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DLR – DAAD Fellowships

Fellowship No. 450

Research Area : Space

Research Topic: **Image Enhancement of High-resolution Aerial and Satellite Data with Data-Driven Algorithms**

DLR Institute: Remote Sensing Technology Institute (IMF), DLR Oberpfaffenhofen

Position: Doctoral Fellow

Openings: 1

Job Specification: Due to the recent advances in artificial intelligence and deep learning algorithms, we have seen a significant boost in the performance of remote sensing image analysis algorithms such as semantic segmentation and object detection. However, the performance of these algorithms is still limited by resolution and quality of images caused by camera sensor, weather, haze, shadow and different types of noise, in a way that the better the image quality is, the better the image analysis algorithms perform. To address these challenges, research and development shall be carried out on enhancing the images using data-driven algorithms such as deep learning to automatically improve the image data both resolution-wise and quality-wise. In this work, both the enhancement of aerial and satellite images will be examined. The goal is to automatically augment the quality of e.g. satellite data to have on par quality as the high-quality aerial data to overcome the limits of satellite camera sensors. The type of data will not be limited to any specific type of image data which includes high-spectral, panchromatic and hyperspectral imagery, also in the infrared domain.

Required Qualification: Master in geosciences, remote sensing, computer science or in a similar field. The candidate should have a strong background in image processing, computer vision, artificial intelligence including machine learning and deep learning. Solid programming skills in Python are required. Familiarity with C++ and CUDA is a plus. High familiarity and

experience with Tensorflow and PyTorch is required. Experience in the processing of high resolution remote sensing data such as high-resolution aerial and satellite images is of advantage. Open communication and team spirit are furthermore expected. He/she should be able to work in a team as well as self-reliant and to present results at international conferences.

Advantageous Skills: High programming skills and knowledge in satellite/aerial imagery are of advantage.

English competence: See requirements on www.daad.de/dlr

Advanced knowledge (speaking, reading and writing) required

Earliest Start Date: October 2020

Application Deadline: until position filled

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