Wolfson School of Mechanical, Electrical and Manufacturing Engineering

Research Associate in Signal Processing for 5G and Beyond Networks (Postdoctoral)
Job Ref: REQ211305

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

School summary
The Signal Processing and Networks Research Group within the Wolfson School of Mechanical, Electrical and Manufacturing Engineering at Loughborough University is looking for an exceptional individual to work on the area of 5G and beyond networks. Candidates with research experience in AI and testbed for communications systems are encouraged to apply.

Loughborough is a progressive and distinctive University with a proud tradition of being research-intensive. It has been shown through successive National Student Surveys, excellent league tables and seven Queen's Anniversary Prizes, to be one of the UK's leading Higher Education Institutions.

The Wolfson School of Mechanical, Electrical and Manufacturing Engineering is one of the largest of its kind in the UK and has an international reputation for being at the forefront of technological innovation and for maintaining extensive links with industry. Research grants (predominantly from the UK Research Councils and the EU), as well as extensive industrial sponsorship, support a range of research posts and enable the purchase of state of the art equipment.

The Signal Processing and Networks Research Group is one of the largest research groups within the Wolfson School. The group has an established reputation globally in the areas of signal processing and communications networks.

Loughborough University is committed to achieving equality and valuing diversity in all aspects of employment and welcomes applications from all sections of the community.

Project Description:

This project focuses on the development and demonstration of new signal processing algorithms empowered by AI technology for 5G networks and beyond. In particular, the research associate will be expected to design signal processing techniques to address a wide range of challenges to achieve significantly better performance such as higher peak data rate, higher reliability, lower end to end latency, massive number of connected devices, and enhanced security but also unprecedented levels of cost, energy, deployment and operation efficiencies.

Job Description

Job Grade:
Specialist and Supporting Academic Grade 6, fixed term for four months

Job Purpose

To conduct research in the area of Signal Processing for 5G and beyond networks within the Signal Processing and Networks Research Group.

Job Duties

Specific, technical

- To propose and develop algorithms for 5G and beyond networks
- To develop program codes for conducting simulations
- To write reports and present the research to the funder and also wider audience.
- To carry out other specific duties as may be reasonably requested by the project leader and that are commensurate with the nature and grade of the post.

General, technical:

- To formulate detailed plans for the project based on broad guidance from the project team.
- To feed back to the project team on progress, to make recommendations for next steps and to prepare interim and final project reports.
- To collaborate with co-workers within Signal Processing and Networks Research Group, other Higher Education Institutions, and other relevant bodies.
- To support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To write research papers suitable for publication in high quality academic journals and for presentation at specialist scientific conferences.
- To attend and contribute to scientific conferences.

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to the Principal Investigator.

Person Specification

Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage

Experience	Significant experience of developing and analysing signal processing and machine learning algorithms for wireless communications networks	1, 3
	Significant experience of using mathematical optimization	1, 3
	Strong and proven track record of publishing a number of high-quality research results in top international journals and conference proceedings in the relevant areas	1, 3
Skills and abilities	Excellent programming skills in Matlab/Python/C/C++, etc.	1, 3
	Excellent written and oral communication, and IT skills	1, 3
	Excellent analytical skills and problem-solving skills	1, 3
	Self-motivated with ability to meet deadlines	3
	Ability to work independently and as part of a team, engaging with different academic and industrial partners	3
	Excellent interpersonal, and organisational skills	3
Training	Willingness to undertake appropriate further training and to adopt new procedures as and when required	3
Qualifications	A PhD degree (or about to complete) in Electronic Engineering or relevant field.	1
Other	Evidence of a good working knowledge of equal opportunities and understanding of diversity in the workplace	3
	Commitment to maintain confidentiality at all times	3

Desirable Criteria

Area	Criteria	Stage
Experience	Current or recent relevant work experience at post-doctoral level in an academic or industrial environment	1, 3
	Experience of working on research projects in a team	1, 3
Skills and abilities	Ability to assist in teaching of undergraduate or postgraduate students	3
Qualifications	A PhD degree (or about to complete) in Signal Processing, Wireless Communications or Computer Science	1
Other	Willingness to travel	3

Conditions of Service

The position is part-time (0.5 FTE) and fixed term for four months. Salary will be on Specialist and Supporting Academic Grade 6, at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff/Operational and Administrative staff, details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available at http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements.

We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see http://www.lboro.ac.uk/services/hr/athena-swan/

Applications

The closing date for receipt of applications is 30 November 2021.