Python Tsunami

– April 21st-23rd –

UCPH HeaDS

What else?

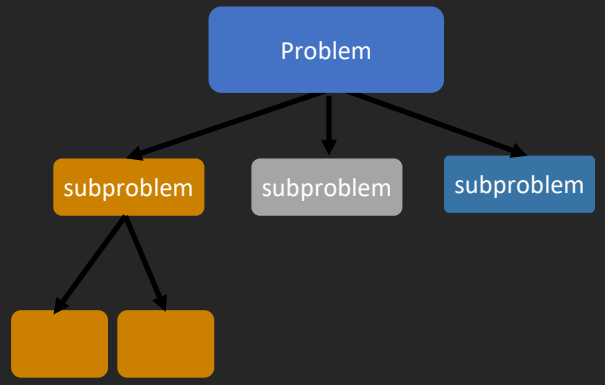
Your own packages: Classes

Scikit-learn: Machine Learning in Python

Community: NNF Computational Biology Network

The Car Problem

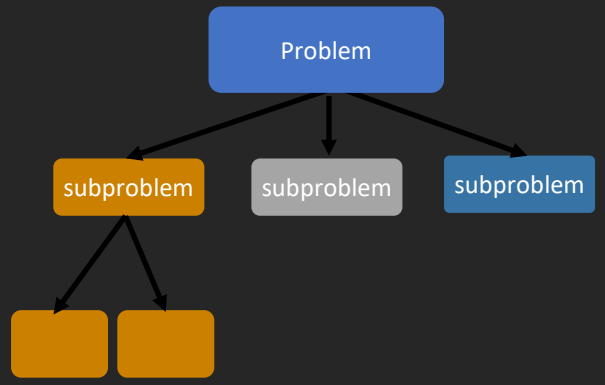
Describe a car



- Describe this **object**:
  - **Parts**: wheels, a stirring wheel, a frame, etc.
  - **Actions**: moves, breaks, etc.

The Car Problem

Describe a car



- Describe this **object → Class**:
  - **Parts**: wheels, a stirring wheel, a frame, etc. → **variables or attributes**
  - **Actions**: start, change gear, etc. → **functions**

Variables:

color = "blue"
number_of_wheels = 4
motor = True
power = "gas"
gear = None

Functions:

def start_engine():
. . .
def change_gear(gear):
. . .

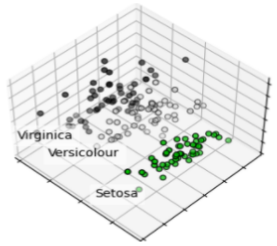
Open in Colab

Machine Learning in Python

Dimensionality reduction

Reducing the number of random variables to consider.

Applications: Visualization, Increased efficiency
Algorithms: k-Means, feature selection, non-negative matrix factorization, and more...

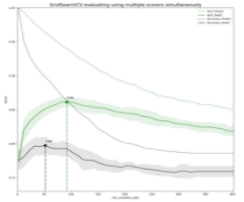


Examples

Model selection

Comparing, validating and choosing parameters and models.

Applications: Improved accuracy via parameter tuning
Algorithms: grid search, cross validation, metrics, and more...

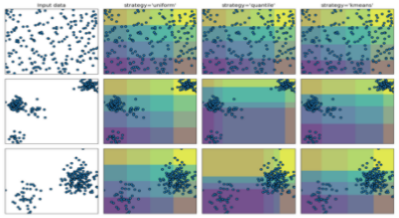


Examples

Preprocessing

Feature extraction and normalization.

Applications: Transforming input data such as text for use with machine learning algorithms.
Algorithms: preprocessing, feature extraction, and more...

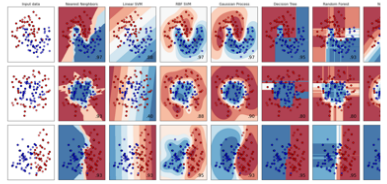


Examples

Classification

Identifying which category an object belongs to.

Applications: Spam detection, image recognition.
Algorithms: SVM, nearest neighbors, random forest, and more...

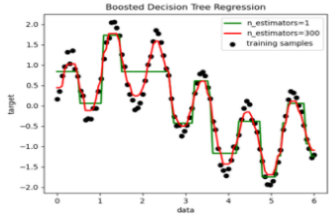


Examples

Regression

Predicting a continuous-valued attribute associated with an object.

Applications: Drug response, Stock prices.
Algorithms: SVR, nearest neighbors, random forest, and more...

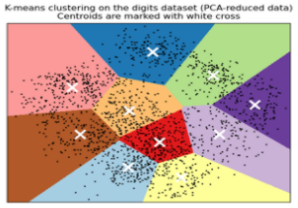


Examples

Clustering

Automatic grouping of similar objects into sets.

Applications: Customer segmentation, Grouping experiment outcomes
Algorithms: k-Means, spectral clustering, mean-shift, and more...



Examples

Open in Colab

Community

- **Slack NNF Computational Biology Network:**

https://join.slack.com/t/nnfcbn/shared_invite/zt-piuxr1es-e08yRLg4iGNZTIBfjoPEjg

- **HeaDS: Center for Health Data Science**

Building 33.4 in Panum – pass by, write, anything…

The Team

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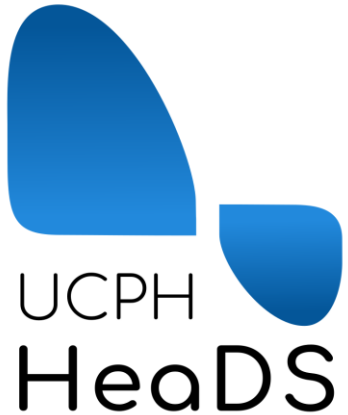
Thank You!


BIG DATA
INSTITUTE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