



## **DLR – DAAD Fellowships**

### **Fellowship No. 475**

<b>Research Area :</b>	Space
<b>Research Topic:</b>	<b>Demonstration of Multistatic Synthetic Aperture Radar (SAR) Techniques and Applications using Drones</b>
<b>DLR Institute:</b>	Microwaves and Radar Institute (IHR), Radar Concepts Department, DLR Oberpfaffenhofen, Germany
<b>Position:</b>	Doctoral Fellow
<b>Openings:</b>	1
<b>Job Specification:</b>	<p>The DLR Microwaves and Radar Institute contributes to the advancement of spaceborne sensors through the execution of long-term research programs. The research work of the Institute encompasses the conception and development of new synthetic aperture radar (SAR) techniques and systems, as well as the retrieval of information from SAR data for several science applications.</p> <p>The newly formed NewSpace SAR research group focuses on disruptive and cost-effective SAR solutions for frequent and enhanced Earth monitoring. The group aims at establishing the foundation for a new SAR system design approach through the elaboration of theoretical models and the development of signal processing algorithms, thereby spreading the on-going NewSpace revolution to SAR remote sensing and posing the basis for future Earth observation missions that will yield remarkable societal benefits.</p> <p>A main research topic of the group concerns the development of distributed SAR systems for imaging, interferometry and tomography serving a wide range of applications. For that the Institute will purchase several drones already equipped with a radar and a positioning subsystem with the goal of demonstrating novel multistatic SAR techniques for future implementation in space, e.g., using small satellites.</p>

The doctoral fellows will demonstrate multistatic techniques and applications using drones already equipped with a radar and positioning system. The research activities will include, but not be limited to:

- Theoretical description and simulation of the imaging process (impulse response of the imaging system);
- Getting familiar with the drones;
- Processing of real data acquired by the drones;
- Error analysis;
- Design and execution of the experiments;
- Processing of the acquired data (image generation) and interpretation of the results;
- Rough scaling of the parameters for implementation in space.

The doctoral fellows will be encouraged to publish in peer-reviewed journals, apply for patents, present their work at international conferences, and enrol on DLR's Graduate Program.

**Required Qualification:** University diploma or master in electrical or telecommunications engineering with solid knowledge of signal processing.

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:** Knowledge of radio-frequency engineering and synthetic aperture radar. Practical experience with signal processing. Analytical skills and programming experience in Python or equivalent.

**English competence:** See requirements on [www.daad.de/dlr](http://www.daad.de/dlr)

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

**Earliest Start Date:** 01.02.2021

**Application Deadline:** Until position filled

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

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