



DLR – DAAD Fellowships

Fellowship No. 386

- Research Area :** Space
- Research Topic:** **Cloud shadow removal for high spatial resolution optical satellite data**
- DLR Institute:** Remote Sensing Technology Institute (IMF), DLR Oberpfaffenhofen
- Position:** Doctoral Fellow
- Openings:** 1
- Job Specification:** The objective is the development of an operational method for cloud shadow removal in high spatial resolution (10 – 30 m) optical satellite imagery. The emphasis is on multispectral data (Landsat-8 and Sentinel-2), but hyperspectral data should also be tested (DESI, EnMAP, high altitude 20-km AVIRIS). The first step is an efficient shadow detection algorithm, followed by shadow removal. The current state-of-the-art methods are based on interactive steps not appropriate for automated processing chains. Current alternative methods use multi-temporal datasets and replace shadow areas in a scene with the corresponding parts of a cloud-free scene. This approach has limitations for long time series with large cloud coverage during harvest time or vegetation growth periods, where interpolation in time should not be applied. Therefore, an operational shadow removal method is also needed for mono-temporal scenes.
- Required Qualification:** Diploma or Master in Physics, Mathematics or a similar field. The candidate should have a strong background about radiative transfer in the atmosphere, and signal and image processing. Programming skills in a higher level language are required (Matlab, C/C++, Python, or IDL). Experience in processing of high resolution optical data is of advantage. Open communication and team spirit are furthermore expected. He/she should also be able to work self-reliant during times, and to present results at international conferences and in scientific journals.

Advantageous Skills: Experience with the theory of radiative transfer in atmospheres, and radiative transfer codes.

English competence: High; see requirements on www.daad.de/dlr

German competence: High

Earliest Start Date: September 2019

Application Deadline: Until position is filled

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