![University of Bedfordshire]

JOB DESCRIPTION

Details	
Job Title:	**Research Fellow in 5G and Cloud Computing**
School/Department:	**Computer Science and Technology / IRAC**
Job Reports To:	**Dr Renxi Qiu**
Location:	**Luton Campus**
Post Number:	**BEDS1800**

Pay Point:	**Grade 7**	**£34,803**	to	**£41,526**

Context

Fixed Term: for 12 months, can be further extended to 31st of Dec 2023.

The Institute for Research in Applicable Computing (IRAC) of University of Bedfordshire seek a Research Fellow to work on the EU Horizon 2020 5G-ERA project. Horizon 2020 is the biggest EU Research and Innovation programme. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. The 5G Infrastructure Public Private Partnership (5G PPP) is a joint initiative between the European Commission and European ICT industry (ICT manufacturers, telecommunications operators, service providers, SMEs and researcher Institutions) to address challenges faced by Europe in the field to maintain a strong expertise in key technology value chains; and to move quicker from research excellence to the market. The 5G-PPP is now in its third phase.

The post will require skills in system development & integration; and good understanding of network functional virtualisation, cloud native development and/or open-source robotic ecosystems. It is a fixed-term post for 12 months and can be further extended to 31st Dec 2023. This role is offered on a full-time basis with flexible working may be available to the right of candidate(s).

Key Elements (please tick as appropriate)

		YES		NO	X	
1.	This post has MANAGEMENT RESPONSIBILITY	YES		NO	X	
2.	This job requires SAFEGUARDING	YES		NO	X	
3.	This is a KEY POST (i.e. must have nominated deputy)	YES		NO	X	

Principal Accountabilities

The Project:

5G Enhanced Robot Autonomy is a £6 million H2020 ICT research project with 13 partners from 7 different countries to study 5G enhanced robot autonomy. It belongs to 5G-PPP Phase 3 (part 2) which targeting the utilisation of experiences gained from 5GPPP Phase 1, Phase 2 and Phase 3.1 into innovative vertical solutions. The project provides vertical customers with a user-centric paradigm of integrating vertical knowledge into the existing standardised 5G testing framework to improve Quality of Experience (QoE). The project's achievements will also have strong impacts to automated mobility, Industry 4.0 and healthcare as they all require autonomous robots. The project will demonstrate how the new NetApps are developed via the project's achievements to enable robot autonomy enhancement with four different use case scenarios in the field of surveillant robots for PPDR (automated mobility), semi-autonomous delivery robots for transport (automated mobility),

logistic robots for hospital (healthcare) and remote assistance for manufacturing process (Industry 4.0). These case studies can also be regarded as showcases of the potential of 5G and 5G-ERA to the acceleration of the ongoing convergence of robotics, AI & cloud computing; and to unlock a next level of autonomy through 5G based dense learning in General. Dr Renxi Qiu is the scientific coordinator of the entire 5G-ERA project and also the PI in university of Bedfordshire.

The IRAC:

The University of Bedfordshire (BED) is one of the modern universities in the UK. The Institute for Research in Applicable Computing (IRAC) will operate research and development proposed in this 5G-ERA project. IRAC has been active in research of robotics, AI, 5G, computer networking, healthcare data processing and visualisation, and IoT. Research in IRAC ranks 27 among 88 computer science departments in UK universities in REF2014. In recent years, IRAC led and participated in 19 EU FP7/H2020 projects, 8 projects funded by national funding bodies including the EPSRC, and 7 regional and local projects. The Institute currently leads and participates in 6 EU H2020/Regional fund projects and 2 nationally funded projects. All these projects are in the areas of ICT-assisted healthcare, robotics and engineering. The Institute is the leader of WP2 "Intent-based networking for 5G autonomous robots" and WP4 "Technology integration of 5G-ERA middleware". IRAC is specialised in robotics and semi-autonomous control; AI and machine learning; Cloud Computing & development of microservices applications; Applications of 5G and wireless networking. They are the main developer of 5G-ERA cloud native middleware.

Main Responsibilities:

1. To define software architecture specification, interfaces & protocols and testing framework required by the project.
2. To build cloud native solutions for system integration and continuous testing.
3. Solve practical problems, such as identifying potential 5G and cloud-based solutions for practical robotic algorithms, reasoning on the outcome of the applications and adjusting the decision process.
4. To build and maintain effective working relationships with key internal and external stakeholders including colleagues, project partners, sharing information and acting as ambassadors to raise the profile of the both the project and the University at formal public events and through informal and formal networks. This includes leading a user experience group (group formed from the company existing customers) to gain feedback with regards to effectiveness, accessibility and overall experience during the different design and

development stages.

5. To plan, prioritise and organise own workload, in collaboration with the supervisors to ensure tasks are completed within timescale.

6. To provide written and verbal project updates to Supervisors and the 5G-ERA general assembly on relevant aspects of the project to ensure that the project proceeds effectively and efficiently. This includes giving advice to Supervisors on specific aspects of work, in order to influence decisions taken on the project, identify project capabilities and future needs of the project.

7. To work with the Supervisors to contribute to project reports at meetings and to the 5G-ERA general assembly. This includes contributing to the scheduling of research priorities for the 5G-ERA general assembly, as required, using materials such as Gantt charts and timelines, and presenting in front of the Committee at quarterly management meetings.

8. To participate in the development of documentation related to the project, including maintenance of appropriate data collection systems, to ensure effective and timely reporting.

9. Contribute to interim and final research reports and other outputs. This also includes being able to demonstrate an ability to input towards publication's arising from the research.

10. Continue to update research knowledge and skills.

11. To take the lead in the development of documentation related to the project, with assistance from the Supervisors as required.

12. To recognise complex problems and constraints as they arise and use initiative to resolve them, complying with research project ethics outlined and keeping colleagues/ manager informed.

13. To work collaboratively with Supervisor, but also demonstrate initiative and autonomy to ensure timely and quality research practice.

14. To show a flexible and efficient approach in the delivery of work within the project. The post holder may therefore be required to perform duties not specifically identified in the job profile that are in line with the general responsibilities of the post and relevant duties.

Person Specification

	Essential Criteria	Desirable Criteria	Evidence (Indicate were evidence will be assessed from)
Qualifications	• PhD Degree in computer science and related field • Equivalent work experience can also be considered		• *Application Form*
Knowledge	• Knowledge of Cloud Computing and Cloud Native development • Knowledge of Virtualisation, Management and Orchestration, in particular Network Function Virtualisation (NFV) • Knowledge of software development life cycle and open-source development • Knowledge of Machine Learning and Artificial Intelligence	5G network	• *Application Form/Interview*
Experience	• Experience on large software development • Experience of H2020 project	• ROS development • ETSI OSM for managing and orchestration • OpenStack • Containerisation and Kubernetes	• *Application Form/Interview*
Skills/abilities/ competencies	• Be able to execute tasks according to plan, while keeping a through procedural record and data log • The ability to contribute to a team effort whilst being a self-starter, highly motivated and willing to take the project lead • Need a logical approach to a problem solving and methodical and inquisitive mind • Capable of clearly organising and presenting ideas and plan to management and peers		• *Application Form/Interview* • *Application Form/Interview*
Personal Attributes	• Well Organised • Willingness to learn • Ability to work in a culture of change and growth, being enthusiastic and adaptable regarding the work environment and expectation • Ability to work independently and proactively, exercising personal initiative and responsibility and using own judgement to solve problems • Flexible and effective team worker with the ability to demonstrate working to deadlines.		• *Application Form/Interview* • *Application Form/Interview* • *Application Form/Interview*

COMMUNICATION

The Role Holder communicates with staff and the public about basic subjects that require little further explanation. In addition, the Role Holder may also be required to receive, understand and convey information that needs more careful explanation or interpretation for others.

TEAM WORK AND MOTIVATION

The role holder is required to be supportive and encouraging of others in a team; help to build co-operation by setting an example and showing a flexible approach to delivering team results; contribute to building team morale as an active participant in the team. In addition, the role holder is required to clarify the requirements; agree clear task objectives; organise and delegate work fairly according to individual abilities; help the team focus their efforts on the task in hand and motivate individual team members.

LIAISON AND NETWORKING

The role holder is required to carry out standard day to day liaison using existing procedures in order to ensure dissemination of information in the right format to the right people at the right time; build relationships and contacts to facilitate future exchange of information. The role holder is required to participate in networks within the institution or externally in order to influence events or decisions; undertake active collaboration to pursue a shared interest. The role holder is required to initiate, build or lead internal networks; maintain relationships over time; establish communication channels for self or others to use in order to influence events or decisions; undertake active collaboration to pursue a shared interest. The role holder is required to initiate, develop or lead networks which are external to the institution in order to ensure dissemination of information in the right format to the right people at the right time; build relationships and contacts to facilitate future exchange of information.

SERVICE DELIVERY

The role holder is required to deal with internal or external contacts who ask for service or require information; create a positive image of the institution by being responsive and prompt in responding to requests and referring the user to the right person if necessary. Contact is usually initiated by the customer and typically involves routine tasks with set standards or procedures. In addition, the role holder is required to deal with internal or external contacts where the service is usually initiated by the role holder, working within the institution's overall procedures or policies; AND OR understand and explore customer's needs; adapt the service accordingly to ensure the usefulness or appropriateness and quality of service (content, time, accuracy, level of information, cost).

DECISION MAKING PROCESSES

The Role Holders own decisions have a moderate impact on the University. The role holder will also make collaborative decisions with others and play a role in contributing to others decisions. Outcomes of both types of decision making will also have a moderate effect on the University.

PLANNING AND ORGANISING RESOURCES

The role holder is required to plan, prioritise and organise their own work or resources to achieve agreed objectives. In addition, the role holder is required to plan, prioritise and organise the work or resources of self and others within own area on a daily, weekly or monthly basis; plan and manage small projects, ensuring the effective use of resources; receive information from and provide information to others to complete their planning; monitor progress against the plan.

INITIATIVE AND PROBLEM SOLVING

The role holder is required to solve standard day to day problems as they arise; choose between a limited number of options which have clear consequences, by following guidelines or referring to what has been done before; recognise when a problem should be referred to others. The role holder is also required to use initiative and creativity to resolve problems where the optimal solution may not be immediately apparent but has to be assessed by a process of reasoning, weighing up the pros and cons of different approaches; identify and assess practical options; break the problem down into component parts.

ANALYSIS AND RESEARCH

The role holder is required to establish the basic facts in situations which require further investigation and inform others if necessary. The role holder is also required to analyse routine data or information

using predetermined procedures and gathering the information from standard sources; work accurately to complete the task precisely as specified.

For example, logging of IT or Health and Safety problems with the help desk. In relation to information analysis, the Role Holder should be making use of standard processes that will assist the analysis of information.

SENSORY AND PHYSICAL DEMANDS

The role holder is required to carry out tasks at a level which would require either learning certain methods or routines or involve moderate physical effort.

WORK ENVIRONMENT

The Role Holder is required to work in an environment which is relatively stable and has little impact on the role holder or the way in which work is completed.

For example, a stable office environment.

PASTORAL CARE AND WELFARE

The Role Holder is required to show sensitivity to those who may need help or, in extreme cases, are showing signs of obvious distress; initiate appropriate action by involving relevant people.

For example, basic low level understanding of staff who are disgruntled. The Role Holder will be aware of when situations are more serious and will then involve appropriately skilled people.

TEAM DEVELOPMENT

The role holder is required to advise or guide new starters working in the same role or unit on standard information or procedures. The role holder is required to train or guide others on specific tasks, issues or activities; give advice, guidance and feedback on the basis of their own knowledge or experience; deliver training. The role holder is required to carry out training or development activity according to the needs of the individual or group; identify current capabilities and future needs; define the performance standards required; identify appropriate developmental activity; assess the application of learning; give feedback and guidance on overall performance.

TEACHING AND LEARNING SUPPORT

The role holder is required to provide standard information or deliver teaching or training to introduce students or others who are new to the area to standard information or procedures. The role holder is required to provide standard information or deliver teaching or training to teach, train or facilitate development activities for individuals or groups on certain aspects or subjects within a particular academic discipline or specialism; monitor performance giving feedback and guidance; act as a catalyst for further development or learning.

KNOWLEDGE AND EXPERIENCE

The role holder is required to apply working knowledge of theory and practice, sharing this knowledge with others as appropriate; demonstrate continuous specialist development by acquiring relevant skills and competencies.