Open Thesis / Project
Solar Panel Detection in Satellite Images

Motivation

Solar power or photovoltaic (PV) systems are on the rise. Because of falling acquisition costs for solar panels, PV systems gain more and more widespread adoption and can be found on the roofs of private homes and commercial structures. To better understand the current state of solar panel adoption, it is interesting for government agencies, utility companies and third parties to gather information on location, power capacity and energy production of the installed PVs. Several organisations have begun to collect and publish such information, however the data is usually gathered through surveys which is costly and has limited accuracy. For many regions there is no comprehensive data available. With this project we want to change the current practice and develop a machine learning model to detect and count solar panels from satellite images. If time permits we will compare the obtained PV counts for different cities and try to explain the differences by socio-economic factors.
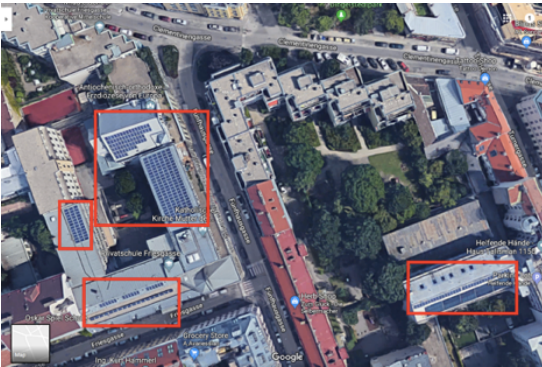
Interested? Please contact us for more details!

Target Group

Students in ICE and Computer Science.

Thesis Type

Master Thesis (Duration: 6 months).

Goals and Tasks

- Thorough literature research on the topic;

- Train a machine learning model for detecting PVs in satellite images (training data set provided, you will have to train your model on a GPU cluster);

- Analyse different metrics to automatically label detection outcomes (different options possible);

- Evaluate your model performance;

- Run your trained model on satellite images of European cities and visualize;

- Summarize results in a written report.

Requirements:

- Creativity, interest in state-of-the-art deep learning methods;

- Programming skills in Python.

Used Tools & Equipment

- A laptop;

- Your head (very important!).

Contact Person

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