



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in the Design of a Miniature Pipe Inspection Robot for the Nuclear Industry, Faculty of Engineering & Physical Sciences



Salary: Grade 7 (£33,797 – £40,322 p.a.)

Reference: EPSME1004

Closing date: 20 October 2019

Fixed-term for 1 year, available from 1 January 2020

We will consider flexible working arrangements

Research Fellow in the Design of a Miniature Pipe Inspection Robot for the Nuclear Industry

School of Mechanical Engineering

Are you an enthusiastic and experienced researcher in applied robotic systems? Are you looking for a new and exciting challenge as part of a world class robotics team? Do you want to design and create robotic systems that will change our lives?

In this role, you will develop miniature pipe inspection robots to inspect small diameter pipe networks in the Nuclear Industry. The nuclear industry has some of the most extreme environments in the world, with radiation levels and harsh conditions limiting human access to many facilities. To date, robotic systems have had very little impact on the industry, even though it is clear that they offer major opportunities for improving productivity and significantly reducing risks to human health.

This role is part of the multi-million pound, ISCF funded project: Robotics and Artificial Intelligence in the Nuclear Industry (RAIN Hub), led by the University of Manchester. The RAIN initiative has been created to address these issues by developing the advanced robotics and artificial intelligence that will be essential for future nuclear operations.

You will join a world-class robotics team at the University of Leeds and will work in partnership with the wider RAIN network to develop a robotic solution to the specific challenge of internal inspection of small diameter (2 inch) pipes.

Our research is enabled by the EPSRC National facility of Innovative robotic systems, which contains some of the most advanced manufacturing machines in the world. You will join buoyant active research environment of >10 post doctoral researchers, alongside many PhD students and Academics working on a variety of exploration robotics projects.



What does the role entail?

As a Research Fellow your main duties will include:

- Using initiative, creativity and judgement in applying appropriate approaches to the research project, including the application of advanced design, manufacturing, assembly and testing;
- Providing significant intellectual input into the development of the research objectives, preparing papers for publication in leading international journals, and presenting findings at international conferences and workshops;
- Working with the project's academic supervisors and the EPSRC National Facility for Innovative Robotic Systems to realise sophisticated practical demonstrators and field trials of robotics;
- Ensure good day-to-day progress towards project deliverables, ensuring that project objectives are met and that technical reports are completed on time to the satisfaction of the principal investigator, project leader and sponsor;
- Maintain good records and laboratory notebooks and back up research data according to University and sponsor requirements;
- Contribute to joint discussions with the wider RAIN network and attending workshops with collaborators at other academic institutions;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or an expectation that a PhD will be awarded soon) and Bachelors or Masters in Robotics, Electronic and Electrical Engineering, Mechatronics, Mechanical Engineering or a related discipline;
- Strong experience in the design, construction and testing of integrated robotic systems (including mechanical, electronic and control systems);
- Experience with robotics and related manufacturing techniques, such as 3D printing;
- High level of interpersonal and communication skills, including written and presentational, and the ability to work as a member of a team;
- An enthusiastic approach to research in robotics and autonomous systems;
- Demonstrated ability to work independently, showing initiative and creativity;
- A track record of publishing research results in high quality conferences and/or journals;
- Good time management skills, with the proven ability to meet deadlines.

You may also have:

- Ability to use embedded systems software and hardware platforms;
- Experience of developing robotic systems with size constraints;
- Ability to use advanced embedded systems software and hardware platforms such as microcontrollers and FPGAs;
- Experience of using computer vision techniques;
- Proven experience of the ability to interact with PhD students, Masters students and undergraduates in ways that will enhance the student experience in the School;
- Experience of ROS operating system.

How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23.59** (UK time) on the advertised [closing date](#).



Contact information

To explore the post further or for any queries you may have, please contact:

[Dr Jordan Boyle](#), School of Mechanical Engineering

Tel: +44 (0)113 343 2140

Email: J.H.Boyle@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [School of Mechanical Engineering](#).

A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN [Bronze](#) or [Silver](#) Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

Working at Leeds

Find out more about the benefits of working at the University and what it's like to live and work in the Leeds area on our [Working at Leeds](#) information page.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

