

## Research Associate in *Machine Learning for Network Slicing*

Job Ref: REQ240291

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

### Project Description

*This project is on advancing machine learning techniques for dynamic network slicing in 6G and beyond networks. This is a collaborative research project (TITAN extension and PerCom) with several UK academic partners. This project is funded by the Engineering and Physical Sciences Research Council*

### Job Description

**Job Grade:** Specialist and Supporting Academic Grade 6

#### Job Purpose

To conduct research in the areas of communications networks within the Signal Processing and Networks research group, Wolfson School of Mechanical, Electrical, and Manufacturing Engineering at Loughborough University. The focus will be on the development of machine learning methods and signal processing algorithms to enable optimised network slicing in 6G networks. In particular, the Research Associate will be expected to perform research and develop algorithms which may span various topics such as optimizations, machine learning, network performance analyses and end-to-end slice orchestration and management. The Research Associate will collaborate with several project partners including Bristol University and University of Cambridge, among other potential industrial partners.

#### Job Duties

- *To perform literature survey and conduct research in dynamic network slicing and multi-tenancy networks.*
- *To propose and develop deep learning algorithms for resource allocations to meet the performance and service level agreements.*
- *To implement algorithms in an appropriate programming language, for example Python.*
- *To evaluate algorithms using simulations and network platforms*
- Be responsible for conducting the day to day running of the project.
- 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.
- Write up regular progress reports and present outcomes to all Investigators and Collaborators.
- Travel to attend meetings and make presentations both within the project partners working group and to external stakeholders.
- To write research papers suitable for publication in high quality academic journals.
- To attend and contribute to conferences.
- Maintain confidentiality at all times and ensure that intellectual property (IPR) agreements are not violated.

- To assist the academic staff in the project team with the supervision of undergraduate MSc and PhD project work and day-to-day supervision and support of other researchers.
- Engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and those of the Department.
- Undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

### **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 on the project

## Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. 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	Research experience in communication networks or machine learning	1,3
	Experience in computer programming such as Python	1,3
	Experience of publishing research results in high impact international journals	1,3
Skills and abilities	Excellent written and oral communication, and IT skills	1,3
	Excellent analytical skills	1,3
	Ability to work independently and as part of a team, interacting with different academic and industrial partners	3
	Self-motivated with ability to meet deadlines	3
Training	Willingness to undertake appropriate further training and to adopt new procedures as and when required	3
Qualifications	First or upper-second class BSc or BEng degree and a PhD (or near completion) in Electronic Engineering or relevant Engineering field.	1
Other	Commitment to observing the University's Equal Opportunities policy at all times.	3

### Desirable Criteria

Area	Criteria	Stage
Experience	Experience of developing and analysing signal processing techniques and/or machine learning methods.	1,3
	Practical experience of working on wireless communication standards	1,3
	Communication network performance analyses.	1,3
Skills and abilities	Authoring original work, in the highest quality refereed academic journals	1
	A strong publication track record	1
	Knowledge of network orchestration and management or machine learning techniques such as deep learning, reinforcement learning and graph neural networks.	1,3
Qualifications	PhD degree (or near completion) in signal processing or communications or machine learning.	1
Other	Travel / Able to travel for attending project meetings and collaborative research	3

## Conditions of Service

The position is FULL TIME and FIXED TERM until 31/03/2025). Salary will be on Specialist and Supporting Academic Grade 6, £33,966 to £39,347 per annum, at a starting salary to be confirmed on offer of appointment. The appointment will be subject to the University's Terms and Conditions of Employment for STAFF GRADES 6 AND ABOVE, 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 can be found [here](#).

The University offers a wide range of employee benefits which can be found [here](#).

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 as per the advert..