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## DLR – DAAD Fellowships

3 Fellowships No. 379

<b>Research Area :</b>	Space
<b>Research Topic:</b>	<b>Distributed Multiple-Input Multiple-Output (MIMO) Synthetic Aperture Radar (SAR)</b>
<b>DLR Institute:</b>	Microwaves and Radar Institute (IHR), Radar Concepts Department, DLR Oberpfaffenhofen, Germany
<b>Position:</b>	Doctoral Fellow
<b>Openings:</b>	3
<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>The doctoral fellows will investigate distributed multiple-input multiple-output (MIMO) SAR architectures, based on multiple transmitters and multiple receivers located on several platforms flying in formation. The research activities will include, but not be limited to:</p> <ul style="list-style-type: none"><li>- Application-driven system design;</li></ul>

- Assessment of the advantages and drawbacks of frequency-modulated continuous-wave (FM-CW) operation over conventional pulsed operation;
- Waveform selection and related signal processing;
- Implementation of novel observation modes, such as MIMO SAR tomography;
- Conception of cognitive approaches for reconfiguration of the acquisition modes;
- Simulations with real airborne and satellite SAR data;
- Demonstration of the developed techniques with drones.

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 a technical / engineering or scientific discipline with emphasis on remote sensing, electromagnetics, physics, and/or 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 synthetic aperture radar and/or phased array theory. Experience in remote sensing, electromagnetics, and/or signal processing. Analytical skills and basic programming experience in IDL, Python, MATLAB or equivalent.

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

**Earliest Start Date:** 01.04.2019

**Application Deadline:** Until positions filled

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

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