



**UNIVERSITY OF LINCOLN  
JOB DESCRIPTION**

<b>JOB TITLE</b>	Post-Doctoral Research Associate in Robotic Perception				
<b>DEPARTMENT</b>	School of Computer Science				
<b>LOCATION</b>	Lincoln Campuses				
<b>JOB NUMBER</b>	CHS011	<b>GRADE</b>	7	<b>DATE</b>	March 2024
<b>REPORTS TO</b>	Senior Lecturer in Robotics and Autonomous Systems				

**CONTEXT**

The Post-Doctoral Research Associate in Robotic Perception will work on semantic mapping for agricultural environments on collaborative projects between the University of Lincoln, industry partners and additional research organisations.

The Post-Doctoral Research Associate will contribute towards shaping the collective research portfolio, which includes contributing to the acquisition of external funding, helping to supervise PhD students, publishing in the highest quality journals and conferences, contributing to real-world applications with positive impacts on the wider society and economy, and conducting research in line with the targets set by Lincoln Centre for Autonomous Systems (L-CAS) and the University of Lincoln.

In addition, the Post-Doctoral Research Associate may have opportunities to contribute to teaching activities on the MSc Robotics & Autonomous Systems or professional development programmes, and in public engagement activities, such as demonstrations for university open days and industry visitors.

**JOB PURPOSE**

The Post-Doctoral Research Associate is responsible for conducting research on the project, as directed by the Principal Investigator, and is expected to operate with a significant degree of autonomy. They are not expected to operate as an independent researcher.

The post holder may be required to help supervise the work of more junior researchers.

The Post-Doctoral Research Assistant will develop their research focussing on aspects of applied and theoretical robotics research, related to the conception, design, and development of novel multi-robot mapping systems for safe and improved mobility in agricultural domains. They will focus their research in the domains of: mobile navigation, semantic mapping, multi-robot systems and artificial intelligence. The Post-Doctoral Research Associate is expected to work both in simulation and with actual robots, and they will have the opportunity to be exposed to the lab environment and to field deployment of the robot.

The Post-Doctoral Research Associate will contribute towards publishing in the highest quality journals and conferences, contributing to real-world applications with positive impacts on the wider society and economy, and conducting, directing and supervising research in line with the targets set by L-CAS and the University.

## **KEY RESPONSIBILITIES**

### **Literature Surveys**

Undertake literature surveys and other investigations of the state-of-the-art, and prepare reports as required.

### **Programme of Research**

Undertake a programme of research under the direction of the Principal Investigator, demonstrating a significant level of autonomy.

Lead in the production of high-quality research outputs, including reports, papers and other publications of national/international standing.

### **Project Management**

Perform project management activities, planning, scheduling, monitoring and reporting on progress of research projects.

### **Liaison and Networking**

Identify and liaise with internal and external collaborators, and with colleagues in the Department, maintaining positive and effective working relationships.

### **Internal Research Activities**

Participate in and help to organise internal research activities, including seminars, research meetings and conferences.

### **Continuous Professional Development**

Undertake continuous professional development activities.

### **Grant Applications**

Contribute to the production of grant applications.

### **Teaching Support**

Engage in teaching support activities, up to a maximum of six hours per week, possibly including leading a small number of units (no more than two per annum).

Aid in the supervision of postgraduate research students.

**In addition to the above, undertake such duties as may reasonably be requested and that are commensurate with the nature and grade of the post.**

## ADDITIONAL INFORMATION

### Scope and dimensions of the role

This is primarily a research-focussed role, with clear objectives in terms of project deliveries.

### Key working relationships/networks

Internal	External
<ul style="list-style-type: none"><li>• Principal Investigator</li><li>• Head of Research Centre (Director of L-CAS)</li><li>• Head of School</li><li>• Other research and academic staff within the school</li><li>• Administrative and technical staff within the School</li></ul>	<ul style="list-style-type: none"><li>• Research collaborators, relevant academic and professional groups</li><li>• Sponsors and clients, relevant national, regional and international networks in the robotic industry.</li></ul>



**UNIVERSITY OF LINCOLN  
PERSON SPECIFICATION**

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<b>Selection Criteria</b>	<b>Essential (E) or Desirable (D)</b>	<b>Where Evidenced Application (A) Interview (I) Presentation (P) References (R)</b>
<b>Qualifications:</b>		
PhD or equivalent in relevant subject (good candidates may be accepted with a PhD pending, subject to publication record)	<b>E</b>	<b>A</b>
Extensive knowledge specific to robotics, perception, programming	<b>E</b>	<b>A/I</b>
<b>Experience:</b>		
Extensive experience of relevant research methods	<b>E</b>	<b>A/I</b>
Authorship of research outputs of national/international standing	<b>E</b>	<b>A/I</b>
Experience of research in specific project area	<b>E</b>	<b>A/I</b>
Teaching support	<b>D</b>	<b>A/I</b>
<b>Skills and Knowledge:</b>		
Ability to design, conduct and project manage original research in the subject area	<b>E</b>	<b>A/I</b>
Excellent written communication, including the ability to write reports and research outputs	<b>E</b>	<b>A/I</b>
Ability to prioritise own workload and work to specified deadlines under pressure	<b>E</b>	<b>A/I</b>
Ability to communicate complex subjects orally and through presentations	<b>E</b>	<b>A/I</b>
Skills specific to project/area	<b>E</b>	<b>A/I</b>
Advanced skills in at least one language commonly used for robotics research (e.g. C++/Python)	<b>E</b>	<b>A/I</b>
Knowledge of related software packages	<b>E</b>	<b>A/I</b>
Experience in computer vision, namely object detection and/or instance segmentation	<b>E</b>	<b>A/I</b>
Experience with deep-learning frameworks (e.g., PyTorch, Tensorflow, Keras)	<b>E</b>	<b>A/I</b>
Experience with system integration, under hardware or software point of view	<b>D</b>	<b>A/I</b>
Experience with Robotic Operating System (ROS)	<b>D</b>	<b>A/I</b>
Experience with physics-based simulation environments (e.g., Gazebo, Webots, Nvidia Isaac)	<b>D</b>	<b>A/I</b>
<b>Competencies and Personal Attributes:</b>		
Flexible approach to workload	<b>E</b>	<b>I</b>
Ability to work on own and as part of a team	<b>E</b>	<b>I</b>

Enthusiasm and commitment	<b>E</b>	<b>I</b>
Good interpersonal skills	<b>E</b>	<b>I</b>
Strong attention to detail	<b>E</b>	<b>I</b>
<b>Business Requirements:</b>		
Drone license	<b>D</b>	<b>A/I</b>

**Essential Requirements** are those, without which, a candidate would not be able to do the job. **Desirable Requirements** are those which would be useful for the post holder to possess and will be considered when more than one applicant meets the essential requirements.

<b>Author</b>	RP	<b>PBP</b>	AH
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