



**UNIVERSITY OF LINCOLN
JOB DESCRIPTION**

JOB TITLE	Post Doctoral Research Associate (PDRA)				
DEPARTMENT	School of Engineering				
LOCATION	Brayford Pool				
JOB NUMBER	COS818	GRADE	7	DATE	March 2021
REPORTS TO	Global Chair in Robotic Engineering				

CONTEXT

The University of Lincoln is seeking to appoint one Postdoctoral Research Associate to join the Lincoln Centre for Autonomous Systems (L-CAS). The project comes under the framework of 'Cross-Sector Autonomous Mobile Robots for Terrestrial Mining and Agri-Robotics'. The autonomous robot developed, in partnership with GMV NSL and Sundance Ltd, will be used for:

1. Surveying roof conditions in newly-blasted areas;
2. Monitoring material flow in orepasses and extraction points, mainly mapping 'hangups' that can block orepasses. Mapping hangups from below is extremely dangerous for people;
3. Accurately mapping areas in 3D for reconciliation and design verification.
4. Enhancing safety and financial benefits without affecting the production cycle (operating in the shift change periods) and is therefore attractive for industrial roll-out.
5. Cross-sector adaptation, enhancement and validation of the autonomous systems solutions developed for mining application to agri-robotic application.

JOB PURPOSE

The PDRA is expected to develop an innovative 3D volumetric mapping instrument and software for an autonomous mobile robot to carry out its operations. The PDRA will be required to undertake extensive field testing in partnership with industrial partners. Therefore, prior hands-on experience with real robots is essential. The successful candidate is expected to work well within the project team, engage well with the external industry partners and contribute to the broader activities in L-CAS.

This post offers an excellent opportunity for career development and progression. The roles also provide an opportunity to collaborate with multiple industry partners and work in a vibrant research environment. Early Career Researchers will get excellent support to produce and disseminate original research contributions at the leading international conferences and journals.

The PDRA is responsible for conducting research, as directed by the Principal Investigator, and s/he is expected to operate with a significant degree of autonomy. The post holder may be required to help supervise the work of more junior researchers.

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 Principal Investigator's direction, demonstrating a significant level of autonomy. Lead in producing 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 the progress of research projects.
Liaison and Networking
Identify and liaise with internal and external collaborators and 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
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

The candidates must have completed (or be close to completing) a PhD in Computer Science, Robotics, Mechatronics or similar fields. In exceptional cases, we will consider applications from candidates who do not have a PhD but has a minimum of 3 years of relevant industry experience needed for this project.

Expertise in mobile robotics covering autonomy, machine learning, image processing and SLAM is required. The jobs require extensive programming skills in ROS/Python and hands-on experience in system integration (hardware and software) and field testing. Evidence of authorship of research outputs of international standing is essential, as is the ability to work collaboratively as part of a team, including excellent written and oral communication skills.

Key working relationships/networks

Internal	External
<ul style="list-style-type: none">• Principal Investigator• Head of Research Centre• Head of School• Other research and academic staff within the school	<ul style="list-style-type: none">• Research collaborators• Sponsors and clients



**UNIVERSITY OF LINCOLN
PERSON SPECIFICATION**

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Selection Criteria	Essential (E) or Desirable (D)	Where Evidenced Application (A) Interview (I) Presentation (P) References (R)
Qualifications:		
PhD or equivalent (good candidates may be accepted with a PhD pending, subject to publication record)	E	A
Extensive knowledge specific to project/area	E	A/I
Experience:		
Extensive knowledge of autonomous mobile robotics	E	A/I
Experience in AI and autonomy software	E	A/I
Experience in image processing and Machine Learning	E	A/I
Experience in Python/ROS/Java programming	E	A/I
Experience in hardware (instrument, robot) design, prototyping, system integration and field testing	E	A/I
Authorship of research outputs of national/international standing	E	A/I
Experience in the Mining sector, Agri-Food industry or other extreme environments	D	A/I
Teaching support	D	A/I
Skills and Knowledge:		
Ability to design, conduct and manage original research in the subject area	E	A/I
Excellent written communication, including the ability to write technical reports and research outputs	E	A/I
Ability to prioritise own workload and work to specified deadlines under pressure	E	A/I
Ability to communicate complex subjects orally	E	A/I
Skills specific to project/area	E	A/I
Competencies and Personal Attributes:		
Flexible approach to workload	E	I
Ability to work on own and as part of a team	E	I
Enthusiasm and commitment	E	I

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.

Author	MS	HRBA	SL
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