

# Image segmentation to characterize solar module shading and degradation

## Machine learning (MSc project)

On the rooftop of this very building are cutting edge solar modules. These modules use new types of solar cell materials that are not yet tested in real world conditions. The goal of this project is to **implement the hardware, data collection, and AI systems to characterize how shading affects these modules' performance.**

### Your research

We are starting this project from scratch, so you will make many design decisions on the experimental setup. The first choice to make is what hardware to use to capture the images. Next, we will design and implement a data collection pipeline. Once we get the data streaming you will **design and train a machine learning algorithm that can effectively segment and characterize the shading of the solar modules.**



This characterization will then be combined with electrical data from the solar modules and environmental data from embedded sensors to understand the effect that real world environmental conditions have on the new generation of solar modules.

### Appy

Send a brief statement of motivation, your CV, and links to relevant code samples to [Brian Carlsen](mailto:brian.carlsen@ipv.uni-stuttgart.de) at [brian.carlsen@ipv.uni-stuttgart.de](mailto:brian.carlsen@ipv.uni-stuttgart.de).