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Machine Learning

Session 16 - PL

Tree-Based Models – Part 2

Ciência de Dados Aplicada

2023/2024

Random Forests in Scikit-Learn

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- https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.RandomForestClassifier.html

sklearn.ensemble.RandomForestClassifier

class sklearn.ensemble.**RandomForestClassifier**(*n_estimators=100, *, criterion='gini', max_depth=None, min_samples_split=2, min_samples_leaf=1, min_weight_fraction_leaf=0.0, max_features='sqrt', max_leaf_nodes=None, min_impurity_decrease=0.0, bootstrap=True, oob_score=False, n_jobs=None, random_state=None, verbose=0, warm_start=False, class_weight=None, ccp_alpha=0.0, max_samples=None, monotonic_cst=None*) [source]

- https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.RandomForestRegressor.html

sklearn.ensemble.RandomForestRegressor

class sklearn.ensemble.**RandomForestRegressor**(*n_estimators=100, *, criterion='squared_error', max_depth=None, min_samples_split=2, min_samples_leaf=1, min_weight_fraction_leaf=0.0, max_features=1.0, max_leaf_nodes=None, min_impurity_decrease=0.0, bootstrap=True, oob_score=False, n_jobs=None, random_state=None, verbose=0, warm_start=False, ccp_alpha=0.0, max_samples=None, monotonic_cst=None*) [source]

Boosting in Scikit-Learn

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- https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.GradientBoostingClassifier.html

sklearn.ensemble.GradientBoostingClassifier

class sklearn.ensemble.**GradientBoostingClassifier**(*, *loss='log_loss'*, *learning_rate=0.1*, *n_estimators=100*, *subsample=1.0*, *criterion='friedman_mse'*, *min_samples_split=2*, *min_samples_leaf=1*, *min_weight_fraction_leaf=0.0*, *max_depth=3*, *min_impurity_decrease=0.0*, *init=None*, *random_state=None*, *max_features=None*, *verbose=0*, *max_leaf_nodes=None*, *warm_start=False*, *validation_fraction=0.1*, *n_iter_no_change=None*, *tol=0.0001*, *ccp_alpha=0.0*)[source]

- https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.GradientBoostingRegressor.html

sklearn.ensemble.GradientBoostingRegressor

class sklearn.ensemble.**GradientBoostingRegressor**(*, *loss='squared_error'*, *learning_rate=0.1*, *n_estimators=100*, *subsample=1.0*, *criterion='friedman_mse'*, *min_samples_split=2*, *min_samples_leaf=1*, *min_weight_fraction_leaf=0.0*, *max_depth=3*, *min_impurity_decrease=0.0*, *init=None*, *random_state=None*, *max_features=None*, *alpha=0.9*, *verbose=0*, *max_leaf_nodes=None*, *warm_start=False*, *validation_fraction=0.1*, *n_iter_no_change=None*, *tol=0.0001*, *ccp_alpha=0.0*)[source]

AdaBoost in Scikit-Learn

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- https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.AdaBoostClassifier.html

sklearn.ensemble.AdaBoostClassifier

class sklearn.ensemble.**AdaBoostClassifier**(*estimator=None*, *, *n_estimators=50*, *learning_rate=1.0*, *algorithm='SAMME.R'*, *random_state=None*) [source]

- https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.AdaBoostRegressor.html

sklearn.ensemble.AdaBoostRegressor

class sklearn.ensemble.**AdaBoostRegressor**(*estimator=None*, *, *n_estimators=50*, *learning_rate=1.0*, *loss='linear'*, *random_state=None*) [source]

Exercises:

- Notebooks on the github repository:
  - Notebook with examples:
    - notebooks/session16/examples.ipynb
  - Notebook with exercises:
    - notebooks/session16/exercises.ipynb