

## **Job Description**

<b>Role Title:</b>	Development Engineering in Robotics and Automation
<b>School / Dept:</b>	School of Science, Engineering and Environment
<b>Directorate:</b>	Northern Engineering and Robotics Innovation Centre (NERIC)
<b>Reference:</b>	MPF4232
<b>Grade:</b>	Grade 7
<b>Full or Part time:</b>	Full time – 12 Month Fixed Term Contract
<b>Hours:</b>	1.0 FTE
<b>Reports to:</b>	NERIC Director

## Overview

The Northern Engineering and Robotics Innovation Centre (NERIC) is seeking an outstanding Development Engineer in Robotics and Automation. This is an exciting opportunity to work at the interface of academia and industry, supporting SMEs and research partners in Greater Manchester and beyond. Working across robotics integration, Industry 4.0 technologies and advanced mechatronic system design, you will design, develop, and deploy robotic and automation solutions, support technical project delivery, and collaborate with leading academics and industrial innovators.

## Role Purpose

Working in response to advanced manufacturing and automation industry needs in the Greater Manchester area, especially small and medium sized enterprises (SMEs), this role will support industrial and academic engineering activities and projects in the areas of Robotics Integration, Industry 4.0, Digital Engineering, and Mechatronic System Design.

This position will report to the Director of NERIC and will also be expected to engage with the wider project team. The Development Engineer will be expected to deliver outputs for the Greater Manchester Combined Authority (GMCA) Industrial Strategy Zone elements of the project, in particular working with SMEs in the Greater Manchester area. In parallel, they will collaborate with academics in the School of Science, Engineering and Environment on research and project activities, and assist in technical knowledge-sharing and capability-building activities.

We particularly welcome applicants with backgrounds in Robotics, Automation, Mechatronics, Mechanical or Electrical/Electronic Engineering, and Applied Physics, with an interest in developing robotic and automation systems for applications spanning industrial manufacturing, humanoid robotics, machine vision, and AI-assisted automation. Please contact NERIC Director, Prof. Maziar Nezhad ([m.p.nezhad@salford.ac.uk](mailto:m.p.nezhad@salford.ac.uk)) for informal inquiries about the role.

## Essential characteristics:

- A Master's degree in a relevant engineering field (e.g. Robotics, Automation, Mechatronics, Mechanical, Electrical, Electronic Engineering, Applied Physics), or equivalent industrial experience.
- Practical experience in automation engineering, robotics integration, or mechatronic system development.
- Expertise in the design, development, and integration of robotic systems with sensors, vision systems, PLCs, and industrial control hardware.

- Strong track record of technical problem-solving and engineering project delivery.
- Excellent analytical, technical report writing, and communication skills.

**Desirable characteristics:**

- A PhD in a relevant engineering discipline.
- Experience working with SMEs or industry partners.
- Skills in AI-assisted robotics, machine vision, Industry 4.0 technologies (digital twinning, data monitoring), and CAD/simulation tools.
- Experience mentoring junior engineers, technicians, or students.

## **Principal Duties & Responsibilities**

### **Technical Design & Development**

- Contribute to the engineering design and development of robotic and automation systems, including custom end effectors, tooling, and high-precision pick-and-place mechanisms.
- Apply technical knowledge across robotics, computer vision, image processing, PLC systems, and Industry 4.0 integration.
- Carry out feasibility studies, conceptual designs, simulations, and risk assessments for engineering challenges.
- Ensure designs meet safety, compliance, and reliability standards for industrial environments.

### **Robotics Integration & Automation Control**

- Integrate industrial robots (e.g. KUKA, Yaskawa) and/or humanoid robots (e.g., Unitree) with sensors, vision systems, PLCs, machine controllers, and automation hardware.
- Develop, test, and optimise robotic motion paths, gripping strategies, tooling concepts, and handling processes.

### **Industry 4.0 & Digital Engineering**

- Support initiatives to embed Industry 4.0 technologies, including data connectivity, real-time monitoring, digital twins, and system analytics.
- Support the integration of AI-assisted robotics, machine learning algorithms for vision-based tasks, and smart automation workflows.

### **Project Delivery**

- Plan and deliver engineering tasks and projects from scoping to acceptance, supporting technical quality, cost control, and timely completion.
- Prepare technical documentation, design specifications, and validation plans.
- Collaborate with suppliers, clients, and internal stakeholders to align requirements and manage technical interfaces.

### **Knowledge Sharing and Engagement**

- Provide technical guidance and support to technicians and student assistants.
- Contribute to design reviews, technical workshops, and cross-functional problem-solving sessions.
- Support capability development in robotics, controls, digital manufacturing, and advanced engineering tools.
- Participate in engagement and networking activities to generate new clients, business connections and collaborations for NERIC

### **Generic Duties**

- Perform any other duties appropriate to the grade as may be required by the Head of School/Head of Division etc.
- Comply with the personal health and safety responsibilities specified in the University Health and Safety policy.
- To engage with the University's commitment to put our students first and deliver services which are customer orientated, represent value for money and contribute to the financial and environmental sustainability of the University when undertaking all duties and aspects of the role.
- Advance equality, support our work towards eliminating unlawful discrimination, foster an inclusive study and work environment for students, staff and visitors in accordance with our public sector equality duties and university policy.

This role detail is a guide to the work you will initially be required to undertake. It may be changed from time to time to meet changing circumstances. It does not form part of your Contract of Employment.

Person specification follows on next page

## **Person Specification**

The successful candidate should demonstrate the following, which are 'Essential' (E) or 'Desirable' (D)

### **Qualifications**

1. A Master's degree in a relevant engineering field (e.g., Robotics, Automation, Mechatronics, Engineering, Mechanical, Electrical, Electronic, Applied Physics) (or equivalent industrial experience) (E)
2. A PhD in a relevant discipline (one of the above) (D)

### **Background and Experience**

3. Practical experience in automation engineering, robotics integration, or mechatronic system development (E)
4. Experience designing, developing, and implementing robotic systems, special-purpose automation machinery, or advanced end-effector / tooling solutions (E)
5. Experience integrating industrial or humanoid robots with sensors, vision systems, PLCs, or industrial control hardware (E)
6. Experience contributing to technical engineering projects and/or research projects (D)
7. Experience working in multi-disciplinary engineering teams and coordinating with technical stakeholders (D)
8. Evidence of outputs such as technical reports, engineering documentation, patents, publications, or project deliverables (D)
9. Experience mentoring or supporting junior engineers, technicians, or students (D)
10. Experience with AI-assisted robotics (e.g. NVIDIA Isaac), Physical AI or machine learning for automation tasks (D)

### **Knowledge**

11. Robotics systems design which can include kinematics, motion planning, automation architectures, and knowledge of ROS 2 frameworks and SLAM techniques (E)
12. PLC programming, industrial communication networks, and safety control systems (E)

13. Machine vision, image processing, or sensor fusion techniques for automation applications (E)
14. CAD modelling and engineering simulation tools for mechanical or mechatronic system design (e.g. dynamic simulation, system modelling) (E)
15. Knowledge of programming languages and environments relevant to robotics and automation, including Python, C/C++, and Linux based development environments (E)
16. Industry 4.0 technologies including digital connectivity, digital twinning, data monitoring, or smart manufacturing systems (D)
17. Health, safety, and compliance requirements for industrial automation environments (E)
18. Artificial intelligence or machine learning applications in robotics or automation (D)
19. Collaborative/humanoid robotics integration and advanced sensing technologies (D)
20. Project design standards, technical risk assessment, and system reliability principles (D)

### **Skills and Competencies**

21. Ability to design, develop, test, and troubleshoot complex robotic and automation systems (E)
22. Ability to design and implement robotic end effectors, tooling systems, or special-purpose automation machinery (E)
23. Competence in PLC programming, industrial communication networks, safety systems, and control architectures (E)
24. Skills in machine vision and image processing, including YOLO based object detection, depth sensing, and point cloud processing (E)
25. Proficiency in CAD and simulation environments (e.g. Siemens NX, Adams, COMSOL, SolidWorks, RoboDK) (E)
26. Strong analytical and problem-solving skills with a structured engineering approach (E)
27. Excellent technical report writing, communication (specialist and non-specialist audiences) and documentation skills (E)
28. Ability to deliver complex technical projects within a multi-disciplinary team (D)

29. Ability to develop professional networks, client relationships and collaborate with external partners, suppliers, and stakeholders (E)
30. Ability to support development of engineering policies, technical standards, or operational procedures (D)