



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Surgical Robotics,
Faculty of Engineering & Physical Sciences



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

Reference: EPSEE1045

Closing date: Friday 16 July 2021

Fixed-term for 2 years

We will consider job share and flexible working arrangements

Research Fellow in Surgical Robotics, School of Electronic and Electrical Engineering.

Do you want to make a difference in patients' quality of life by creating innovative robots that are able to treat incurable diseases? Are you excited about contributing to scientific research in surgical robotics? Are you able to think outside the box to find innovative solutions to life-threatening diseases? Do you want to join a world-leading team of roboticists, manufacturing engineers, and clinicians?

We are looking for a proactive individual to join our Science and Technology Of Robotics in Medicine ([STORM](#)) Lab, bringing their excitement for scientific research in surgical robotics with them.

At the STORM Lab, we strive to improve the quality of life for people undergoing soft-tissue surgery and flexible endoscopy by creating miniature and non-invasive robots. This includes the creation and investigation of miniature capsule-like or tentacle robots to work inside the human body. At the STORM Lab, we are designing and creating soft and compliant robotic devices that can be used within the human body to detect and cure diseases in a non-invasive way.

This vacancy is created by a major EPSRC grant awarded to the University of Leeds, which aims to define a new generation of surgical tentacle-like robots that can be magnetically guided within the human body by magnetic fields. The candidate will work on the EPSRC granted project EP/V009818/1 "New minimally invasive technologies for the treatment of pancreatic cancer" aiming at exploring innovative processes to manufacture patient-specific intelligent magnetic tentacles, modelling their behaviour under an external controllable magnetic field and filed gradient, and testing them in realistic anatomical models.

The fabrication and manufacturing elements will be conducted in collaboration with Professor Russell Harris of the [Future Manufacturing Processes Research Group](#) at the University of Leeds.

Holding a PhD (or close to completion) in Mechanical Engineering, Biomedical Engineering, Computer Science, Electronic Engineering, Robotics or related disciplines, you will have a proven track-record in medical device design and/or robotic systems, together with a proactive, enthusiastic approach to research.



What does the role entail?

As a Research Fellow, your main duties will include:

- Design, fabrication and lab-based evaluation of small-scale medical robots for endoscopy and surgery;
- Development and application of soft manipulators to deliver therapy through winding and convoluted pathways;
- Pre-clinical assessment of developed systems in animal and/or cadaveric models in collaboration with our clinical partners;
- Analysing and summarising research results into high-quality peer-reviewed scientific publications (main target AAAS Science Robotics);
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- Travelling for research meetings with our collaborators and for presenting research results at conferences worldwide;
- Participating in outreach activities to engage the broader community into science and engineering.
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Co-supervising students in the field of surgical robotics and mechatronics.

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) in one of the following disciplines: Mechanical Engineering, Biomedical Engineering, Computer Science, Electronic Engineering, Robotics or related disciplines;



- Experience and a proven track-record of peer-reviewed publications in high impact journals in magnetic robots;
- Considerable experience in interdisciplinary research and integrated development projects;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience of collaborating with clinicians;
- Experience of magnetic control and magnetic manipulation;
- Experience in Robot Operating System (ROS) and its Gazebo simulation package;
- Experience in object-oriented programming language (e.g. embedded C, Matlab, Python, C++, Java, or Labview);
- Experience in Computer Aided Design software (e.g., SolidWorks), Computer Aided Manufacturing (3D printing, laser cutting, CNC milling, etc.);
- Experience of pre-clinical trials in animal or cadaver models.

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:

[Pietro Valdastri](#), PhD, Professor of Robotics and Autonomous Systems

Tel: +44 (0)113 343 3706

Email: P.Valdastri@leeds.ac.uk



Additional information

Faculty and School Information

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

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.

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.

