



Candidate Information

Position:	Research Fellow: Resilient Cell-free Massive MIMO
School/Department:	School of Electronics, Electrical Engineering and Computer Science
Reference:	24/112311
Closing Date:	Monday 9 December 2024
Salary:	£39,922 per annum
Anticipated Interview Date:	Wednesday 18 December 2024
Duration:	24 months

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of a US-Ireland project led by Professor Michalis Matthaiou. To optimise the resilience and performance of future cell-free massive MIMO and become an active member of the Centre for Wireless Innovation and the School of EEECS at QUB, assisting in the production of world leading research output.

MAJOR DUTIES:

1. Develop theoretical models to model cyber-attacks in future radio access technologies (cell-free massive MIMO, RIS).
2. Enhance the resilience of cell-free massive MIMO using optimization tools and communication theory.
3. Develop intelligence-aware resource allocation schemes in cell-free massive MIMO.
4. Evaluate the performance of the proposed solutions in MATLAB and/or Python.
5. Develop and plan an area of personal research and expertise and/or undertake research under supervision within a specific research project or as a member of a research team.
6. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to the proposed research topic.
7. Present regular progress reports on research to research group members or to external audiences to disseminate and publicise research findings.
8. Prepare, often in consultation with the supervisor, material for publication in national and international journals and presentations at international conferences.
9. Assist grant holder in the preparation of funding proposals and applications to external bodies.
10. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget.
11. Carry out occasional undergraduate (final year, MEng) project supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of the academic staff.

ESSENTIAL CRITERIA:

1. Have, or be about to obtain (within 3 months of application), a PhD in Electronics, Electrical Engineering, or closely related discipline.
2. Research experience in massive MIMO, reconfigurable intelligent surfaces, cell-free massive MIMO, communication theory, optimization or related area.
3. Evidence of strong publication record commensurate with stage of career.
4. Demonstrable ability to:
 - Contribute to research management and administrative processes.
 - Contribute to the School's outreach programme by links with industry, community groups etc.
5. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
6. Strong communication skills with a demonstrable ability to communicate complex information clearly.
7. Proven ability to build contacts and participate in internal and external networks.
8. Ability to travel and present at project meetings, and international conferences.

DESIRABLE CRITERIA:

1. Able to demonstrate:
 - Strong background in signal processing aspects of massive MIMO and cell-free massive MIMO.
 - Strong background in physical layer security.
2. Experience in EU or RCUK projects, in particular in project task management and reporting through periodic deliverables.
3. Experience in producing timely technical documentation on research projects (deliverables, reports).
4. Experience with presentations of research outputs in conferences, workshops, or seminars.