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| **Job Title:** | Research Fellow – Wireless Communications |

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

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| **Responsible for:** | MSc and PhD students working in the same area |

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| Job Summary and Purpose: |
| To undertake research in accordance with the specified research project(s) under the supervision of the principal investigator. |

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| Main Responsibilities/Activities |
| To undertake a range of research activities within a specified research area, assuming responsibility for specific areas of the project and making use of new research techniques and methods, in consultation with the research award holder or supervisor. This may include algorithm development, computer-based simulations, critical evaluation and interpretation, data analysis and evaluation.  To use initiative and creativity to identify areas for research develop new research methods and extend the research portfolio. Analysing and interpreting results of own research. Write up results and prepare papers for submission to appropriate journals and conferences, and other outputs as required and/or appropriate. Attend appropriate conferences for the purpose of disseminating research results of personal development. The post holder may also contribute to writing bids for research grants and will contribute to collaborative decision making with colleagues in areas of research.  Continually to update knowledge and develop skills, and translate knowledge of advances in the area into research activity.  To plan and manage own research activity in collaboration with others. To carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control.  The post holder may be required to supervise more junior research staff. |

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| **Person Specification** |
| The post holder must have:A doctoral degree in a relevant discipline (although individuals who have almost completed a doctoral degree may be appointed). Consideration may also be given to individuals who do not hold a doctoral degree but have required skills based on a number of years experience in specified / relevant fields The post holder will have authority over some aspects of project work and must be capable of providing academic judgement, offering original and creative thoughts and be able to interpret and analyse results. |

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| **Relationships and Contacts** |
| Direct responsibility to the principal investigator or academic supervisor. There may be additional reporting and liaison responsibilities to the external project partner. The post holder may work on original research tasks with colleagues in other institutions. |

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| **Special Requirements** |
| N/A. |

### 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 – 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 |

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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. |