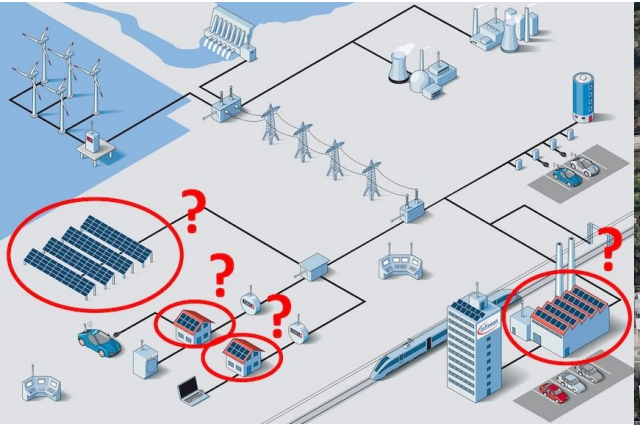
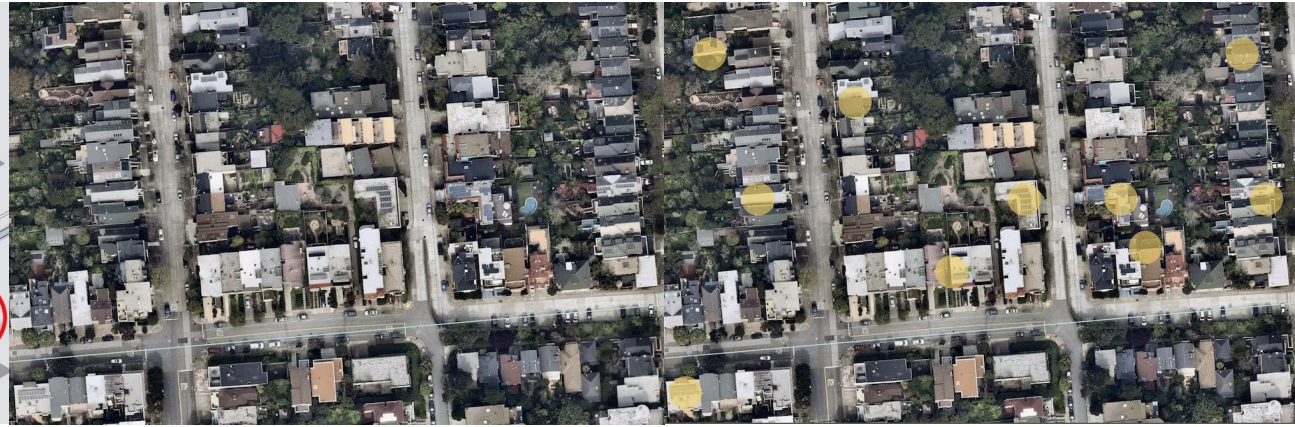
Module 4 Project

Other Uses for DeepSolar Data

Last Update: Dec 2019

An accurate deep learning model for detecting solar panel on satellite imagery





Images were divided into "positive" (containing solar panel) or "negative" (not containing solar panel). The precision and recall of classification are both around 90% for residential and non-residential areas.

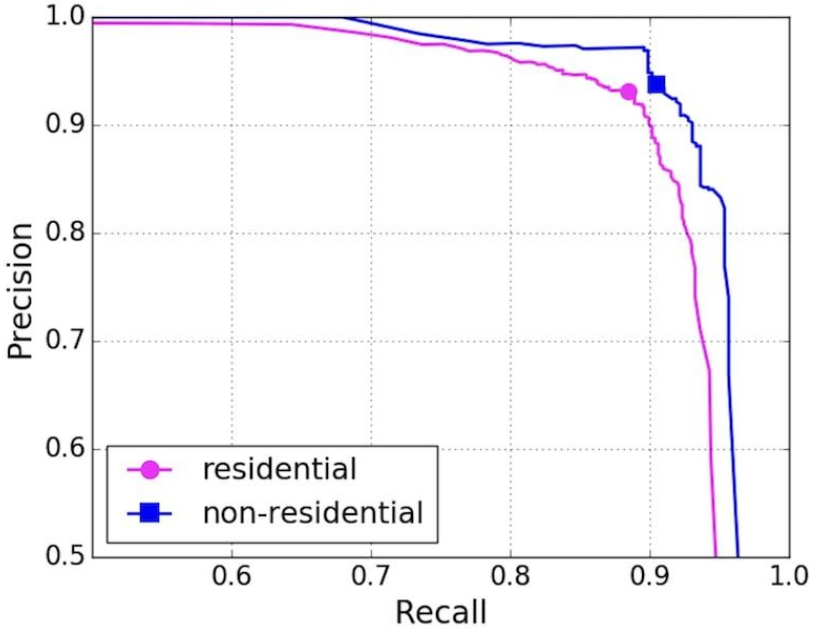


Figure 1: Precision-recall curve of the image classifier for solar panel identification in residential and non-residential areas.

Can we use:

- 'voting_2012_dem_percentage'
- 'daily_solar_radiation'
- 'education_bachelor_rate'
- 'median_household_income'
- 'avg_electricity_retail_rat
- 'travel_time_aver

DEM voting percentage ,theguardian.com
daily solar radiation (kWh/m^ ce Meteorology and Solar Energy
ratio of bachelo (as highest degree) after 25 years old,ACS 2015 (5-Year Estimates)
shold income ($),ACS 2015 (5-Year Estimates)
uential retail electricity price over the past 5 years,EIA
travel time to work,ACS 2015 (5-Year Estimates)

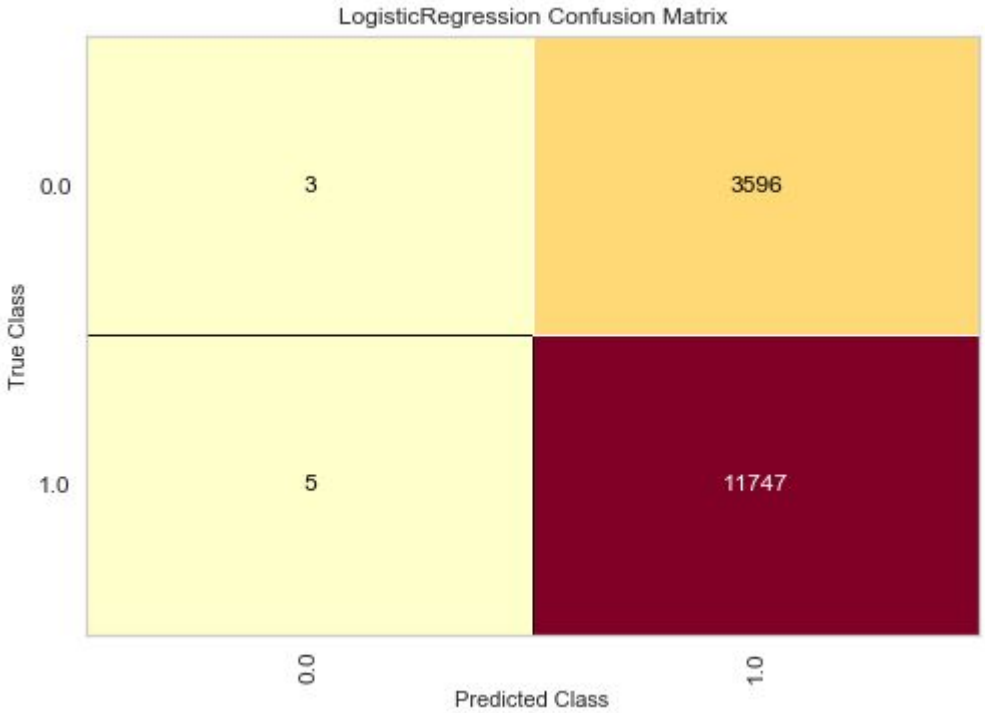
Warning: Not Standardized, Normalized, or Regularized!

to pr where solar panels b been installed?

Can we use:

- **age_18_24_rate** `ratio of people with age between 18 and 24,ACS 2015 (5-Year Estimates)`
- **travel_time_10_19_rate** `ratio of taking less 10-19 min travel to work,ACS 2015 (5-Year Estimates)`
- **'voting_2012_dem_percentage'** `DEM voting percentage in 2012 election,theguardian.com`
- **'education_bachelor_rate'** `ratio of bachelor level people (as highest degree) after 25 years old,ACS 2015 (5-Year Estimates)`

to predict where solar panels have been installed?


LogisticRegression Confusion Matrix
0.0
1.0
True Class
3
3596
5
11747
0.0
1.0
Predicted Class

No...

Recommendations & Limitations

- Rather than just whether they have any solar panels, what about percentage of panels.
- Do linear regression

Further Research and Next Steps

- Compare the rates of education, income, and travel time. If significantly high, look for how much solar has been deployed and if less than average this is a great market opportunity.
- DeepSolar: A Machine Learning Framework to Efficiently Construct a Solar Deployment Database in the United States
- Official Site

Thank You!