Research Associate in Synthetic Aperture Radar Processing

Department: Electronic and Electrical Engineering (www.strath.ac.uk/engineering/electronicalelectricalengineering/)
Faculty: Faculty of Engineering (www.strath.ac.uk/engineering/)
Staff Category: Research

Reports To: The Head of Department, through Dr Carmine Clemente

Grade: 7
Contract Type: Fixed Term (12 months)
Closing Date: Friday, 6 October 2023

Job Advert

The Sensor Signal Processing & Security Laboratories (SSP&S labs), part of the Centre for Signal and Image Processing (CeSIP) in the Electronic and Electrical Engineering (EEE) Department, is seeking to appoint a Research Associate to be involved in an international project funded by the European Space Agency (ESA) under the EO4Security framework and collaborating with international partners.

The SSP&S labs, in collaboration with B-Open and the University of Rome “La Sapienza”, have secured an EO4Security project funded by the ESA to investigate innovative Synthetic Aperture Radar processing techniques, with particular focus to micro-motion information extraction and SAR refocusing strategies for targets in the maritime and land domains. The Research associate will support the project, conducting key aspects of the research, including review of the state of the art, identification and development of algorithmic solutions, setup of experimental campaigns and validation of the algorithms with real and simulated datasets.

As Research Associate, you will work in a team with an established international reputation in the field of RF sensors signal processing and work in the state-of-the-art facilities of the SSP&S labs located at the Technology and Innovation Centre of the University of Strathclyde, under the general guidance of Dr Clemente, Director of the SSP&S laboratories, and with the support of senior academic with expertise in Applied Space Technologies and Civil Engineering.

You will develop research objectives and proposals, play a lead role in relation to the project, conduct individual and/or collaborative research with the project’s partners, contribute to the development of new research methods and of the project’s deliverable, identify sources of funding for follow-up activities, and contribute to the securing of funds for research, including drafting grant proposals and planning for future proposals. Furthermore, you will be involved in disseminating the results of the research in the form of publications and other outreach activities, individually or in collaboration with colleagues.

To be considered for the role, you will be educated to a minimum of PhD level in an appropriate discipline (i.e. engineering, physics, computer science), or have significant relevant experience in addition to a relevant degree. You will have sufficient breadth or depth of knowledge in the field of Synthetic Aperture Radar processing, with a clear understanding of the fundamental principles of the image formation process, a deep knowledge of the fundamental Digital Signal Processing tools. An understanding of radar micro-Doppler phenomenology would be preferable. You will have an ability to plan and organise your own workload effectively and an ability to work within a team environment. You will have excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.
Job Description

Brief Outline of Job:
To conduct research in the field of Synthetic Aperture Radar processing and information extraction in support of the EO4Security project funded by the European Space Agency under the general guidance of Dr Clemente; to develop the project deliverables and related publications; to establish a personal research portfolio and plan research proposals, with assistance from senior colleagues as required; to engage where required in relevant teaching, professional and knowledge exchange activities; and input to administrative activities.

Main Activities/Responsibilities:

1. Conduct the research work for the EO4Security project in collaboration with the other members of staff at Strathclyde involved and with the international partners.
2. Plan and manage own workload, with guidance from colleagues as required.
3. To prepare technical reports as and project’s review presentations.
4. Identify sources of funding and contribute to the securing of funds for research for follow-up activities, including drafting grant proposals and planning for future proposals.
5. Write up research work for publication, individually or in collaboration with colleagues, and disseminate results as appropriate to the discipline by, for example, peer reviewed journal publications and presentation at conferences.
6. Join external networks to share information and ideas, inform the development of research objectives and to identify potential sources of funding.
7. Collaborate with colleagues to ensure that research advances inform departmental teaching effort.
8. Collaborate with colleagues on the development of knowledge exchange activities by, for example, participating in initiatives which establish research links with industry and influence public policy and the professions.
9. Support the supervision of student projects, provide advice to students, and contribute to teaching in small capacity as required by the EEE Department.

Person Specification

Educational and/or Professional Qualifications
(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good honours degree and PhD (or equivalent professional experience) in an appropriate discipline i.e. engineering, physics, computer science

Experience

E2 Proven experience in conducting effective research, leading to tangible and timely research outputs, such as publications, technical reports and project deliverables to funders.
E3 Demonstrated knowledge of Synthetic Aperture Radar processing principles.
E4 Solid knowledge of Digital Signal Processing techniques
D1 Understanding of radar micro-Doppler phenomenology
D2 Experience in planning and setup of experimental measurement campaigns
D3 Knowledge of machine learning and deep learning tools
D4 Experience in working on projects with multiple international partners

Job Related Skills and Achievements

E5 Ability to conduct individual research work and to disseminate results
D5 Ability to prepare research proposals
E6 Ability to plan and organise own workload effectively.
E7 Ability to work within a team environment.
D6 Ability to travel, including to ESA-ESRIN in Italy, for project’s meetings
Personal Attributes

**E8** Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (http://www.strath.ac.uk/hr/workforus).

Informal enquiries about the post can be directed to Dr Carmine Clemente, Reader (carmine.clemente@strath.ac.uk).

Conditions of Employment

Conditions of employment relating to the Research staff category can be found at: Conditions of Employment.

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found here.

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from Payroll and Pensions.

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Equality and Diversity

The University of Strathclyde is a socially progressive institution that strives to ensure equality of opportunity and celebrates the diversity of its student and staff community. Strathclyde is people-oriented and collaborative, offering a supportive and flexible working culture with a deep commitment to our equality, diversity and inclusion charters, initiatives, groups and networks.

We strongly encourage applications from Black, Asian and minority ethnicity, women, LGBT+, and disabled candidates and candidates from lower socio-economic groups and care-experienced backgrounds.

University Values

The University’s Values capture what we’re all about: who we are, what we believe in and what we stand for. Our Values have been derived from how we act and how we expect to be treated as part of Strathclyde.