



UNIVERSITY OF LEEDS

## CANDIDATE BRIEF

Research Fellow in Magnetic Surgical Robots,  
Faculty of Engineering & Physical Sciences



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

**Reference: EPSEE1041**

**Closing date: Saturday 31 July 2021**

**Fixed-term for 2 years**

**We will consider job share and flexible working arrangements**

## Research Fellow in Magnetic Surgical Robots, 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 guided within the human body by magnetic fields to diagnose and treat cancer at an early stage thanks to advanced imaging capabilities. The candidate will join a multi-disciplinary research team 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 Research Fellow in Magnetic Surgical Robots, 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;
- Analyse and summarize research results into high-quality peer-reviewed scientific publications (main target AAAS Science Robotics);
- Co-supervise students in the field of surgical robotics and mechatronics;
- Travel 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.

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 Research Fellow in Magnetic Surgical Robots, 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 in magnetic robots;
- Experience and a proven track-record in at least one of the following areas with peer-reviewed publications in high-impact-factor journals: soft robots, continuum robots, continuum manipulators, capsule robots, surgical instrumentation, robotic manipulators;
- Experience in flexibility and multitasking through work on multiple stages of system development;
- Considerable experience in interdisciplinary research and integrated development projects;



- Experience in supervising students and research interns, with mentoring, leadership and project management skills;
- Experience in presenting the research at international conferences and ability to collaborate with partners at other institutions;
- Demonstrates an understanding of the diverse nature of the University's community and a willingness to work effectively with staff, students and visitors from a wide range of backgrounds;
- 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 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 collaborating with clinicians;
- 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. 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 Pietro Valdastri](#), PhD, Chair in Robotics and Autonomous Systems**

Tel: +44 (0)113 343 3706

Email: [P.Valdastri@leeds.ac.uk](mailto: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](mailto: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.

