SDU ENERGY INFORMATICS

Malene Christiane Nielsen
mniel@mmmi.sdu.dk

Collected Experiment Report: MLP .

10/12/2024

Introduction

This is an automated report for the MLP regressor on real estate dataset; the following models have been analyzed:

- MLP

Experiment description:

Experiment with MLP regressor on real estate dataset

Model setup

The models have been used for the following forecast purposes:

- one_step

The models have been optimized using the following hyperparameters:

- hidden_layer_sizes: [[100], [100, 100], [100, 300, 100]]
- activation: ['relu', 'tanh', 'logistic']
- solver: ['adam']
- alpha: [0.0001, 0.001, 0.01]
- max_iter: [5000, 10000]
- scaler: [None, StandardScaler(), MinMaxScaler(), RobustScaler(), PowerTransformer()]

And with the following search algorithms:

- grid
- random

The used performance measure is the r2 measure.

Malene Christiane Nielsen
mniel@mmmi.sdu.dk

Dataset setup

The baseline dataset used for these forecasts is the 'Real Estate valuation from Sindian Dist., New Taipei City, Taiwan' dataset: *'Real estate valuation of houses in Taiwan, the price denotes the cost of unit area.'.*

The test size used for the forecasts is 0.2.

- Dataset 1
  - name: univariate_only_target
  - dataset_type: univariate
  - prediction_type: one_step
  - components: ['one_step_target', 'temporal_features']

- Dataset 2
  - name: multivariate
  - dataset_type: multivariate
  - prediction_type: one_step
  - components: ['one_step_target', 'feature_columns']

Results

For the models; MLP, the following models and datasets yielded the best results.

SDU ENERGY INFORMATICS

Malene Christiane Nielsen
mniel@mmmi.sdu.dk

The best model for one_step forecasting.

The best model for one_step forecasting is the MLP model.
The model has been trained on the univariate_only_target dataset.

The best score for the one_step forecasting is 0.6789280691051244.

Best MLP forecast over time