



DLR – DAAD Fellowships

Fellowship No. 388

Research Area : Space

Research Topic: **Advanced image processing algorithms for interferometric SAR parameter estimation**

DLR Institute: Microwaves and Radar Institute, DLR Oberpfaffenhofen

Position: Doctoral Fellow

Openings: 1

Job Specification:

The proposed research topic is concerned with the processing of remotely sensed data acquired from orbiting platforms. In the last years, the number of Earth observation satellites has rapidly increased, promoting several new fields of utilization. Among those, Radar systems, such as Synthetic Aperture Radar (SAR), are leading to the next generation of breakthrough applications for the observation of dynamic phenomena on the Earth's surface. In this context, a precise retrieval of the received radar signal is of fundamental importance for the successful use of these applications.

The research work will concern the statistical signal estimation of remotely sensed images in application to interferometric SAR data. The student will develop innovative methods based on different mathematical models. The research investigation will include the use of several approaches as the anisotropic filters and curvature motion, total variation, local adaptive filters in transform domain, Wavelet thresholding, statistical neighborhood approaches, and nonlocal means algorithm, with special focusing on this last category. The use and integration of such methods with Artificial Intelligence and, in particular, with Convolutional Neural Networks will be an additional focus of this research activity.

Required Qualification: Master Degree in Telecommunication Engineering, Mathematics, or Computer Science. Applicants should have good interpersonal and

communication skills and should be able to work in an international and interdisciplinary environment, both independently and as part of a team.

Advantageous Skills: Programming knowledge in Python and Matlab. Background knowledge in statistics, estimation and detection theory, image processing.

English competence: The working language is English. A very good speaking/writing knowledge is required.

Earliest Start Date: 1 June 2019

Application Deadline: Until position filled

Further Information: <http://www.dlr.de>
<http://www.daad.de/dlr>