sklearn.model_selection.train_test_split

`sklearn.model_selection.train_test_split`(*arrays, **options) [source]

Split arrays or matrices into random train and test subsets

Quick utility that wraps input validation and `next(ShuffleSplit().split(X, y))` and application to input data into a single call for splitting (and optionally subsampling) data in a oneliner.

Read more in the User Guide.

Parameters:

arrays : *sequence of indexables with same length / shape[0]
Allowed inputs are lists, numpy arrays, scipy-sparse matrices or pandas dataframes.

test_size : *float, int or None, optional (default=None)*
If float, should be between 0.0 and 1.0 and represent the proportion of the dataset to include in the test split. If int, represents the absolute number of test samples. If None, the value is set to the complement of the train size. If `train_size` is also None, it will be set to 0.25.

train_size : *float, int, or None, (default=None)*
If float, should be between 0.0 and 1.0 and represent the proportion of the dataset to include in the train split. If int, represents the absolute number of train samples. If None, the value is automatically set to the complement of the test size.

random_state : *int, RandomState instance or None, optional (default=None)*
If int, random_state is the seed used by the random number generator; If RandomState instance, random_state is the random number generator; If None, the random number generator is the RandomState instance used by `np.random`.

shuffle : *boolean, optional (default=True)*
Whether or not to shuffle the data before splitting. If shuffle=False then stratify must be None.

stratify : *array-like or None (default=None)*
If not None, data is split in a stratified fashion, using this as the class labels.

Returns:

splitting : *list, length=2 * len(arrays)*
List containing train-test split of inputs.

New in version 0.16: If the input is sparse, the output will be a `scipy.sparse.csr_matrix`. Else, output type is the same as the input type.

Examples

```
>>> import numpy as np
>>> from sklearn.model_selection import train_test_split
>>> X, y = np.arange(10).reshape((5, 2)), range(5)
>>> X
array([[0, 1],
       [2, 3],
       [4, 5],
       [6, 7],
       [8, 9]])
>>> list(y)
[0, 1, 2, 3, 4]
```

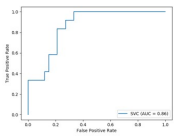
```
>>> X_train, X_test, y_train, y_test = train_test_split(
...     X, y, test_size=0.33, random_state=42)
...
>>> X_train
array([[4, 5],
       [0, 1],
       [6, 7]])
>>> y_train
[2, 0, 3]
>>> X_test
array([[2, 3],
       [8, 9]])
>>> y_test
[1, 4]
```

Toggle Menu

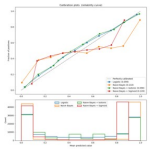
```
>>> train_test_split(y, shuffle=False)
[[0, 1, 2], [3, 4]]
```

Toggle Menu

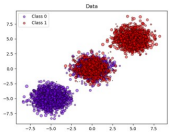
Examples using `sklearn.model_selection.train_test_split`



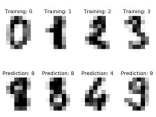
ROC Curve with Visualization API



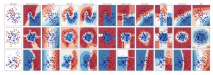
Probability Calibration curves



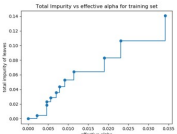
Probability calibration of classifiers



Recognizing hand-written digits

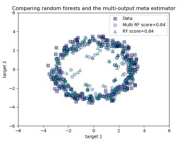


Classifier comparison

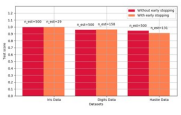


Post pruning decision trees with cost complexity pruning

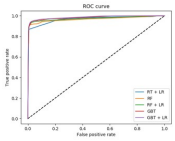
Understanding the decision tree structure



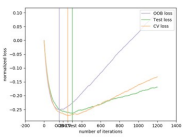
Comparing random forests and the multi-output meta estimator



Early stopping of Gradient Boosting

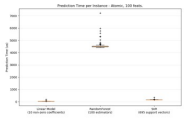


Feature transformations with ensembles of trees



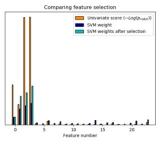
Gradient Boosting Out-of-Bag estimates

Faces recognition example using eigenfaces and SVMs

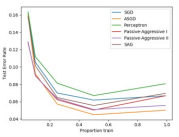


Prediction Latency

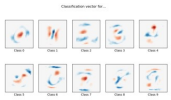
Pipeline Anova SVM



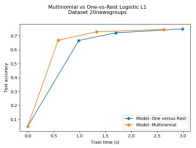
Univariate Feature Selection



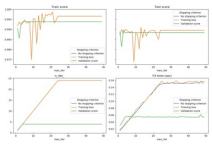
Comparing various online solvers



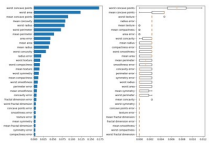
MNIST classification using multinomial logistic + L1



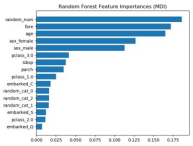
Multiclass sparse logistic regression on 20newgroups



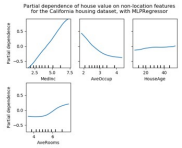
Early stopping of Stochastic Gradient Descent



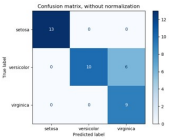
Permutation Importance with Multicollinear or Correlated Features



Permutation Importance vs Random Forest Feature Importance (MDI)

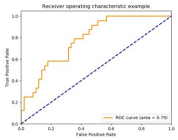


Partial Dependence Plots



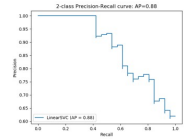
Confusion matrix

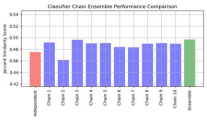
Parameter estimation using grid search with cross-validation

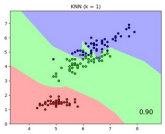


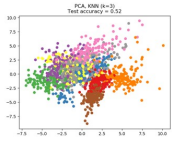
Receiver Operating Characteristic (ROC)

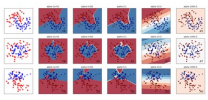
Toggle Menu





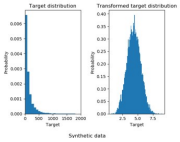




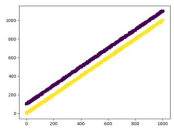


[Varying regularization in Multi-layer Perceptron]

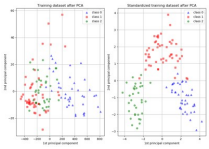
[Column Transformer with Mixed Types]



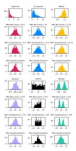
[Effect of transforming the targets in regression model]



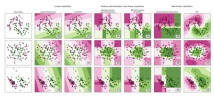
[Using FunctionTransformer to select columns]



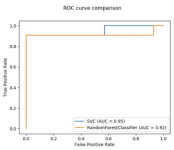
[Importance of Feature Scaling]



[Map data to a normal distribution]



[Feature discretization]



[Release Highlights for scikit-learn 0.22]

Toggle Menu