UNIVERSIDADE CATÓLICA PORTUGUESA

BRAGA

Machine Learning

Session 17 - PL

Neural Networks

Degree in Applied Data Science

2024/2025

Perceptron in Scikit-Learn

- https://scikit-learn.org/stable/modules/generated/sklearn.linear_model.Perceptron.html

sklearn.linear_model.Perceptron

class sklearn.linear_model.**Perceptron**(*, *penalty=None*, *alpha=0.0001*, *l1_ratio=0.15*, *fit_intercept=True*, *max_iter=1000*, *tol=0.001*, *shuffle=True*, *verbose=0*, *eta0=1.0*, *n_jobs=None*, *random_state=0*, *early_stopping=False*, *validation_fraction=0.1*, *n_iter_no_change=5*, *class_weight=None*, *warm_start=False*) [source]

- https://scikit-learn.org/stable/modules/generated/sklearn.neural_network.MLPClassifier.html

sklearn.neural_network.MLPClassifier

class sklearn.neural_network.**MLPClassifier**(*hidden_layer_sizes=(100,)*, *activation='relu'*, *, *solver='adam'*, *alpha=0.0001*, *batch_size='auto'*, *learning_rate='constant'*, *learning_rate_init=0.001*, *power_t=0.5*, *max_iter=200*, *shuffle=True*, *random_state=None*, *tol=0.0001*, *verbose=False*, *warm_start=False*, *momentum=0.9*, *nesterovs_momentum=True*, *early_stopping=False*, *validation_fraction=0.1*, *beta_1=0.9*, *beta_2=0.999*, *epsilon=1e-08*, *n_iter_no_change=10*, *max_fun=15000*) [source]

Perceptron in Scikit-Learn

- https://scikit-learn.org/stable/modules/generated/sklearn.neural_network.MLPRegressor.html

sklearn.neural_network.MLPRegressor

class sklearn.neural_network.**MLPRegressor**(*hidden_layer_sizes=(100,), activation='relu', *, solver='adam', alpha=0.0001, batch_size='auto', learning_rate='constant', learning_rate_init=0.001, power_t=0.5, max_iter=200, shuffle=True, random_state=None, tol=0.0001, verbose=False, warm_start=False, momentum=0.9, nesterovs_momentum=True, early_stopping=False, validation_fraction=0.1, beta_1=0.9, beta_2=0.999, epsilon=1e-08, n_iter_no_change=10, max_fun=15000*) [source]

Exercises:

- Notebooks on the github repository:
  - Notebook with examples:
    - exercises/session17/examples.ipynb
  - Notebook with exercises:
    - exercises/session17/exercises.ipynb