CANDIDATE BRIEF

Robotics and Embedded Systems Programming Technician, Faculty of Engineering

Salary: Grade 6 (£27,025– £32,236 p.a.)

Reference: ENGME1208

Closing date: 31 July 2019

We will consider flexible working arrangements

Robotics and Embedded Systems Programming Technician
Institute of Design, Robotics and Optimisation,
School of Mechanical Engineering

Are you an experienced lab technician or engineer with a background in programming for robotics and/or embedded systems? Are you looking for a new and exciting challenge as part of one of the leading Mechanical Engineering Schools in the country? Do you want to make a difference to world class teaching and research activities?

The Institute of Design, Robotics and Optimisation designs and analyses complex systems that involve technology, people and services. We have world-class expertise in design systems, solid mechanics, robotics, mechatronics, surgical technologies, dynamics and control, optimisation and aerospace and structural engineering. With more than 50 researchers and technical staff, we deliver our research through partnerships with industry, multi-disciplinary collaborations, and end user engagement. We have a large portfolio of research in exploration and infrastructure robotics, highlights of which can be seen at https://youtu.be/vBmfMqTS31U

We are looking for a professional and proactive individual to join our team and provide robotics programming support for our teaching, research and general lab activities. You will work closely with our technicians, students, researchers and academic staff in several well-equipped research and teaching laboratories. You will have the opportunity to apply your skills to a wide variety of exciting, cutting-edge robotic research projects including:

- A £4.2M project called "Balancing the impact of City Infrastructure Engineering on Natural systems using Robots" that aims to develop new robot designs and technologies in three areas: "Perch and Repair", "Perceive and Patch" and "Fire and Forget" using world class robot fabrication facilities;
- A £7.2M project that aims to develop swarms of autonomous miniature inspection robots for long-term deployment within live utility pipes;
- Developing our entries to the Mohamed Bin Zayed International Robotics Challenge (MBZIRC), where we aim to compete in all three challenges. Challenge 1 involves a team of UAVs autonomously tracking and interacting with a set of objects (for example intruder UAVs). Challenge 2 involves a team of UAVs and a UGV collaborating to autonomously locate, pick, transport and

assemble building blocks to create pre-defined structures in an outdoor environment. Challenge 3 involves a team of robots collaborating to autonomously extinguish a series of simulated fires in an urban high rise building firefighting scenario.

You will have a minimum BTEC level 4 / HNC in Computing, Electronics, Mechatronics related discipline (or qualification such as a degree), or equivalent relevant experience. You will have an advanced knowledge of software programming for embedded systems and/or robotics including experience with software such as C, C++, ROS, Matlab and Labview. You will also have a working knowledge of electronics and/or data acquisition.

What does the role entail?

As a Technician your main duties will include:

- Providing technical support, instruction, practical advice and safety guidance on projects. This will involve advising and assisting academic staff, research staff and students as required on experimental technique and technical issues. This may involve informal one to one training, demonstrations or provision of advice, and can be highly specialised and technical in nature;
- Using software for controlling and collecting data from robots and research equipment, using languages / environments such as C++, Python, LabVIEW and ROS;
- Assisting in the commissioning of such equipment for research. This may involve the interpretation and/or conversion of data from a variety of sources;
- Providing teaching support and technical instruction to practical classes taught in the laboratories;
- Taking responsibility for general maintenance and security of the laboratory and equipment including maintaining records of consumable levels and equipment, ordering stock to maintain an acceptable level and assisting academics in the purchase and delivery of new equipment;
- Performing portable appliance testing (PAT) within the institute laboratories and keeping records, as appropriate;
- Operating in accordance with health and safety procedures, hazard, risk, COSHH assessments and local policies and working with the Faculty Health and Safety Manager to ensure correct and safe usage of varied laboratory equipment by yourself, undergraduates, postgraduates and members of staff;

- Playing an active role in the technicians' network, for example to share best practice and service improvement ideas.

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 Technician you will have:
- A BTEC level 4 or HNC or above in a Computer Science / Programming or Electronics/ Mechatronics discipline, or degree level qualification in a relevant area or equivalent relevant experience;
- Advanced knowledge of software programming for embedded systems and/or robotic systems;
- A willingness to undertake formal or informal training to develop new technical skills as needed;
- Evidence of a proactive attitude to keeping abreast of the latest developments in mechanical and electronic engineering, data acquisition technology and also safety regulations;
- Accuracy and dependability is of the upmost importance: a failure of standards could have significant implications;
- The ability to work proactively and independently, and effectively as part of a wider technical team, with a flexible, 'hands-on' approach to work;
- Developed organisational skills with the proven ability to prioritise work and deliver against demanding deadlines;
- Excellent interpersonal and communication skills, with the proven ability to liaise effectively with staff and students at all levels;
- The ability to perform manual handling duties safely using agreed procedures.

You may also have:
- Experience of advanced electronic circuit design, fabrication and testing;
- Experience working with robotic hardware such as ground vehicles, drones, and legged robots;
- Detailed knowledge of robotics;
- Detailed knowledge of single board computers such as Raspberry Pi and Arduino;

- An ability to write risk assessments and safe operating procedures;
- Knowledge of CAD software such as SolidWorks;
- CIEH Level 2 Health and Safety certificate or equivalent;
- Experience of manufacturing parts for robotics;
- Hands on experience of making electric circuits.

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:

Mr Peter Thompson, Technical Officer
Tel: +44 (0) 113 343 2471
Email: P.R.Thompson@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 the School of Mechanical Engineering.

A diverse workforce

The Faculty of Engineering is 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
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our Working at Leeds information page.

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

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.