Master's thesis / Master project 01.06.2023

Sensor data fusion of multispectral and radar data.

Objective

In Earth observation, multispectral data are used for numerous applications, for example, to classify the Earth's surface. Multispectral data are recorded by various remote sensing satellites, in this work the 13 bands of the Sentinel-2 satellites will be used. A disadvantage of all optical data is that there are many data gaps due to cloud cover. With radar data it is possible to obtain elevation relief of the earth's surface. Using the SAR method (Synthetic Arpature Radar) images of the earth surface with distance information are generated. In this thesis SAR images of the Sentinel 1 satellites will be used. The objective of this work is to investigate different data fusion algorithms for multispectral and radar data, specifically for generating time series of satellite images.

Tasks

The work is divided into the following tasks.

1. Familiarization with multispectral and radar data processing.
2. Literature review of existing data fusion algorithms.
3. Implementation and comparison of promising approaches to time series generation.
4. Analysis and evaluation of results.

Requirements

Programming skills in Python and C++ are useful for this work. A basic understanding of image data processing is required.

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