Candidate Information

Position:	Research Fellow, EEECS
School/Department:	Centre for Wireless Innovation
Reference:	24/111756
Closing Date:	Monday 22 April 2024
Salary:	£37,841 per annum
Anticipated Interview Date:	Friday 10 May 2024
Duration:	Fixed term for 30 months, or available until 31 March 2027, whichever is sooner

JOB PURPOSE:

Conduct in-depth research in next generation MIMO systems. Investigate and apply Communication Theory and/or Electromagnetic Information Theory to model and analyse signal transmission mechanisms in cellular/cell-free massive MIMO. Explore applications of these findings in areas such as localizations, large-scale MIMO radar, extremely large aperture arrays, holographic Massive MIMO.

This is a unique opportunity to build the next generation MIMO systems and work at one of the leading institutions in the UK in microwave technology, the Centre for Wireless Innovation – Queen's University Belfast, collaborating with a UK-wide team of academics and industry partners.

MAJOR DUTIES:

1. Undertake research under supervision within the specific research project and, as a member of the collaborative research team, lead research within next generation MIMO systems framework, collaborating with the wider research team.
2. Investigating theoretical limitations making significant contributions to the advancement of next generation MIMO systems.
3. Execute in-depth analyses and critical evaluations using Communication Theory and/or Electromagnetic Information Theory.
4. Carry out educational supervision of the PhD students under the guidance of the project investigator team.
5. In consultation with project investigators and collaborators, prepare material for publication in prestigious leading journals and presentations at major international conferences to disseminate and publicise research findings.
6. Produce high-quality research outputs consistent with project aims and commensurate with the career stage. This includes collaborating with the wider EME Hub team (as appropriate) on outputs.
7. In consultation with the project team, promote research milestones and outputs at workshops and promotion events.
8. Assist EME Hub members in preparing funding proposals and applications to external bodies.
9. Undertake supplementary duties relevant to the success of the Hub at QUB, including presentation of regular progress reports and additional training and development activities as required.
10. Keep abreast of new developments in specialism and related research areas/disciplines. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a PhD in a relevant area.
2. Relevant research experience, including:
   - MIMO systems
   - Demonstrable knowledge of communication theory, and know-how of transmission line theory and electromagnetic theory
   - Experience using modelling tools, such as MATLAB, Python, etc.
   - Strong publication record, commensurate with stage of career.
3. Ability to contribute to broader management and administrative processes.
4. Contribute to the School's outreach programme by links with industry, community groups etc.
5. Evidence of strong analytical and problem solving skills

6. Ability to communicate complex information effectively in oral and written format.
7. Ability to build relationships to develop internal and external networks.

DESIRABLE CRITERIA:

1. A PhD in the field of communication technology.
2. Hold a master's in the field of electrical engineering, physics, or mathematics.
3. Additional evidence of:
   - Knowledge of massive MIMO.
   - Knowledge of Information theory and electromagnetic theory.
   - Desirable to have experience in far-field/near-field measurements.
4. Project management experience.
5. Experience in funding proposal writing.