





1 Advertisement

Post Title: Research Fellow- D-band Satellite Links for 6G
School/department: Engineering and Informatics/Engineering and Design
Hours: Full time 100% FTE (37.5 hours). Requests for <u>flexible working</u> options will be considered (subject to business need).
Location: Brighton, United Kingdom
Contract: Fixed term until 31 March 2025
Reference: 21678
Salary: starting at £37,099 to £44,263 per annum, pro rata if part time
Placed on: 19 September 2023
Closing date: 9 October 2023. Applications must be received by midnight of the closing date.
Expected Interview date: To be confirmed.
Expected start date: 1 Jan 2024

The Advanced Communications, Mobile Technology and IoT (ACMI) centre at the University of Sussex, is seeking a post-doctoral researcher to work with us on a forthcoming study for the European Space Agency (ESA) relating to the use of spectrum above 100 GHz for 6G satellite communications. With non-terrestrial networks (NTN) expected to form a fully integrated part of next-generation communications systems, this is an exciting opportunity to participate in shaping future standards.

The work will involve research, simulations, and performance analysis of D-band links for 6G satellite communications including the development of hybrid system simulators, capable of modelling a wide variety of satellite orbital geometries, antenna beam dynamics and link-layer communications and performance analysis. We are seeking enthusiastic candidate with a strong engineering background and a good familiarity with some of the following topic areas (in approximate order of importance):

- Numerical simulations in C++, MATLAB, Fortran or similar.
- Advance wireless communication techniques such as modulation and coding for NTN links.
- Antenna technologies.
- 3GPP standards (particularly NTN).
- Radio frequency propagation and channel modelling.
- Integrated Sensing and Communication (ISAC).

The successful candidate will be expected to work both independently and as part of a team; to have regular meetings with their supervisor; to present their work to the research team and partners, and to draft reports and publish their results in a timely manner.

There may be the opportunity of a full-time role as a consulting engineer with one of our industrial partners following the conclusion of the study.

When applying, please fill in the application form and attach a full CV. Use the space for additional information to explain your interest in this area of research and how your skills are suited to the project, referring to the 'essential criteria' and 'essential role-specific criteria' as outlined in the Job Description.

For informal enquiries, please contact Prof Falah Ali, <u>f.h.ali@sussex.ac.uk</u>, +44 (0)1273 678445.

The University is committed to equality and valuing diversity, and applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex.

"Please note that this position may be subject to <u>ATAS clearance</u> if you require visa sponsorship."

For full details and how to apply see our vacancies page

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds.

2. The School / Division

Please find further information regarding the school/division at https://www.sussex.ac.uk/ei/; <a href="h

3. Job Description

Job Description for the post of: Research Fellow- D-band Satellite Links for 6G

Department: Engineering and Design

Section/Unit/School: Engineering and Informatics

Location: Brighton, United Kingdom

Grade: G7 (30-36)

Responsible to: Professor Falah Ali

Responsible for: N/A

Principal Accountabilities

To engage in individual and/or collaborative research activity to deliver the research objectives within the framework of the agreed programme, and to produce or contribute to the production of research outputs for publications.

Key Responsibilities

1. Research, Scholarship & Enterprise

- Develop research objectives and contribute to the planning of the research project, guided by the research programme.
- Conduct research activity, and in collaboration with the research team.
- Analyse and interpret research findings and contribute to discussions on conclusions and outcomes.
- Write reports and present information on research progress and outcomes to the research team and relevant bodies.
- Plan own day-to-day research activity within the framework of the agreed programme.
- Produce or contribute to high-quality research outputs for publication.
- Continually update knowledge and understanding in field or specialism.

2. Contribution to School & University

- Attend and contribute to relevant School and project meetings.
- Undertake additional duties, as required by the Principal Investigator.

3. Role-specific duties

- Conduct literature review and critical assessment of the state-of-the-art of D-band satellite links and technologies for 6G.
- Define system scenarios, models and their implementation in simulators.
- Develop simulators technical specifications, design and implementation.
- Conduct link and system level simulations and performance analysis.
- Carry out quantitative evaluations and reporting.
- Participate in project meetings and reporting of research.

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

4. Indicative Performance Criteria

- Conduct research to deliver the aims and objectives of the research programme.
- Undertake research by preparing, setting up and conducting simulations.
- Conduct performance analysis and support the interpretation of results and prepare written reports and summaries.
- Develop link and system level simulators.
- Preparation of papers for publication based on the research with support from the project team.

5. Person Specification

Essential Criteria

- Normally educated to doctoral level, or other equivalent qualification, or appropriate level of experience, as appropriate to the discipline (see essential role-specific criteria below).
- Evidence of engagement in high-quality research activity.
- Excellent presentation skills, with the ability to communicate effectively, both orally and in writing, with colleagues and external audiences.
- Ability to work independently, and as part of a team.
- Ability to exercise a degree of innovation and creative problem-solving.
- Excellent organizational and administrative skills.
- Ability to prioritise and meet deadlines.
- Excellent IT and software skills.

Essential Role-Specific Criteria

- Strong engineering background and research experience in mobile or satellite communications.
- Software simulation skills in MATLAB, C++, Python, Fortran or similar.
- Experience or good familiarity with some of the following topic areas, advanced digital wireless communication techniques, modulation, coding, multiple antenna technologies, radio frequency propagation, channel modelling, 3GPP standards (particularly NTN), and integrated sensing and communication.
- Ability to conduct link and system level modelling, simulations, and performance analysis.
- Ability to work efficiently as part of a team and constructively contribute to achieving the research programme objectives.

Desirable Criteria

- Experience or familiarity with other related topic areas such as Machine learning approaches.
- Research paper publications.
- Experience of preparing research proposals or generating research income.