



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

**Research Fellow in Communications for Pipeline Inspection Robots,
Faculty of Engineering**



Salary: Grade 7 (£33,199 – £39,609 p.a.)

Reference: ENGEE1093

Closing date: 21 July 2019

Fixed-term for 30 months

We will consider flexible working arrangements

Research Fellow in Communications for Pipeline Inspection Robots

School of Electronic and Electrical Engineering

Are you an enthusiastic and experienced researcher in communications 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?

As part of a £7.2M project to build swarms of small inspection robots to live within pipes, you will model, design, fabricate and test communications and sensor systems for small robots (centimetre scale) used for inspection tasks inside active pipes.

You will join a world class team at the University of Leeds developing a broad range of inspection robots including drones, mobile inspection robots, and some of the most advanced legged robots in the world. The Leeds team is responsible for many innovations including exploring the [Great Pyramid of Giza](#) with robots in 2011 and repairing roads with drones.

Our research is supported by the [EPSRC National Facility](#) for Innovative Robotic Systems, which contains some of the most advanced manufacturing equipment in the world. You will join a buoyant active research environment alongside six researchers and technicians dedicated to this project alone. Across the broader domain of infrastructure inspection, the University of Leeds leads the EPSRC Grand Challenge in robotic infrastructure inspection and repair – with another 6 academic researchers. [Robotics at Leeds](#) has over 100 active members with research in the areas of Field Robotics, Medical Robotics, AI for robotics and Underpinning Science and Technology.

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 modelling, design, prototyping, assembly and testing;
- Providing significant intellectual input into the development of the research



objectives of the collaborative project, preparing papers for publication in leading international journals, and presenting findings at consortium meetings, international conferences and workshops;

- Working with the project collaborators and the EPSRC National Facility for Innovative Robotic Systems to realise sophisticated practical demonstrators and field trials of robotic communications and sensing systems;
- 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 research group, including collaborators in Sheffield, Birmingham and Bristol, making new contacts for future collaboration where appropriate.

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 close to completion) and Bachelors or Masters in Electronic and Electrical Engineering, Communications Engineering, Computer Science or a related discipline;
- Strong experience in the modelling, design, assembly and test of advanced communications systems;
- Experience with Matlab and programming embedded systems (using C/C++ or HDL);
- A 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 communications for robotics and autonomous systems;
- Proven ability to work independently, showing initiative and creativity;
- A track record of publishing research results in high quality conferences and journals, as lead author;
- Good time management skills, with the proven ability to meet deadlines.



You may also have:

- Experience of commercial software and hardware platforms such as wireless communications development kits;
- Experience in probabilistic models and stochastic processes, spatial point processes, estimation and detection theories;
- Ability to use advanced embedded systems software and hardware platforms such as microcontrollers and FPGAs;
- Experience of link budgets and the propagation of wireless signals in complex environments;
- Experience of Python (including packages such as Numpy, TensorFlow, Keras etc.);
- 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;
- Proven ability and commitment to interact with students and colleagues in ways that student experience and the research environment in the School;
- Experience of 3D printing and robotics.

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:

[Professor Ian Robertson](#), School of Electronic and Electrical Engineering

Tel: +44 (0) 113 343 7076

Email: i.d.robertson@leeds.ac.uk



Additional information

Faculty and School Information

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

A diverse workforce

The Faculty of Engineering is proud to have been awarded the [Athena Swan 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. We encourage applications from women and underrepresented groups. For more information, please contact [Professor Netta Cohen](#) n.cohen@leeds.ac.uk (Athena Swan Champion for the School of Computing).

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.

