Research Associate in Intelligent Robotics
Department of Electronic Engineering

Closing date: 20 August 2018
Interview date: To be confirmed
Vacancy reference: 6874
INTRODUCTION

The Research Associate in Intelligent Robotics post is located within the Intelligent Systems and Nanoscience research group (IS) in the Department of Electronic Engineering, working in the context of an EPSRC-funded project, RoboCalc, alongside Professor Jon Timmis. The ISNS Group undertakes research on hardware and software systems, with a focus on biologically-inspired systems. The work also forms part of York Robotics Laboratory (www.york.ac.uk/robot-lab) which brings together researchers across the University to investigate a wider variety of issues relating to robotics and autonomous systems. The overall project is led by Professor Ana Cavalcanti from the Computer Science Department. The main goal of RoboCalc is the development and justification of notations and techniques for modelling, simulation, and verification of software in the context of robotics and autonomous systems applications. Justification is via a unified and comprehensive semantic model. The project has been running for 3 years, and due to a change in personnel, we have the opportunity to offer a position, available from Sept 1st, until 30th March 2020.
JOB DESCRIPTION

Main purpose of the role

- To conduct research under the supervision of senior colleagues and to contribute to the production of research.
- To assist in the supervision of other researchers.
- To assist in the identification and development of potential areas of research and the development of proposals for independent or collaborative research projects.

Key responsibilities

- To further develop software tools for the automatic generation of code (from formal models) that can be executed in simulation and on physical robots.
- To undertake experimental work in simulation and hardware.
- To identify new case studies and areas of application for the tools developed.
- To contribute to the preparation of research proposals and applications to external bodies.
- To contribute to the preparation of research papers.
- To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams.
- To assist with undergraduate teaching in own area of expertise.

At a glance

Salary £31,604 to £38,832 a year

Hours of work 37 hours a week

Contract type Fixed term until 30th March 2020

Based at Heslington Campus West mainly with some work on Campus East
# PERSON SPECIFICATION

## Qualifications

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- PhD in Computer Science/Electronic Engineering with thesis in the area of autonomous mobile robotics or PhD in Computer Science/Electronic Engineering and other relevant experience in the area of autonomous mobile robotics

## Knowledge

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- Knowledge of autonomous systems and/or mobile robotics (hardware and simulation) as evidenced by a record of recent publications (in the last five years)
- Knowledge of a range of research techniques and methodologies for development and analysis of autonomous mobile robotics, both hardware and simulation, as evidenced by a record of recent publications (in the last five years)
- Knowledge of modern Software Engineering principles
- Knowledge of UML
- Experience in using robotic simulation tools such as Webots, Player/Stage, V-REP (or similar) as evidenced by a record of recent publications (in the last five years)
- Experience in developing autonomous mobile robotics control systems as evidenced by a record of recent publications (in the last five years)
- Experience in developing controllers for single autonomous mobile robots
- Experience in developing multiple autonomous mobile robotic systems (robotic collectives)
- Experience in the analysis of mobile, autonomous robot systems in simulation and in hardware

## Skills, abilities and competencies

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- Highly developed communication skills to engage effectively with a wide ranging audience, both orally and in writing, using a range of media
- Highly developed programming skills across a range of programming languages, including C and C++
- Ability to write up research work for publication in high profile journals and engage in public dissemination
- Ability to develop research objectives, projects and proposals for own and joint research, with the assistance of a mentor if required.
- Ability to conduct individual and collaborative research projects
- Ability to make presentations at conferences or exhibit work in other appropriate events
- Willingness to travel and spend time at collaborators’ locations
# PERSON SPECIFICATION

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<th>Experience</th>
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<td>Experience of carrying out both independent and collaborative research</td>
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<td>Experience of writing up research work for publication</td>
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<tr>
<td>Ability to work collaboratively as part of a team and also to work independently using your own initiative</td>
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## Personal attributes

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<tr>
<td>Attention to detail and commitment to high quality</td>
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<td>Collaborative ethos</td>
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<td>Interest in and enthusiasm for the subject matter of the project(s)</td>
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<td>Positive attitude to colleagues and students</td>
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<td>Willingness to work proactively with colleagues in other work areas/institutions</td>
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<td>Ability to plan and prioritise own work in order to meet deadlines, including using initiative to plan research programmes</td>
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<td>Commitment to personal development and updating of knowledge and skills</td>
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<td>Commitment to outreach and public engagement, evidenced by track record of such events</td>
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THE DEPARTMENT

The Department of Electronic Engineering at York undertakes world-leading research with groups working in multidisciplinary areas including: electronic and computer engineering, specifically, bio-inspired adaptive architectures and systems; applied electromagnetics, signal processing and coding for communications; nano-scale device fabrication and analysis; autonomous and robotic systems and electronics for healthcare. Our key research areas fit into three overarching groups:

- Communication Technologies
- Intelligent Systems and Nano-science
- Engineering Education and Management

In the 2014 REF, 87% of our research outputs were judged world-leading or internationally excellent. Our research groups work with industry and universities across the world while providing a friendly and supportive environment for staff and students.

Our department has a long-standing reputation for high-quality teaching and learning and highly employable graduates. Our MEng and BEng undergraduate programmes in a number of subject areas are fully accredited by the IET (Institution of Engineering and Technology) at CEng (Chartered Engineer) level: [http://www.york.ac.uk/electronics/undergraduate/](http://www.york.ac.uk/electronics/undergraduate/). The Department is consistently highly ranked for Electronic Engineering in the annual National Student Survey and we are ranked 1st in the UK for graduate employment within one year of leaving the university (Longitudinal Education Outcomes (LEO) 2017).

Within Electronic Engineering our student body consists of approx. 400 undergraduate students and 200 postgraduate students. Our taught postgraduate students undertake one of our suite of MSc programmes, covering the latest technologies and skills in important industry sectors. We have a vibrant community of postgraduate research students enrolled on our PhD programme bringing our total student cohort to around 600 students.

The Department has 40 academic staff (including part-time and job share), research staff and a team of support staff, providing administrative and technical assistance in the department.

The Department continues to hold the Bronze Award from Athena SWAN which was won in 2013 in recognition of our commitment to equality. We are proud to foster a supportive culture that helps staff and students reach their full potential and we embrace equality, diversity and inclusion as well as
THE DEPARTMENT

The values of the Athena Swan Charter in all our departmental activities.

The Department of Electronic Engineering operates a family friendly policy and is committed to gender equality and diversity. The Department recognises that a flexible approach to working is vitally important in the recruitment and retention of staff who have family commitments. The Department offers flexible working hours to all staff and will actively support job sharing and career break requests where it is reasonable and practical to do so and where operational needs will not be adversely affected.

The Department provides support for all categories of staff in their applications for promotion, role reviews, awards and prizes and rewarding excellence nominations. The Department strives to address gender inequalities and ensure that there is a culture that supports equality and encourages better representation throughout the department. Support for women at all stages of their career is recognised as being extremely important.

Further details of the Department can be found on its website: https://www.york.ac.uk/electronic-engineering/
THE UNIVERSITY

Founded on principles of excellence, equality and opportunity for all, the University of York opened in 1963 with just 230 students. In 2018 it is the home of more than 17,000 students across more than 30 academic departments and research centres. Since opening over fifty years ago, we have become one of the world’s leading universities and a member of the prestigious Russell Group.

We are consistently recognised as one of the leading Higher Education Institutes and are ranked 16th in the Times & Sunday Times league table (2017). The University of York has won six Times Higher Education (THE) Awards and five Queen’s Anniversary Prizes.

The University is proud of its association with Athena SWAN, holding 12 awards in support of gender equality, representation and success for all, with gold awards for Chemistry and Biology and a University-wide bronze award.

Of 154 universities that took part in the Research Excellence Framework (REF) in 2014, The University of York ranked 14th overall and 10th for the impact of our research. The University is consistently in the top ten UK research universities and attracts over £60m a year of funding from research alone.

Our vision is to make the University of York a world leader in the creation of knowledge through fundamental and applied research, the sharing of knowledge by teaching students from varied backgrounds and the application of knowledge for the health, prosperity and well-being of people and society.
Attractive workplace

Centred around the picturesque village of Heslington on the edge of the city of York, our colleges are set in an attractive landscaped campus. York enjoys a safe, friendly atmosphere with facilities including bars, shops, theatres and concert halls all within easy walking distance.

The University has undergone an unprecedented period of expansion and renewal since 2000. We have invested in twenty new buildings on the original campus and have completed the first and second phases of a £750m campus expansion. Our investment in new colleges, teaching and learning spaces, laboratories, research facilities and a new sports village mean there has never been a better time to join us.

During this period of change we've worked hard to retain our friendly, informal and collegiate atmosphere, which is important to our core values of inclusivity and interdisciplinarity.

We have a thriving international community and are committed to providing staff moving to York with as much support as possible through our Relocation Package and Welcome Officers.

The University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

For further information please visit our employee benefit pages.
THE CITY AND THE REGION

The City of York

Internationally acclaimed for its rich heritage and historic architecture, York’s bustling streets are filled with visitors from all over the world. Within its medieval walls you will find the iconic gothic Minster, Clifford’s Tower and the Shambles - just a few of the many attractions.

But York isn’t just a great place to visit - it’s also a great place to live and work. While nourishing a vibrant cosmopolitan atmosphere, York still maintains the friendly sense of community unique to a small city.

Visit www.visityork.org for more information on the city of York

Shopping, culture and entertainment

York boasts specialist and unique boutiques but also all the high street stores on its busy shopping streets. Alongside them you will find cinemas, theatres, an opera house, art galleries, a vast range of restaurants, live music venues and clubs. York is particularly renowned for its multitude of pubs and bars, from the modern to the medieval.

Housing and schools

Whether you choose to live close to the city, in one of the surrounding villages or further afield, you will find a wide range of housing within comfortable distance of York and the University. For families, the area has a range of excellent schools both in the state and independent sector.

Great location

York is one of Britain’s best-connected cities. Halfway between London and Edinburgh on the East Coast mainline, on intercity trains you can reach London King’s Cross in less than two hours and Edinburgh in two and a half hours. York is also well served by road links, and it is easily accessible from the A1, M1 and the M62.

For those travelling from overseas, Manchester Airport is two hours away and Heathrow Airport just three and a half. Flights from nearby Leeds Bradford Airport provide easy access to mainland Europe. By Eurostar from London St Pancras, Paris is just over six hours away.

Yorkshire

The Lonely Planet guide recently declared Yorkshire the third best region in the world to visit. There is something to cater to every taste, whether it be the rugged landscapes of the Moors or the Dales, the picturesque seaside towns of Scarborough and Robin Hoods Bay, the gothic architecture of Whitby or the vibrancy of cosmopolitan Leeds.
Apply online

- Go to [https://jobs.york.ac.uk](https://jobs.york.ac.uk)
- Find this job using reference 6874
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 20 August 2018

What will I need?

You will need to upload:

- your CV
- a letter describing how you meet the requirements of the job

You will also need details of 2 referees.

Help and assistance

Direct any informal queries to Professor Jon Timmis (jon.timmis@york.ac.uk / 01904 322318)

If you have any questions about your application, contact the HR Services team:

recruitment@york.ac.uk

+44 (0)1904 324835