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DLR – DAAD Fellowships

Fellowship No. 620

Research Area : Space

Research Topic: **Fusion of full-waveform LIDAR and photogrammetry 3D point cloud for tree canopy parameters retrieval**

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

Position: Doctoral Fellow

Openings: 1

Job Specification: Leaf Area Index (LAI) and Leaf Area Distribution (LAD) are among the key indicators of the status of tree vitality and forest ecosystems. The extraction of these features is important for the understanding of global carbon and water cycles as well as for impacts on climate change. Under the topic of 3D tree canopy modeling, 3D point clouds from full-waveform LIDAR and stereo cameras shall be improved in different aspects. In order to get better 3D model representations of tree crowns, both types of point clouds shall be matched and combined. Afterwards, the LAI and LAD as well as other important parameters of each tree crown shall be extracted with advanced deep learning-based approaches. To solve the problem of efficient training data, synthetic data shall be involved. To achieve this, a domain adaptation approach to link the real and synthetic data is expected.
This topic is part of a Helmholtz AI project. The PhD candidate will have the chance to cooperate with another Helmholtz institute and two universities in Germany.

Required Qualification: Master in remote sensing, Photogrammetry, Computer Science or in a similar field. The candidate should have a good background in image processing and computer vision techniques. Programming skills in Python are required. Experiences in processing of high resolution optical images and 3D point clouds are of advantage. Open communication and team spirit are furthermore expected. He/she should be able to work in a team

at the Remote Sensing Technology Institute of DLR as well as self-reliant and to present results at international conferences.

Advantageous Skills: High programming skills and knowledge in machine learning and 3D point cloud processing techniques is of advantage.

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

Earliest Start Date: February 2024

Application Deadline: Open until filled

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