

Research Role Profile

Job Title:	Research Fellow B- 6G Fellow in Advanced Wireless Technology for Distributed Data Processing
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Responsible to:	Head of research group, or principal investigator
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Responsible for:	Responsibility for staff within own research group
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Job Summary and Purpose	
To plan and deliver research in accordance with the specified research project. To contribute to securing funding for own research projects and for projects for those staff under their direct supervision.	

Main Responsibilities/Activities	
<p>To contribute to the development of the research of the Faculty, by planning and carrying out research activity within a specified area, often in collaboration with colleagues.</p> <p>To take a significant role in planning, co-ordinating and implementing research programmes and, where appropriate, commercial and consultancy activities. To take lead responsibility for a small research project or identified parts of a large project. This may include planning fieldwork, data analysis and evaluation and laboratory experimentation. To make decisions about research programmes and methodologies, often in collaboration with colleagues, and to resolve the problems of meeting research objectives and deadlines.</p> <p>To develop new concepts and ideas to extend intellectual understanding. Assess, interpret and evaluate the outcomes of research, and develop ideas for the application of research outcomes. To take a role in the regular publication of results in appropriate journals, in giving presentations at national and/or international conferences, and in other outputs as required and/or appropriate.</p> <p>To develop innovative research proposals (as a self-contained item or as part of a broader programme), identifying sources of funding, submitting funding bids, and gaining positive reviews for these. Promoting own area of research.</p> <p>Continually to update knowledge and develop skills. To extend, transform and apply knowledge acquired from scholarship to research and appropriate external activities.</p> <p>To carry out management and administrative tasks associated with specified research funding, including managing and developing staff within their projects; risk assessment of project activities; organisation of project meetings and documentation; management of resources, preparation of annual reports, and management or monitoring of research budgets. To oversee and implement procedures required to ensure accurate and timely formal reporting and financial control.</p>	

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To undertake liaison with external organisations including equipment manufacturers, steering committees, associated academic facilities and commercial users.

To contribute to teaching within the Faculty by carrying out student supervision, demonstrating or lecturing duties within the post holder's area of expertise. May be required to contribute to the supervision of research students.

Person Specification

The post holder must have:

Normally a doctoral degree in a relevant discipline, together with appropriate experience of working in a similar area of work.

The post holder will need to demonstrate a high level of competence and independent standing in research by being nationally recognised within their area of discipline, publishing regularly in recognised appropriate journals and attracting research funding for their own work or for other staff within the research group.

Relationships and Contacts

The post holder may have a key responsibility to the principal investigator, with prime responsibility for reporting and liaison with external funding bodies or sponsors. As a senior member of the project team, the post holder will also supervise the activities of research and technician staff within the particular research group

Special Requirements

To be available to participate in fieldwork as required by the specified research project.

All staff are expected to:

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities policy.
- Help maintain a safe working environment by:
 - Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand
 - Following local codes of safe working practices and the University of Surrey Health and Safety Policy
- Undertake such other duties within the scope of the post as may be requested by your Manager.

Research Role Profile

Addendum to Profile

Job Title:

6G Fellow in Advanced Wireless Technology for Distributed Data Processing

Job Summary and Purpose:

This information sheet should be read in conjunction with the accompanying generic Research Role Profile and will be used for shortlisting processes. More specifically the post holder will be expected to:

Undertake research on advanced physical Layer algorithms for support of terabits per second communication that includes but not limited to: algorithms for Massive MIMO, Wireless AI and RAN AI, Parallel signal processing, Channel coding and Modulation schemes and diversity schemes, random access protocol design.

Main Responsibilities/Activities

- Undertake a range of research activities in the field of signal processing for future communication systems, e.g., future MIMO processing and data driven artificial intelligent.
- Publish research outputs in top quartile journals and top international conferences in the field of communications systems.
- Undertake a range of research activities in the broader field of signal processing for future communication systems.
- Contribute to the development of research platforms and testbeds and validate theoretical ideas through them.
- Use initiative and creativity to identify areas for development of new research methods and extend the research portfolio in the corresponding field of research.
- Develop innovative research proposals (as a self-contained item or as part of a broader programme), identifying sources of funding, submitting funding bids, and gaining positive reviews for these.
- Plan and manage own research activity in collaboration with the members of the 5G/6G Innovation Centres
- Carry out management and administrative tasks associated with specified research funding.
- The post holder may occasionally be required to supervise more junior research staff.

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Person Specification

The post holder must have experience in a selection of the following areas:

- Expertise in large-scale MIMO detection and precoding, distributed massive-MIMO architecture and backhaul design, beamforming optimisation and selection
- Expertise in deep learning for wireless modem design including deep learning algorithm development
- Expertise in MATLAB, Python (TensorFlow) and C programming for deep learning
- Strong expertise in signal processing for wireless communication systems (especially modulation/waveform design)
- Very good understanding of new trends in the field like multiuser Multiple-Input, Multiple-Output (MIMO) systems, beamforming methods, and Non-Orthogonal Multiple Access (NOMA) systems
- Recent research experience in the development of advanced physical layer algorithms and systems
- Very good understanding of state-of-the-art detection, interference handling, and channel encoding/decoding methods
- Very good understanding of communications theory
- Strong background in medium access control protocols and random access
- Good knowledge in various optimization techniques
- Expertise in reinforcement learning for radio resource allocation
- Strong research and analytical (mathematical) skills
- Proven track record of innovation supported by publications in high ranked journals and conferences
- Very good written and verbal communication skills