	Lead on collaborative decision making with colleagues on academic/engineering content in areas of research.
14.	Contribute to the overall NMIS growth by working as an integral part of the NMIS team effort, inputting to the research programme and capability development, as necessary, to meet strategic objectives.
15.	Take responsibility for a number of research themes, sustaining capability, leading development and becoming the point of contact and expert in those areas.
16.	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 PhD in a relevant engineering discipline or equivalent industrial experience in addition to a relevant Degree.

D1 Chartered Engineer/Scientist, Member of professional body in an appropriate discipline.

Experience

E2 Knowledge and experience of dimensional metrology processes (e.g. CMM, Optical scanning, first principles, laser tracker, photogrammetry, etc.).

E3 Significant professional experience of carrying out measurement activity within a manufacturing engineering context either within an academic or industrial enterprise.

E4 Significant knowledge, understanding and experience of 3D data acquisition, manipulation and analysis.

E5 Experience and track record in defining and implementing measurement strategies for complex geometries.

E6 Significant professional experience of problem solving and addressing metrology challenges within an academic or industrial enterprise.

E7 Experience in leading and taking technical ownership of specific areas to research independently or as part of a team.

E8 Knowledge and experience of calibration procedures and measurement traceability.

D2 Knowledge of analytical and/or experimental validation and verification techniques and approaches, for example GR&R.

D3 Experience in advanced sensor delivery methods (e.g. drones)

Job Related Skills and Achievements

E9 Evidence of contribution to the successful planning and delivery of projects within an academic or industrial environment.

E10 Ability to plan and organise own workload effectively with general supervision from senior colleagues.

E11 Experience of multi/inter-disciplinary knowledge exchange and research

E12 Experience contributing to research proposals and grant funding

Personal Attributes

E13 Excellent written and verbal communication skills, with an ability to interact with a range of stakeholders in both industry and academia.

E14 Ability to influence stakeholders, internally and externally, at varying levels and ability to convey compelling arguments with complex technical information.

E15 An ability to work independently and as part of a team, through participation in collaborative projects, and developing evidence of leadership.

D4 Experience of disseminating results and contributing to research and commercial proposals

Other Relevant Factors

D5 The ability to lead a project team and to listen, engage, persuade, and present complex information in an accessible way to a range of audiences.

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 William Kerr, Metrology Theme Lead (William.kerr@strath.ac.uk/01415345562).

Conditions of Employment

Conditions of employment relating to Knowledge Exchange Staff can be found here: [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](#).

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 are anticipated to be held on the week commencing 22 August 2022.

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.

