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DLR – DAAD Fellowships

Fellowship No. 627

Research Area :	Space
Research Topic:	Blind Source Separation for Innovative Spaceborne Synthetic Aperture Radar Systems
DLR Institute:	Microwaves and Radar Institute (IHR), Radar Concepts Department, Oberpfaffenhofen, Germany
Position:	Doctoral Fellow
Openings:	1
Job Specification:	<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 and civil applications.</p>

A crucial issue in the development of innovative spaceborne SAR systems is related to the possibility to separate multiple, simultaneously received, signals with a minimum impact on the system complexity. This separation capability would allow the new SAR systems to achieve a tremendous performance improvement compared to current systems, both in terms of SAR imaging quality and information retrieval, with huge benefits for most of the spaceborne SAR applications. First research results have recently demonstrated that Blind Source Separation (BSS) methods may provide a promising tool to effectively solve this issue. Nevertheless, several questions are still open and prevent a practical and full exploitation of the BSS methods in the SAR context.

The objective of this project is to further investigate and demonstrate the potentialities of BSS methods for innovative spaceborne SAR systems under realistic acquisition conditions. Besides the elaboration of theoretical models and the development of signal processing algorithms, a central part of the work will be dedicated to the simulation and analysis

of the methods in different acquisition scenarios, generated by means of real SAR images.

The results of the research will be published in peer-reviewed journals and presented at international conferences. Patent applications will be also promoted.

The participation to the DLR's Graduate Program will be encouraged.

Required Qualification: Master degree in electronic engineering, communications engineering, or similar discipline with emphasis on signal processing. Programming skills (e.g., Python).

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: Experience in SAR processing and/or statistical signal processing.

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

Earliest Start Date: 01.02.2024

Application Deadline: Until position filled

Further Information: <http://www.dlr.de/en>
<http://www.dlr.de/hr/en/>
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Thank you for your attention!
We look forward to receiving your application!