



UNIVERSITY OF
LINCOLN

UNIVERSITY OF LINCOLN JOB DESCRIPTION

JOB TITLE	Postdoctoral Research Fellow in Robotic Navigation, Scheduling, and System Sciences in Agri-Food Technology				
DEPARTMENT	School of Computer Science / Lincoln Institute of Agri-food Technology				
LOCATION	Brayford				
JOB NUMBER	COS403-4 & COS431-2	GRADE	7	DATE	July 2017
REPORTS TO	Principal Investigators				

CONTEXT

The positions are funded by the internal "RAS-Berry" and the InnovateUK "Autonomous robots to support Fruit Pickers" projects which will develop autonomous fleets of robots for in-field transportation to aid and complement human fruit pickers. In particular, the project will consider strawberry production in polytunnels. A solution for autonomous in-field transportation will significantly decrease strawberry production costs and be the first step towards fully autonomous robotic systems for berry production. The project will develop a dedicated mobile platform together with software components for fleet management, long-term operation and safe human robot collaboration in strawberry production facilities.

The project is a collaboration between the Norwegian University of Life Sciences (NMBU) and University of Lincoln. Resources of both projects are to be pooled and a team of more than 10 researchers will investigate new, innovative ways of robot fleet collaboration and scheduling, human-robot interaction, robotic navigation, and in-field communication. The successful candidates will have access to state-of-the art research farms that will be equipped with production facilities with industrial standard. The project also has access to a wide variety of agricultural robots with advanced sensors and tools. This equipment is already installed on the research farms. There is a strong focus on developing solutions that are robust in realistic scenarios, and extensive field testing is therefore required.

The posts are affiliated with the Lincoln Centre for Autonomous Systems (L-CAS) and the Lincoln Institute for Agrifood-Technology. Successful candidates will join the internationally renowned L-CAS team with its recognised expertise in long-term autonomy, human-centered robotics, bio-inspired computing, and learning for autonomous systems.

JOB PURPOSE

The Research Fellow is responsible for conducting research on the project, as directed by the Principal Investigators, and 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 and be involved in supervision of PhD and MSc students.

KEY RESPONSIBILITIES

Literature Surveys
Undertake literature surveys and state-of-the-art investigations, and prepare reports as required.
Programme of Research
Design and undertake 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

The postholder will be expected to design, conduct and manage original research around the project, which encompasses underpinning research topics including (but not limited to):

- Long-term autonomy for mobile robots;
- Robotic (outdoor) mapping and self-localisation;
- Mobile robot navigation;
- Remote management and operations of autonomous systems;
- Shared autonomy and distributed systems;
- Scheduling and planning for robotic fleets;
- Human-robot collaboration;
- Software engineering in robotics; and
- Integration and orchestration of robotic systems.

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

UNIVERSITY OF LINCOLN PERSON SPECIFICATION

JOB TITLE	Postdoctoral Research Fellow in Robotic Navigation, Scheduling, and System Sciences in Agri-Food Technology	JOB NUMBER	COS403-4 & COS431-2
------------------	---	-------------------	---------------------

Selection Criteria	Essential (E) or Desirable (D)	Where Evidenced Application (A) Interview (I) Presentation (P) References (R)
Qualifications:		
PhD or equivalent in a relevant area (good candidates may be accepted with a PhD pending, subject to publication record)	E	A
Experience:		
Extensive experience of relevant research methods	D	A/I
Authorship of research outputs of national/international standing	E	A/I
Experience of research in specific project area e.g. integrated robotics and cyber-physical systems	E	A/I
Teaching support	D	A/I
Skills and Knowledge:		
Extensive knowledge specific to one or more project-relevant research area e.g. robotic mapping, integrated robotics and cyber-physical systems, artificial intelligent planning and scheduling	E	A/I
Excellent mathematical and coding skills (C++/Python, ROS)	E	A/I
Ability to design, conduct and project manage original research in the subject area	E	A/I
Excellent written communication, including the ability to write 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.g. practical programming skills	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	A/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	MH	HRBA	HDR
---------------	----	-------------	-----