

Chapter. 01

머신러닝의 개요

| scikit-learn

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강사. 이경록

Chapter. 01

scikit-learn

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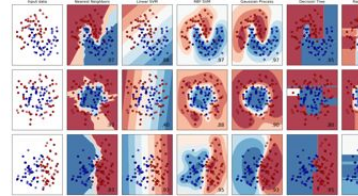
<https://scikit-learn.org>

Classification

Identifying which category an object belongs to.

Applications: Spam detection, image recognition.

Algorithms: SVM, nearest neighbors, random forest, and more...



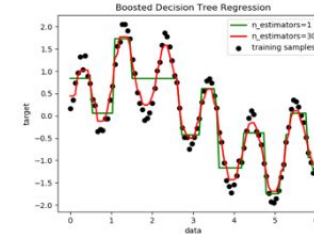
Examples

Regression

Predicting a continuous-valued attribute associated with an object.

Applications: Drug response, Stock prices.

Algorithms: SVR, nearest neighbors, random forest, and more...



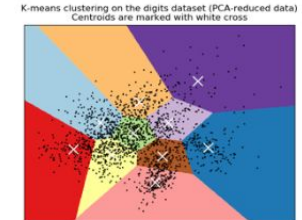
Examples

Clustering

Automatic grouping of similar objects into sets.

Applications: Customer segmentation, Grouping experiment outcomes

Algorithms: k-Means, spectral clustering, mean-shift, and more...



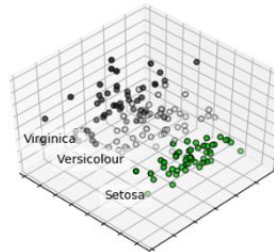
Examples

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...



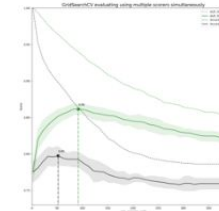
Examples

Model selection

Comparing, validating and choosing parameters and models.

Applications: Improved accuracy via parameter tuning

Algorithms: grid search, cross validation, metrics, and more...



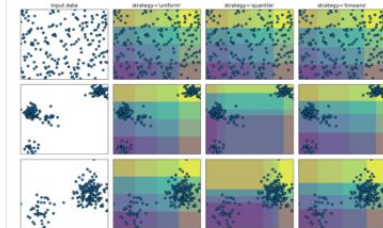
Examples

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

I scikit-learn

```
pip install -U scikit-learn
```

I scikit-learn

```
from sklearn.linear_model import LinearRegression  
from sklearn.model_selection import train_test_split
```

I 모델 정의

```
from sklearn.linear_model import LinearRegression  
  
model = LinearRegression()
```

I 학습 - fit

```
from sklearn.linear_model import LinearRegression
```

```
model = LinearRegression()
```

```
model.fit(x, y)
```

I 예측 - predict

```
from sklearn.linear_model import LinearRegression
```

```
model = LinearRegression()
```

```
model.fit(x, y)
```

```
prediction = model.predict(x2)
```