



UNIVERSITY OF LEEDS

## CANDIDATE BRIEF

**Research Assistant in the Design and Development of an Autonomous Manufacturing Platform, Faculty of Engineering and Physical Sciences**



**Salary: Grade 6 (£31,396 – £37,099 p.a.)**

**Reference: EPSME1179**

**Location: Leeds campus**

**Closing date: Tuesday 17 September 2024**

**Fixed-term for up to 2 years**

**We are open to discussing flexible working arrangements**

# Research Assistant in the Design and Development of an Autonomous Manufacturing Platform, School of Mechanical Engineering.

**Do you have an enthusiasm in fabricating mechatronics systems? Are you looking for a new and exciting challenge as part of a world class advanced manufacturing and robotics team? Do you want to design and create autonomous manufacturing platforms that will change our lives?**

This is your opportunity to make a tangible impact within the field of manufacturing and robotics while collaborating with a team of brilliant minds in a dynamic research environment. In this role you will be involved in developing a fully integrated manufacturing capability for the end-to-end autonomous fabrication of robotics and autonomous system by developing and integrating advances in hybrid manufacturing, machine control, inspection and automation.

You will work across two world-leading research groups, the advanced manufacturing laboratory and the [Real Robotics](#) laboratory, at the [University of Leeds](#). Between these two research groups they have research projects totalling more than £30m. The Advanced Manufacturing laboratory comprises a team that specialise in constructing digital manufacturing systems and developing new fabrication processes housed within a dedicated 140m<sup>2</sup> state-of-the-art research facility. The Real Robotics research includes robotic manufacturing and manufacturing of robots including world class robot [fabrication facilities](#), and robotic systems to inspect and repair city infrastructure. Current major externally funded projects include [Pipebots](#), [Trustworthy Autonomous System Verifiability Node](#), and the Advanced Machinery and Productivity Institute ([the AMP Institute](#)).

In this role you will support the design and development of mechanical systems, electronics and sensors for creating a robotic autonomous manufacturing platform. Duties will involve researching sensors integration, 3D CAD design, assembly of parts, testing and evaluation of the autonomous systems in a production simulation setting. Furthermore, there is a need to conduct some Python programming and develop bespoke toolpaths to control the machine. Holding an undergraduate degree in Computer Science, Electronic and Electrical Engineering, Mechatronics, Mechanical Engineering, Robotics or a related discipline; you will have experience in the programming, designing, construction and testing of advanced hardware platforms for smart systems such as robotics.





## What does the role entail?

As a Research Assistant, your main duties will include:

- To develop and benchmark novel process modules for a bespoke robotic manufacturing system that produces complex 3D mechatronic systems;
- Developing hybrid toolpath generation software for printing and assembling advanced, small-scale robotics;
- Supporting research activities, including contributing to research results and outputs and to the generation of original ideas, ensuring a successful programme of investigation;
- Writing reports, undertaking literature reviews and preparing papers for publication, with guidance as necessary;
- Working within and applying the standard operating procedures, health and safety regulations and quality assurance procedures of the School, Faculty and University;
- Making good day-to-day progress towards project deliverables, ensuring that project objectives are met and that technical reports are completed on time to the satisfaction of the principal investigator, project leader and sponsor;
- Collating and analysing data to inform the direction and progression of the research project;
- Participating in the research group and presenting research output where appropriate;
- Working both independently and as part of a larger team of researchers and stakeholders;
- Contributing to the research culture of the School, where appropriate;
- Continually updating your knowledge, understanding and skills in the research field.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



## What will you bring to the role?

As a Research Assistant, you will have:

- An Undergraduate degree in Computer Science, Electronic and Electrical Engineering, Mechatronics, Mechanical Engineering, Robotics or a related discipline;
- Experience in the design, construction and testing of hardware platforms for robotics and/or automated machines;
- Experience in 3D CAD Design such as SolidWorks or Fusion360;
- Experience in python coding for control/actuation;
- The ability to use basic embedded systems software and hardware platforms;
- An enthusiastic approach to research in advanced manufacturing, robotics and autonomous systems;
- Good interpersonal and communication skills, both written and verbal and the ability to communicate effectively with a wide range of stakeholders;
- Well-developed analytical skills;
- Good time management and planning skills, with the ability to meet tight deadlines;
- A proven ability to work well both independently and in a team;
- The ability to work accurately, unsupervised and use your own initiative.

You may also have:

- Experience in software and programming for robotics;
- Experience in designing surface mount electronic circuits;
- Experience in using the ROS operating system;
- The ability to use advanced embedded systems software and hardware platforms such as microcontrollers, single board computers and FPGAs;
- Proven experience of the ability to interact with technicians, undergraduate and Masters students in ways that will enhance the student experience in the School.

## How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23:59** (UK time) on the advertised [closing date](#).



## Contact information

To explore the post further or for any queries you may have, please contact:

**[Professor Robert Kay](#)**, School of Mechanical Engineering

Tel: +44 (0)113 343 2139

Email: [R.W.Kay@leeds.ac.uk](mailto:R.W.Kay@leeds.ac.uk)

## Additional information

### Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering and Physical Sciences](#) and the [School of Mechanical Engineering](#).

### A diverse workforce

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN [Silver](#) Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

### Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.





### **Information for disabled candidates**

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at [hr@leeds.ac.uk](mailto:hr@leeds.ac.uk).

### **Salary Requirements of the Skilled Worker Visa Route**

Please note that due to Home Office visa requirements, this role may only be suitable for first-time Skilled Worker visa applicants if they are eligible for salary concessions. For more information, please visit: [www.gov.uk/skilled-worker-visa](http://www.gov.uk/skilled-worker-visa).

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit: <https://www.gov.uk/global-talent>.

## **Criminal record information**

### **Rehabilitation of Offenders Act 1974**

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

