Research Software Engineer

**Department:** Directorate of Technology, Estates & Facilities: IT Services (Research IT)

**Hours of work:** Full time / 37 hours a week

**Contract type:** Initially Fixed Term until 31.12.2023

**Salary:** £34,308 - £42,155 per year (plus £3,000 Market Supplement) / Grade 6
Main purpose of the role

This role sits within the Research Software Engineering team as part of Research IT but you will provide support to an exciting project as part of the Assuring Autonomy International Programme (AAIP) (https://www.york.ac.uk/assuring-autonomy).

AAIP is a £12 million partnership between Lloyd’s Register Foundation and the University of York. AAIP is working with an international community of developers, regulators, researchers and others to ensure that the public benefits from the safe, assured and regulated introduction and adoption of Robotics and Autonomous Systems (RAS) across multiple domains. The Programme is addressing core technical issues underlying the assurance of RAS, supporting industrial demonstrator projects and delivering training and education. The AAIP has recently moved into the new Institute for Safe Autonomy (ISA) (https://www.york.ac.uk/safe-autonomy/), a £15M purpose-built facility housing modern experimental laboratories.

AAIP has a strong focus on real-world demonstrator projects (https://www.york.ac.uk/assuring-autonomy/projects/) collaborating with industry and academia. In addition to supporting industrial demonstrators, the programme also seeks to develop in-house demonstrator capabilities. AAIP is developing robots that will operate safely throughout the ISA building interacting with building occupants.

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

1. **Role Specific Responsibilities**
   - Develop end-to-end software for RAS using relevant skills and knowledge to interpret and implement the technical software requirements of experimental work and across a number of units or areas of the specialist role.
   - Be a research software engineer in support of research projects and to act as an expert recourse.
   - Develop and validate software solutions and assure their safety to enhance the research and related activities.
   - In collaboration with colleagues, develop a fully functional robot platform building on existing prototypes.
   - Integrate systems and develop bespoke applications that allow in-house robots to safely navigate buildings.
   - Develop and validate a safe autonomous delivery service using robots.

2. **University of York Responsibilities for Grade 6**

   **Service and Operational Delivery**
   - Oversee a responsive and proactive support service to ensure service expectations are met.
   - Collect and analyse stakeholder feedback to help define needs and requirements and the design and planning of services.
   - Contribute to operational leadership teams and decision making to shape the nature and level of support services.
   - Implement changes to the design and development of a service.
   - Accountable for delivery of a service within a defined area or defined responsibilities.
● Make effective use of digital solutions to carry out operational activity and implement efficiency improvements.
● Depending on the role, may be required to act as operational line manager - setting, monitoring and overseeing the work of the team on a day to day basis
● Act as a supportive and encouraging member of a team. For roles at this level with supervisory responsibilities, demonstrate compassion and give advice on commonly occurring wellbeing issues.

**Continuous Improvement**

● Analyse service and operational delivery data and provide reports, making recommendations for improvement as appropriate.
● Ensure the review and improvement of systems and procedures in line with University frameworks.
● Review internal and external practice to identify opportunities for future improvements or efficiencies.
● Apply expertise to identify, understand and propose resolutions for issues or problems.
● Proactively identify opportunities for building personal knowledge and skills for self and others.
● Deliver knowledge sharing on specialist defined processes across the broader team.

**Specialist Contribution**

● Provide advice to stakeholders in relation to complex policies, procedures and regulations.
● Provide specific technical advice to ensure compliance with legislation, statutory duties, etc.
● Provide specialist expertise and support with complexity of data and information sources, providing interpretation and analysis.
● Carry out in-depth, complex investigations or searches; interrogate the information and data to identify trends and patterns.
● Deliver training, teaching and/or development delivery for stakeholders.

**Collaboration and Communication**

● Establish, maintain and develop productive and ongoing relationships with University stakeholders to create ideas for tactical service or operational delivery development.
● Build relationships and networks internally and externally to build and update knowledge and skills.
● Use a range of digital media and tools to communicate with a diverse range of key stakeholders.

**Governance and Oversight**

● Oversee activity to ensure all processes and transactions are delivered in line with regulatory and professional service and policy standards.
● Provide advice and training to stakeholders regarding compliance and regulations relating to the area of responsibility.
● Contribute to the creation or development of policy and procedures to take account of internal and external changes.
● Ensure activities and documents comply with internal University and external regulation, policy and procedures.
Planning and Organisation

- Plan, organise and prioritise own workload (and, where applicable, the workload of team members on a regular basis), taking into account operational needs and changing circumstances of the team over the short to mid term.
- Plan and manage longer term programmes of work, monitoring progress as required.
- Lead the delivery of projects to facilitate service operational change or play a role in University-wide projects.
## Person specification

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<th>Role Specific</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>In-depth and current knowledge of software development relevant to robotics and autonomous systems</td>
<td>Essential</td>
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<td>Up-to-date knowledge of software development environments, and tools for autonomous systems</td>
<td>Essential</td>
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<tr>
<td>Proven experience in software development and engineering in multiple languages such as Python, C++, and / or Java</td>
<td>Essential</td>
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<td>Ability to test prototypes and products to ensure they operate satisfactorily</td>
<td>Essential</td>
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<td>Demonstrable knowledge of data-driven systems</td>
<td>Desirable</td>
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<td>Knowledge of Agile methodologies, frameworks and practices</td>
<td>Desirable</td>
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<td>Knowledge of approaches to software safety assurance</td>
<td>Desirable</td>
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<tr>
<td>Knowledge of RAS frameworks and applications such as ROS and Gazebo</td>
<td>Desirable</td>
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<tr>
<td>Ability to contribute to documentation for the development and assurance of RAS</td>
<td>Desirable</td>
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### University of York Person Specification for Grade 6

#### Qualifications:

Level 3 qualification. (Qualifications at this level include A levels. Please view the full list). We also welcome applicants with equivalent non-uk qualifications or equivalent professional experience.

#### Skills - demonstrates the ability to:

- Lead projects
- Gather, analyse, interpret and report complex data/information
- Use digital technologies including Google applications and/or Microsoft Office
- Communicate effectively in verbal and written formats, including the use of a variety of digital tools

#### Behaviours:

- Works collaboratively with others
- Delivers a quality service
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<th>Develops self and others</th>
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<td>Actively champions respect, inclusivity, equality and diversity</td>
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<td>Identifies and implements continuous improvement</td>
<td>Essential</td>
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