

Simple Machine Learning

Machine Learning

- what is a model?
- training, supervised learning
- Python Machine Learning by Sebastian Raschka
(consider using sklearn for your projects)

sklearn (popular ML package for Python):

- pip install sklearn
- from sklearn.model_selection import train_test_split
- from sklearn.linear_model import ????
- https://scikit-learn.org/stable/modules/classes.html#module-sklearn.linear_model
- Example model: Logistic Regression

Example Problem: House or Condo?

- Can we predict whether a dwelling is a house or a condo, based on some features?
- <http://data-cityofmadison.opendata.arcgis.com/datasets/tax-parcels-assessor-property-information>
- Get data into a numpy matrix
- What features to consider? Year, size, bedrooms, bathrooms, etc? Feature engineering.
- `X_train, X_test, Y_train, Y_test = train_test_split(X, Y, test_size=0.5, stratify=Y)`
- `lr = LogisticRegression()`
- `lr.fit(X_train, Y_train)`
- `lr.predict([[x1, x2]])`
- `lr.predict(X_test)`
- Accuracy: `lr.score(X_test, Y_test)`
- What is a good accuracy (determine a baseline)?
Does it match our intuitions? Play with some values.

