



Candidate Information

Position:	Research Fellow
School/Department:	Centre for Wireless Innovation
Reference:	23/110731
Closing Date:	Monday 3 April 2023
Salary:	£35,333 - £38,592 per annum
Anticipated Interview Date:	Monday 17 April 2023
Duration:	Fixed term until 31 January 2026

JOB PURPOSE:

Design and implementation of multi-functional reconfigurable surfaces for microwave imaging and wireless communications applications. This will be carried out as part of a research team, within an exciting new Horizon Europe – EPSRC funded project, aiming to develop real-time imaging and communication capabilities using coherent and incoherent wireless signals.

MAJOR DUTIES:

1. Design and develop reconfigurable antennas and surfaces.
2. Develop the control and biasing circuits of the reconfigurable surfaces to achieve real-time beamforming and backscatter measurement capabilities.
3. Simulate and measure microwave antennas and reconfigurable apertures, and demonstrate their application to wireless communications and microwave imaging scenarios.
4. Liaise with others in the research consortium to carry out system integration.
5. As part of a research team, contribute to the analysis and signal processing of the experimental data acquired with the developed antennas, evaluating potential synergies with the output data from sensors developed by other project partners.
6. Prepare, in consultation with line manager and group members, material for publication in prestigious leading journals and presentations at major international conferences to disseminate and publicise research findings.
7. Contribute to undergraduate and postgraduate supervisions, within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Identify new funding opportunities and assist in the preparation of funding proposals.
9. 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 Electrical/Electronic engineering or Physics.
2. At least 3 years relevant research experience to include:
 - design and implementation experience of reconfigurable antennas and surfaces (metasurfaces, reflecting surfaces, etc), including control and biasing circuitry.
 - designing RF antenna element/array
 - using RF design and simulation software such as CST Microwave Studio and Ansoft HFSS.
 - conducting measurements and characterisation of RF/microwave devices and circuits and antennas using measurement equipment such as vector network analysers, spectrum analysers, power meters etc.
 - using far-field and/or near-field antenna measurements.
3. Strong publication record commensurate with stage of career
4. Ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc.
6. Willingness to undertake additional training in research methods and other related skills as required.
7. Practical problem solving skills, independence of thought and initiative.
8. Ability to communicate complex information effectively in oral and written format.

9. Ability to build relationships to develop internal and external networks.
10. Ability to assess and organise resources.

DESIRABLE CRITERIA:

1. A PhD in reconfigurable metasurfaces and/or reflecting surfaces.
2. Experience of:
 - sparse/thinned antenna arrays.
 - using PCB prototyping software, such as LDKF CircuitCAM, LDKF board master, Altium Designer, AutoCAD etc.
 - using MATLAB.
3. Knowledge in microwave and millimetre imaging.
4. Experience in working with reconfigurable surfaces for imaging and/or wireless communications.
5. Experience in sensor fusion data processing.
6. Ability to code and implement data acquisition algorithms on target hardware.