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| **Job Title:** | Research Fellow (RAII) – Wireless Communications |

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| **Responsible to:** | Professor Pei Xiao |

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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. |

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| Main Responsibilities/Activities |
| 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.  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.  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.  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.  Continually to update knowledge and develop skills. To extend, transform and apply knowledge acquired from scholarship to research and appropriate external activities.  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.  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. |

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| **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. |

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| **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 |

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| **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.

**Addendum to Profile**

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| **Job Title:** | Research Fellow (RAII) –Wireless Communications |

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| **Job Summary and Purpose:** |
| This information sheet in conjunction with the accompanying generic Academic Profile will be used for shortlisting processes.  The successful candidate will be required to work on the project “New Air Interface Techniques for Future Massive Machine Communications” sponsored by EPSRC.  They will be expected to have strong analytical skills and extensive experience in Signal Processing and Information Theory for Wireless Communications. |

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| **Main Responsibilities/Activities** |
| * Design and optimization of low density signature (LDS), sparse code multiple access (SCMA) based as well as power domain non-orthogonal multiple access schemes. * Design of new waveforms for 5G mMTC applications. * Development of deep learning algorithms for NOMA and massive MIMO system design. * Development of compressive sensing algorithms for mm-wave communications. * Design and optimization of grant-free multiple access schemes for V2X communications. * Joint optimisation of radio access and backhaul for 5G * Optimization of 5G network slicing solutions * Design and optimization of large intelligent surface. * Theoretical analysis and computer simulations, in collaboration with other members of the group as well as partners in the consortium * Supervising MSc and PhD students * Writing new research proposals |

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| **Person Specification** |
| In addition to the criteria outlined in the accompanying generic Academic Profile, it is also essential, that the post holder must have:   * Strong research and analytical skills. * Teamwork and interpersonal skills. * Relevant experience in physical layer techniques for 4G/5G. * Matlab and/or C++ programming skills. * Problem solving and analytical skills. * Strong written and verbal communication skills with ability to write up project deliverables and give presentations on work completed. |