THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF SCIENCE & ENGINEERING

SCHOOL OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

RESEARCH ASSOCIATE – ROBOTICS ENGINEER

VACANCY REF: SAE-016483

Salary:	Grade 6, £32,816 to £40,322 per annum, depending on relevant experience
Hours:	Full time
Duration:	Fixed term available from September 2021 until 31 August 2025
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:
Name: Professor Barry Lennox
Email: barry.lenox@manchester.ac.uk

Background

The ALACANDRA project aims to advance the location accuracy of radioactivity that is possible via collimated transform methods for robotic applications in nuclear decommissioning. It is a collaboration between Lancaster University and the University of Manchester. This appointment is part of a significant investment made by EPSRC and the successful applicant will be based at Manchester. This specific research position will focus on the development of a robotic platform that will collect radiation measurements from within the environment in which it is deployed. Subsequent analysis of these measurements will enable any radiation sources, that are present, to be located.

This project will build on work that the University of Manchester has been involved in related to the development of novel robotic systems for the characterisation, exploration and monitoring of nuclear storage facilities for several years. This specific project will focus on the following research:

- Integration of technologies, such as 3D imaging and radiation detection on to a single robotic platform.
- Testing of the resulting vehicle in radiation environments, and assessing its capabilities and limitations.
- Modelling and simulation of radiation and its detection in generic nuclear facilities.

- Liaising with researchers and engineers from organisations including Lancaster University and Sellafield Ltd.

The University of Manchester hosts the Dalton Nuclear Institute (https://www.dalton.manchester.ac.uk), the largest nuclear research institute in UK academia and leads much of the UK's research into robotic systems for nuclear environments, through its lead role in both the EPSRC Robotics for Nuclear Engineering Programme Grant (http://www.nuclearrobots.org) and the RAIN Robotics Hub (http://www.rainhub.org.uk).

This project will provide the successful candidate with the ideal introduction into the challenges faced in deploying robotic systems in the nuclear industry and the size and scope of problems therein. It will also provide a unique opportunity to interact with engineers from both the supply chain and end users in the UK and overseas (Japan and Korea in particular).

Job Description

Main Responsibilities

You will be based at the University of Manchester Department of Electrical and Electronic Engineering. You will work as part of the University of Manchester's Robotics Group, a team comprising of PhD students, PDRAs and academics with expertise in communications, sensing, control, embedded systems and platform design (see http://www.uomrobotics.com). The group is based in both Manchester and Cumbria, so you will be expected to travel occasionally to Cumbria and elsewhere around the UK for meetings. You will also be expected to travel overseas to attend conferences and to meet with collaborating organisations.

Personal Specification

Essential

- Possess a PhD in mechatronic engineering, robotic systems or a similar discipline, or have equivalent research experience.
- Practical experience of developing robotic systems and system integration (mechanical, electrical and software integration)
- Practical experience of testing robotic systems in radiation environments
- Experience with programming robots using ROS.
- Knowledge of robotic techniques such as simultaneous localisation and mapping (SLAM)
- Experience with CAD and 3D printing.
- Experience of working with industry.
- Good interpersonal skills and the ability to work effectively with colleagues and collaborators at all levels.
- Strong organisational skills.
- Be self-motivated and able to work independently.
- Good scientific communication skills, both oral and written.

Desirable

- Experience of modelling and simulating radiation environments.

Further Information

Further information regarding the robotics work at the University of Manchester can be found at: http://www.uomrobotics.com/