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DLR – DAAD Fellowships

Fellowship No. 592

Research Area : Space

Research Topic: **Machine-learned Building Information Vectorization from Satellite Imagery**

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

Position: Doctoral Fellow

Openings: 1

Job Specification: The data processed by a geographic information system (GIS) are mostly stored in vector format, which has the advantages of small storage capacity and convenience for spatial analysis. In remote sensing, data are mostly stored as a raster data structure. As remotely sensed datasets are among the main GIS information sources, there is always an interest to find a way of converting the generated raster images to vector data. However, converting raster to vector data is a challenging task, because the size of remote sensing raster data is large, and the shapes of the targets within the images are complex. Moreover, there might be a lack of accuracy in the case of low-resolution raster imagery. Buildings are one of the most challenging and important objects among all targets in an earth observation image. The classical approaches in this research field mostly focused on the assignment of the semantic class to each pixel in the image, obtaining classification masks as output. However, for many applications, the more advanced output in form of vector information is under demand. Therefore, we plan to address the problem of converting rasterized 2D building maps and 2.5D building geometries in DSMs into a 2D and 3D vector representation for building footprints and rooftops, respectively.

Required Qualification: Master in computer science, geosciences, remote sensing or in a similar field. The candidate should have a good background in image processing, and deep learning. Programming skills in Python are

required. Experience in processing of high-resolution remote sensing image data 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: July 2023

Application Deadline: Until position is filled

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