MSc Research Project

Roof-feature detection from aerial imagery and LiDaR

Solar Monkey / Readaar

General Info

With their innovative design tool, Solar Monkey helps installers to distinguish themselves in a rapidly growing photo-voltaic (pv) market. Their software is used to efficiently design and sell pv-systems. Additionally, they consider their estimates to be so accurate, that they offer the customer the option to buy guaranteed yield for the first 10 years of production.
Readaar generates data from aerial photographs, sattelite images and LiDaR, using object recognition, machine learning, mutation detection and dense image matching to translate this data to something useful.

Assignment

Solar Monkey and Readaar are working towards an automated process for generating feasible pv system designs for any roof in the Netherlands. Almost every roof is different and often, there are roof features which block the installation of pv panels. Currently, a manual design process is required to ensure valid designs. Detecting roof-features before designing the pv systems is a critical step towards the automation of this process. From aerial photographs, LiDaR imagery (0.5m resolution height data) and roof segment polygons (generated by Readaar), we are aiming to find sky-lights (windows), chimney pipes and more. In this project you will design, develop and evaluate the performance of an algorithm for detection of these roof features.

Preferred skills

- Programming experience (Development in Python)
- Knowledge of Machine Learning and Computer Vision