

MLPRegressor_Seg_v3_1

November 23, 2022

1 MLPRegressor

```
[ ]: import numpy as np
import pandas as pd

import matplotlib.pyplot as plt
import seaborn as sns

from sklearn.model_selection import train_test_split, RandomizedSearchCV
from sklearn.preprocessing import StandardScaler
from sklearn.pipeline import Pipeline
from sklearn.neural_network import MLPRegressor
from sklearn.feature_selection import SelectFromModel
from sklearn.metrics import r2_score, mean_absolute_percentage_error, \
    mean_absolute_error, mean_squared_error
from statsmodels.tools.eval_measures import stde

import kerastuner as kt
import tensorflow as tf
from tensorflow.keras import models
```

2022-11-23 21:12:37.089694: I tensorflow/core/platform/cpu_feature_guard.cc:193] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2 FMA

To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.

2022-11-23 21:12:37.542169: E tensorflow/stream_executor/cuda/cuda_blas.cc:2981] Unable to register cuBLAS factory: Attempting to register factory for plugin cuBLAS when one has already been registered

2022-11-23 21:12:38.472383: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libnvinfer.so.7'; dLError: libnvinfer.so.7: cannot open shared object file: No such file or directory; LD_LIBRARY_PATH:

:/home/nkspartan/miniconda3/envs/tf-gpu/lib/

2022-11-23 21:12:38.472466: W tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic library 'libnvinfer_plugin.so.7'; dLError: libnvinfer_plugin.so.7:

```
cannot open shared object file: No such file or directory; LD_LIBRARY_PATH:
:/home/nkspartan/miniconda3/envs/tf-gpu/lib/
2022-11-23 21:12:38.472472: W
tensorflow/compiler/tf2tensorrt/utils/py_utils.cc:38] TF-TRT Warning: Cannot
dlopen some TensorRT libraries. If you would like to use Nvidia GPU with
TensorRT, please make sure the missing libraries mentioned above are installed
properly.
/tmp/ipykernel_88124/891238804.py:15: DeprecationWarning: `import kerastuner` is
deprecated, please use `import keras_tuner`.
import kerastuner as kt
```

```
[ ]: from tensorflow.python.client import device_lib

print('Default GPU Device: {}'.format(tf.test.gpu_device_name()))
```

Default GPU Device:

```
2022-11-23 21:12:39.564782: I tensorflow/core/platform/cpu_feature_guard.cc:193]
This TensorFlow binary is optimized with oneAPI Deep Neural Network Library
(oneDNN) to use the following CPU instructions in performance-critical
operations: AVX2 FMA
To enable them in other operations, rebuild TensorFlow with the appropriate
compiler flags.
2022-11-23 21:12:39.578067: E
tensorflow/stream_executor/cuda/cuda_driver.cc:265] failed call to cuInit:
CUDA_ERROR_UNKNOWN: unknown error
2022-11-23 21:12:39.578094: I
tensorflow/stream_executor/cuda/cuda_diagnostics.cc:169] retrieving CUDA
diagnostic information for host: pop-os
2022-11-23 21:12:39.578102: I
tensorflow/stream_executor/cuda/cuda_diagnostics.cc:176] hostname: pop-os
2022-11-23 21:12:39.578185: I
tensorflow/stream_executor/cuda/cuda_diagnostics.cc:200] libcuda reported
version is: 515.65.1
2022-11-23 21:12:39.578200: I
tensorflow/stream_executor/cuda/cuda_diagnostics.cc:204] kernel reported version
is: 515.65.1
2022-11-23 21:12:39.578203: I
tensorflow/stream_executor/cuda/cuda_diagnostics.cc:310] kernel version seems to
match DSO: 515.65.1
```

1.1 Read the etl info results

```
[ ]: df_info = pd.read_csv('../dataset_clean/options_csv_v1_etl.csv')
df_info
```

```
[ ]: remove_time_features generic_features remove_atypical_values \
0 False False False
```

```

feature_combination  remove_feature_selection  \
0                    False                      False

remove_invalid_correlated_features
0                    False

```

1.2 Read the dataset

```
[ ]: df = pd.read_csv('../dataset/V2_PlatteRiverWeir_features_merged_all.csv')
df
```

```
[ ]:
      Unnamed: 0.1  Unnamed: 0      SensorTime      CaptureTime  \
0                0          0  2012-06-09 13:15:00  2012-06-09T13:09:07
1                1          1  2012-06-09 13:15:00  2012-06-09T13:10:29
2                2          2  2012-06-09 13:45:00  2012-06-09T13:44:01
3                3          3  2012-06-09 14:45:00  2012-06-09T14:44:30
4                4          4  2012-06-09 15:45:00  2012-06-09T15:44:59
...
42054            42054        42054  2019-10-11 09:00:00  2019-10-11T08:59:53
42055            42055        42055  2019-10-11 10:00:00  2019-10-11T09:59:52
42056            42056        42056  2019-10-11 11:00:00  2019-10-11T10:59:52
42057            42057        42057  2019-10-11 12:00:00  2019-10-11T11:59:53
42058            42058        42058  2019-10-11 12:45:00  2019-10-11T12:59:52

```

```

      Filename Agency  SiteNumber TimeZone  \
0  statelineweir_20120609_farrell_001.jpg  USGS      6674500      MDT
1  statelineweir_20120609_farrell_002.jpg  USGS      6674500      MDT
2  statelineweir_20120609_farrell_003.jpg  USGS      6674500      MDT
3  statelineweir_20120609_farrell_004.jpg  USGS      6674500      MDT
4  statelineweir_20120609_farrell_005.jpg  USGS      6674500      MDT
...
42054  statelineweir_20191011_farrell_409.jpg  USGS      6674500      MDT
42055  statelineweir_20191011_farrell_410.jpg  USGS      6674500      MDT
42056  statelineweir_20191011_farrell_411.jpg  USGS      6674500      MDT
42057  statelineweir_20191011_farrell_412.jpg  USGS      6674500      MDT
42058  statelineweir_20191011_farrell_413.jpg  USGS      6674500      MDT

```

```

      Stage  Discharge  ... WwRawLineMin  WwRawLineMax  WwRawLineMean  \
0        2.99      916.0  ...          0.0          0.0          0.000000
1        2.99      916.0  ...          0.0          0.0          0.000000
2        2.96      873.0  ...          0.0          0.0          0.000000
3        2.94      846.0  ...          0.0          0.0          0.000000
4        2.94      846.0  ...          0.0          0.0          0.000000
...
42054      2.54      434.0  ...      9284.0      77521.0      38385.370066
42055      2.54      434.0  ...     10092.0      74614.0      40162.989292

```

| | | | | | | |
|-------|------|-------|-----|--------|---------|--------------|
| 42056 | 2.54 | 434.0 | ... | 7067.0 | 83260.0 | 42095.946590 |
| 42057 | 2.54 | 434.0 | ... | 6283.0 | 83045.0 | 45345.490954 |
| 42058 | 2.54 | 434.0 | ... | 7375.0 | 89813.0 | 47877.870782 |

| | WwRawLineSigma | WwCurveLineMin | WwCurveLineMax | WwCurveLineMean | \ |
|-------|----------------|----------------|----------------|-----------------|---|
| 0 | 0.000000 | 0.0 | 0.0 | 0.000000 | |
| 1 | 0.000000 | 0.0 | 0.0 | 0.000000 | |
| 2 | 0.000000 | 0.0 | 0.0 | 0.000000 | |
| 3 | 0.000000 | 0.0 | 0.0 | 0.000000 | |
| 4 | 0.000000 | 0.0 | 0.0 | 0.000000 | |
| ... | ... | ... | ... | ... | |
| 42054 | 15952.029728 | 0.0 | 70085.0 | 37550.894823 | |
| 42055 | 15467.708856 | 0.0 | 70061.0 | 39397.339095 | |
| 42056 | 16770.357949 | 0.0 | 76335.0 | 41350.006568 | |
| 42057 | 17498.432849 | 0.0 | 78882.0 | 44553.920296 | |
| 42058 | 19963.166359 | 0.0 | 82630.0 | 47280.270559 | |

| | WwCurveLineSigma | RiverArea | RiverWidth |
|-------|------------------|-----------|------------|
| 0 | 0.000000 | 49975.0 | 207.508733 |
| 1 | 0.000000 | 50184.0 | 208.663145 |
| 2 | 0.000000 | 50543.0 | 209.445067 |
| 3 | 0.000000 | 50856.0 | 211.265690 |
| 4 | 0.000000 | 51004.0 | 211.250274 |
| ... | ... | ... | ... |
| 42054 | 16444.401209 | 45842.0 | 194.934605 |
| 42055 | 16009.008049 | 42300.0 | 194.762264 |
| 42056 | 17489.374617 | 41080.0 | 196.480105 |
| 42057 | 18268.294896 | 40976.0 | 193.595245 |
| 42058 | 20559.358767 | 41435.0 | 196.801994 |

[42059 rows x 63 columns]

```
[ ]: df['SensorTime'] = pd.to_datetime(df['SensorTime'])
df['Year'] = df['SensorTime'].dt.year
df['Month'] = df['SensorTime'].dt.month
df['date_offset'] = (df.SensorTime.dt.month * 100 + df.SensorTime.dt.day -
↳320)%1300

df['Season'] = pd.cut(df['date_offset'], [0, 300, 602, 900, 1300],
labels=['spring', 'summer', 'autumn', 'winter'])
```

```
[ ]: df = df[["CaptureTime", "SensorTime", "Stage", "Discharge", "RiverArea",
↳"RiverWidth", "Month", "Season", "Year"]]
df
```

| | CaptureTime | SensorTime | Stage | Discharge | RiverArea | \ |
|---|---------------------|---------------------|-------|-----------|-----------|---|
| 0 | 2012-06-09T13:09:07 | 2012-06-09 13:15:00 | 2.99 | 916.0 | 49975.0 | |

| | | | | | | |
|-------|---------------------|------------|----------|------|-------|---------|
| 1 | 2012-06-09T13:10:29 | 2012-06-09 | 13:15:00 | 2.99 | 916.0 | 50184.0 |
| 2 | 2012-06-09T13:44:01 | 2012-06-09 | 13:45:00 | 2.96 | 873.0 | 50543.0 |
| 3 | 2012-06-09T14:44:30 | 2012-06-09 | 14:45:00 | 2.94 | 846.0 | 50856.0 |
| 4 | 2012-06-09T15:44:59 | 2012-06-09 | 15:45:00 | 2.94 | 846.0 | 51004.0 |
| ... | ... | ... | ... | ... | ... | ... |
| 42054 | 2019-10-11T08:59:53 | 2019-10-11 | 09:00:00 | 2.54 | 434.0 | 45842.0 |
| 42055 | 2019-10-11T09:59:52 | 2019-10-11 | 10:00:00 | 2.54 | 434.0 | 42300.0 |
| 42056 | 2019-10-11T10:59:52 | 2019-10-11 | 11:00:00 | 2.54 | 434.0 | 41080.0 |
| 42057 | 2019-10-11T11:59:53 | 2019-10-11 | 12:00:00 | 2.54 | 434.0 | 40976.0 |
| 42058 | 2019-10-11T12:59:52 | 2019-10-11 | 12:45:00 | 2.54 | 434.0 | 41435.0 |

| | RiverWidth | Month | Season | Year |
|-------|------------|-------|--------|------|
| 0 | 207.508733 | 6 | spring | 2012 |
| 1 | 208.663145 | 6 | spring | 2012 |
| 2 | 209.445067 | 6 | spring | 2012 |
| 3 | 211.265690 | 6 | spring | 2012 |
| 4 | 211.250274 | 6 | spring | 2012 |
| ... | ... | ... | ... | ... |
| 42054 | 194.934605 | 10 | autumn | 2019 |
| 42055 | 194.762264 | 10 | autumn | 2019 |
| 42056 | 196.480105 | 10 | autumn | 2019 |
| 42057 | 193.595245 | 10 | autumn | 2019 |
| 42058 | 196.801994 | 10 | autumn | 2019 |

[42059 rows x 9 columns]

```
[ ]: df.dtypes
```

```
[ ]: CaptureTime      object
SensorTime    datetime64[ns]
Stage          float64
Discharge      float64
RiverArea      float64
RiverWidth     float64
Month          int64
Season         category
Year           int64
dtype: object
```

1.2.1 Remove outliers

```
[ ]: df = df[df.Stage > 0]
df = df[df.Discharge > 0]
df.shape
```

```
[ ]: (40148, 9)
```

```
[ ]: df = df[df.RiverWidth > 0]
      #df = df[df.Discharge > 0]
      df.shape
```

```
[ ]: (40142, 9)
```

1.2.2 Remove winter

```
[ ]: #df = df[df.Season != "winter"]
```

```
[ ]: df.isna().sum()
```

```
[ ]: CaptureTime      0
      SensorTime      0
      Stage           0
      Discharge        0
      RiverArea        0
      RiverWidth      0
      Month           0
      Season          126
      Year             0
      dtype: int64
```

1.3 Divide dataset to X and Y

```
[ ]: np.random.seed(0)

      df_train = df[(df.Year >= 2012) & (df.Year <= 2016)]
      df_train = df_train.iloc[np.random.permutation(len(df_train))]

      df_val = df[(df.Year >= 2017) & (df.Year <= 2017)]
      df_val = df_val.iloc[np.random.permutation(len(df_val))]

      df_test = df[(df.Year >= 2018) & (df.Year <= 2019)]
```

```
[ ]: df_train = df_train.drop(columns=["Year", "SensorTime", "CaptureTime"])
      df_val = df_val.drop(columns=["Year", "SensorTime", "CaptureTime"])
      df_test = df_test.drop(columns=["Year", "SensorTime", "CaptureTime"])
```

```
[ ]: y_train = df_train[["Stage"]].values
      X_train = df_train[["RiverWidth", "Month"]].values

      y_val = df_train[["Stage"]].values
      X_val = df_train[["RiverWidth", "Month"]].values

      y_test = df_test[["Stage"]].values
      X_test = df_test[["RiverWidth", "Month"]].values
```

```
[ ]: print(X_train.shape)
      print(y_train.shape)
```

```
(20304, 2)
```

```
(20304, 1)
```

```
[ ]: input_shape = X_train.shape[1]
      output_shape = y_train.shape[1]

      print(input_shape, output_shape)
```

```
2 1
```

1.4 Train model

```
[ ]: def model_builder(lr):
      model = tf.keras.Sequential()
      model.add(tf.keras.Input(shape=input_shape))

      # Tune the number of units in the first Dense layer
      # Choose an optimal value between 32-512

      model.add(tf.keras.layers.Dense(32, activation="tanh"))
      model.add(tf.keras.layers.Dense(64, activation="tanh"))
      model.add(tf.keras.layers.Dense(128, activation="tanh"))
      model.add(tf.keras.layers.Dense(64, activation="tanh"))
      """model.add(tf.keras.layers.Dense(256, activation="tanh"))
      model.add(tf.keras.layers.Dense(512, activation="tanh"))
      model.add(tf.keras.layers.Dense(512, activation="tanh"))
      model.add(tf.keras.layers.Dense(256, activation="tanh"))
      model.add(tf.keras.layers.Dense(256, activation="tanh"))
      model.add(tf.keras.layers.Dense(128, activation="tanh"))
      model.add(tf.keras.layers.Dense(64, activation="tanh"))
      model.add(tf.keras.layers.Dense(32, activation="tanh"))"""

      model.add(tf.keras.layers.Dense(output_shape, activation = 'linear'))

      model.compile(optimizer = tf.keras.optimizers.Adam(learning_rate = lr), loss_
↳ 'mae', metrics = ['mse', tf.keras.metrics.
↳ RootMeanSquaredError(name='rmse'), 'mae', 'mape'])

      return model
```

```
[ ]: model = model_builder(1e-3)
```

```
[ ]: import datetime

date_actual = datetime.datetime.now().strftime("%Y%m%d-%H%M%S")
log_dir = "logs/fit/" + date_actual
tensorboard_callback = tf.keras.callbacks.TensorBoard(log_dir=log_dir,
↳histogram_freq=1)

es_callback = tf.keras.callbacks.EarlyStopping(monitor='val_loss', mode='min',
↳verbose=1, patience=100)

checkpoint_callback = tf.keras.callbacks.
↳ModelCheckpoint(filepath=f"model_weights/{date_actual}_mlp_best_weights.
↳hdf5",
                                monitor='val_loss',
                                verbose=1,
                                save_best_only=True)

[ ]: model.fit(X_train, y_train, epochs = 1000, batch_size = 64, validation_data =
↳(X_val, y_val), callbacks=[checkpoint_callback, es_callback, tf.keras.
↳callbacks.ReduceLROnPlateau(patience=40)])
```

```
Epoch 1/1000
258/318 [=====>...] - ETA: 0s - loss: 0.7267 - mse: 1.1444
- rmse: 1.0698 - mae: 0.7267 - mape: 23.3100
Epoch 1: val_loss improved from inf to 0.48146, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.6964 - mse:
1.0733 - rmse: 1.0360 - mae: 0.6964 - mape: 22.3842 - val_loss: 0.4815 -
val_mse: 0.6165 - val_rmse: 0.7852 - val_mae: 0.4815 - val_mape: 15.7323 - lr:
0.0010
Epoch 2/1000
315/318 [=====>.] - ETA: 0s - loss: 0.4467 - mse: 0.6671
- rmse: 0.8168 - mae: 0.4467 - mape: 13.3465
Epoch 2: val_loss improved from 0.48146 to 0.42737, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.4456 - mse:
0.6651 - rmse: 0.8156 - mae: 0.4456 - mape: 13.3222 - val_loss: 0.4274 -
val_mse: 0.6735 - val_rmse: 0.8207 - val_mae: 0.4274 - val_mape: 12.4175 - lr:
0.0010
Epoch 3/1000
314/318 [=====>.] - ETA: 0s - loss: 0.4300 - mse: 0.6470
- rmse: 0.8044 - mae: 0.4300 - mape: 12.7379
Epoch 3: val_loss improved from 0.42737 to 0.41177, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.4294 - mse:
0.6462 - rmse: 0.8038 - mae: 0.4294 - mape: 12.7221 - val_loss: 0.4118 -
val_mse: 0.6154 - val_rmse: 0.7845 - val_mae: 0.4118 - val_mape: 12.2814 - lr:
```


0.0010
Epoch 4/1000
254/318 [=====>...] - ETA: 0s - loss: 0.4151 - mse: 0.6153
- rmse: 0.7844 - mae: 0.4151 - mape: 12.4378
Epoch 4: val_loss improved from 0.41177 to 0.40179, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.4105 - mse:
0.6070 - rmse: 0.7791 - mae: 0.4105 - mape: 12.2899 - val_loss: 0.4018 -
val_mse: 0.5631 - val_rmse: 0.7504 - val_mae: 0.4018 - val_mape: 12.3885 - lr:
0.0010
Epoch 5/1000
307/318 [=====>..] - ETA: 0s - loss: 0.4042 - mse: 0.5857
- rmse: 0.7653 - mae: 0.4042 - mape: 12.2320
Epoch 5: val_loss improved from 0.40179 to 0.38963, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.4031 - mse:
0.5825 - rmse: 0.7632 - mae: 0.4031 - mape: 12.2206 - val_loss: 0.3896 -
val_mse: 0.5757 - val_rmse: 0.7587 - val_mae: 0.3896 - val_mape: 11.7691 - lr:
0.0010
Epoch 6/1000
255/318 [=====>...] - ETA: 0s - loss: 0.4068 - mse: 0.5746
- rmse: 0.7581 - mae: 0.4068 - mape: 12.4505
Epoch 6: val_loss did not improve from 0.38963
318/318 [=====] - 0s 1ms/step - loss: 0.4012 - mse:
0.5648 - rmse: 0.7515 - mae: 0.4012 - mape: 12.3122 - val_loss: 0.4156 -
val_mse: 0.5465 - val_rmse: 0.7392 - val_mae: 0.4156 - val_mape: 13.3871 - lr:
0.0010
Epoch 7/1000
255/318 [=====>...] - ETA: 0s - loss: 0.3871 - mse: 0.5361
- rmse: 0.7322 - mae: 0.3871 - mape: 11.9281
Epoch 7: val_loss did not improve from 0.38963
318/318 [=====] - 0s 1ms/step - loss: 0.3825 - mse:
0.5257 - rmse: 0.7250 - mae: 0.3825 - mape: 11.8069 - val_loss: 0.3969 -
val_mse: 0.5295 - val_rmse: 0.7276 - val_mae: 0.3969 - val_mape: 12.1349 - lr:
0.0010
Epoch 8/1000
308/318 [=====>.] - ETA: 0s - loss: 0.3802 - mse: 0.5116
- rmse: 0.7153 - mae: 0.3802 - mape: 11.8084
Epoch 8: val_loss improved from 0.38963 to 0.37316, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3802 - mse:
0.5117 - rmse: 0.7153 - mae: 0.3802 - mape: 11.7978 - val_loss: 0.3732 -
val_mse: 0.5061 - val_rmse: 0.7114 - val_mae: 0.3732 - val_mape: 11.3807 - lr:
0.0010
Epoch 9/1000
298/318 [=====>..] - ETA: 0s - loss: 0.4025 - mse: 0.6236
- rmse: 0.7897 - mae: 0.4025 - mape: 11.7876
Epoch 9: val_loss did not improve from 0.37316

318/318 [=====] - 0s 1ms/step - loss: 0.4015 - mse: 0.6211 - rmse: 0.7881 - mae: 0.4015 - mape: 11.7624 - val_loss: 0.3963 - val_mse: 0.6022 - val_rmse: 0.7760 - val_mae: 0.3963 - val_mape: 11.5568 - lr: 0.0010

Epoch 10/1000

260/318 [=====>...] - ETA: 0s - loss: 0.4047 - mse: 0.6267 - rmse: 0.7916 - mae: 0.4047 - mape: 11.9731

Epoch 10: val_loss improved from 0.37316 to 0.36834, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.4005 - mse: 0.6063 - rmse: 0.7786 - mae: 0.4005 - mape: 11.8892 - val_loss: 0.3683 - val_mse: 0.4904 - val_rmse: 0.7003 - val_mae: 0.3683 - val_mape: 11.3283 - lr: 0.0010

Epoch 11/1000

254/318 [=====>...] - ETA: 0s - loss: 0.3770 - mse: 0.5094 - rmse: 0.7137 - mae: 0.3770 - mape: 11.5990

Epoch 11: val_loss did not improve from 0.36834

318/318 [=====] - 0s 1ms/step - loss: 0.3787 - mse: 0.5128 - rmse: 0.7161 - mae: 0.3787 - mape: 11.6474 - val_loss: 0.5139 - val_mse: 1.0294 - val_rmse: 1.0146 - val_mae: 0.5139 - val_mape: 13.4462 - lr: 0.0010

Epoch 12/1000

277/318 [=====>...] - ETA: 0s - loss: 0.3883 - mse: 0.5595 - rmse: 0.7480 - mae: 0.3883 - mape: 11.7846

Epoch 12: val_loss did not improve from 0.36834

318/318 [=====] - 0s 1ms/step - loss: 0.3851 - mse: 0.5479 - rmse: 0.7402 - mae: 0.3851 - mape: 11.6877 - val_loss: 0.3743 - val_mse: 0.4685 - val_rmse: 0.6844 - val_mae: 0.3743 - val_mape: 11.7551 - lr: 0.0010

Epoch 13/1000

317/318 [=====>.] - ETA: 0s - loss: 0.3706 - mse: 0.4825 - rmse: 0.6947 - mae: 0.3706 - mape: 11.4296

Epoch 13: val_loss did not improve from 0.36834

318/318 [=====] - 0s 1ms/step - loss: 0.3705 - mse: 0.4831 - rmse: 0.6950 - mae: 0.3705 - mape: 11.4261 - val_loss: 0.3988 - val_mse: 0.5621 - val_rmse: 0.7497 - val_mae: 0.3988 - val_mape: 11.8593 - lr: 0.0010

Epoch 14/1000

302/318 [=====>..] - ETA: 0s - loss: 0.3646 - mse: 0.4606 - rmse: 0.6787 - mae: 0.3646 - mape: 11.2857

Epoch 14: val_loss improved from 0.36834 to 0.35826, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.3635 - mse: 0.4590 - rmse: 0.6775 - mae: 0.3635 - mape: 11.2474 - val_loss: 0.3583 - val_mse: 0.4424 - val_rmse: 0.6652 - val_mae: 0.3583 - val_mape: 11.1410 - lr: 0.0010

Epoch 15/1000

308/318 [=====>.] - ETA: 0s - loss: 0.3670 - mse: 0.4706

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- rmse: 0.6860 - mae: 0.3670 - mape: 11.3555
Epoch 15: val_loss did not improve from 0.35826
318/318 [=====] - 0s 1ms/step - loss: 0.3683 - mse:
0.4714 - rmse: 0.6866 - mae: 0.3683 - mape: 11.3989 - val_loss: 0.3865 -
val_mse: 0.4856 - val_rmse: 0.6968 - val_mae: 0.3865 - val_mape: 12.3471 - lr:
0.0010
Epoch 16/1000
315/318 [=====>.] - ETA: 0s - loss: 0.3905 - mse: 0.5785
- rmse: 0.7606 - mae: 0.3905 - mape: 11.6623
Epoch 16: val_loss did not improve from 0.35826
318/318 [=====] - 0s 1ms/step - loss: 0.3904 - mse:
0.5788 - rmse: 0.7608 - mae: 0.3904 - mape: 11.6546 - val_loss: 0.4373 -
val_mse: 0.7769 - val_rmse: 0.8814 - val_mae: 0.4373 - val_mape: 13.2605 - lr:
0.0010
Epoch 17/1000
314/318 [=====>.] - ETA: 0s - loss: 0.4122 - mse: 0.6741
- rmse: 0.8210 - mae: 0.4122 - mape: 11.9237
Epoch 17: val_loss did not improve from 0.35826
318/318 [=====] - 0s 1ms/step - loss: 0.4115 - mse:
0.6715 - rmse: 0.8195 - mae: 0.4115 - mape: 11.9179 - val_loss: 0.3833 -
val_mse: 0.5688 - val_rmse: 0.7542 - val_mae: 0.3833 - val_mape: 11.4588 - lr:
0.0010
Epoch 18/1000
308/318 [=====>.] - ETA: 0s - loss: 0.3837 - mse: 0.5313
- rmse: 0.7289 - mae: 0.3837 - mape: 11.7107
Epoch 18: val_loss did not improve from 0.35826
318/318 [=====] - 0s 1ms/step - loss: 0.3856 - mse:
0.5338 - rmse: 0.7306 - mae: 0.3856 - mape: 11.7710 - val_loss: 0.3716 -
val_mse: 0.4428 - val_rmse: 0.6654 - val_mae: 0.3716 - val_mape: 11.9636 - lr:
0.0010
Epoch 19/1000
309/318 [=====>.] - ETA: 0s - loss: 0.3552 - mse: 0.4390
- rmse: 0.6626 - mae: 0.3552 - mape: 10.8026
Epoch 19: val_loss improved from 0.35826 to 0.32577, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3549 - mse:
0.4376 - rmse: 0.6615 - mae: 0.3549 - mape: 10.7693 - val_loss: 0.3258 -
val_mse: 0.3390 - val_rmse: 0.5822 - val_mae: 0.3258 - val_mape: 10.0061 - lr:
0.0010
Epoch 20/1000
304/318 [=====>.] - ETA: 0s - loss: 0.3563 - mse: 0.4423
- rmse: 0.6651 - mae: 0.3563 - mape: 10.8090
Epoch 20: val_loss improved from 0.32577 to 0.31840, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3543 - mse:
0.4368 - rmse: 0.6609 - mae: 0.3543 - mape: 10.7485 - val_loss: 0.3184 -
val_mse: 0.3435 - val_rmse: 0.5861 - val_mae: 0.3184 - val_mape: 9.2361 - lr:
0.0010

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Epoch 21/1000
277/318 [=====>...] - ETA: 0s - loss: 0.4151 - mse: 0.6554
- rmse: 0.8095 - mae: 0.4151 - mape: 12.6644
Epoch 21: val_loss did not improve from 0.31840
318/318 [=====] - 0s 1ms/step - loss: 0.4100 - mse:
0.6337 - rmse: 0.7961 - mae: 0.4100 - mape: 12.5188 - val_loss: 0.3755 -
val_mse: 0.4965 - val_rmse: 0.7046 - val_mae: 0.3755 - val_mape: 11.9443 - lr:
0.0010
Epoch 22/1000
317/318 [=====>.] - ETA: 0s - loss: 0.3715 - mse: 0.5063
- rmse: 0.7115 - mae: 0.3715 - mape: 11.0492
Epoch 22: val_loss did not improve from 0.31840
318/318 [=====] - 0s 1ms/step - loss: 0.3714 - mse:
0.5060 - rmse: 0.7114 - mae: 0.3714 - mape: 11.0477 - val_loss: 0.3289 -
val_mse: 0.3826 - val_rmse: 0.6185 - val_mae: 0.3289 - val_mape: 9.6959 - lr:
0.0010
Epoch 23/1000
306/318 [=====>..] - ETA: 0s - loss: 0.3390 - mse: 0.4039
- rmse: 0.6355 - mae: 0.3390 - mape: 10.1590
Epoch 23: val_loss did not improve from 0.31840
318/318 [=====] - 0s 1ms/step - loss: 0.3395 - mse:
0.4047 - rmse: 0.6362 - mae: 0.3395 - mape: 10.1478 - val_loss: 0.3220 -
val_mse: 0.3600 - val_rmse: 0.6000 - val_mae: 0.3220 - val_mape: 9.5689 - lr:
0.0010
Epoch 24/1000
283/318 [=====>...] - ETA: 0s - loss: 0.3358 - mse: 0.3807
- rmse: 0.6170 - mae: 0.3358 - mape: 10.1480
Epoch 24: val_loss improved from 0.31840 to 0.30474, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3373 - mse:
0.3843 - rmse: 0.6199 - mae: 0.3373 - mape: 10.1922 - val_loss: 0.3047 -
val_mse: 0.3255 - val_rmse: 0.5705 - val_mae: 0.3047 - val_mape: 9.0457 - lr:
0.0010
Epoch 25/1000
316/318 [=====>.] - ETA: 0s - loss: 0.3275 - mse: 0.3538
- rmse: 0.5948 - mae: 0.3275 - mape: 9.9820
Epoch 25: val_loss did not improve from 0.30474
318/318 [=====] - 0s 1ms/step - loss: 0.3283 - mse:
0.3558 - rmse: 0.5965 - mae: 0.3283 - mape: 9.9973 - val_loss: 0.3051 - val_mse:
0.2908 - val_rmse: 0.5392 - val_mae: 0.3051 - val_mape: 9.7061 - lr: 0.0010
Epoch 26/1000
310/318 [=====>.] - ETA: 0s - loss: 0.3250 - mse: 0.3495
- rmse: 0.5912 - mae: 0.3250 - mape: 10.1061
Epoch 26: val_loss did not improve from 0.30474
318/318 [=====] - 0s 1ms/step - loss: 0.3247 - mse:
0.3492 - rmse: 0.5909 - mae: 0.3247 - mape: 10.0927 - val_loss: 0.3257 -
val_mse: 0.3225 - val_rmse: 0.5679 - val_mae: 0.3257 - val_mape: 10.3661 - lr:
0.0010

Epoch 27/1000
317/318 [=====>.] - ETA: 0s - loss: 0.3116 - mse: 0.3171
- rmse: 0.5632 - mae: 0.3116 - mape: 9.6869
Epoch 27: val_loss improved from 0.30474 to 0.29579, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3116 - mse:
0.3172 - rmse: 0.5632 - mae: 0.3116 - mape: 9.6881 - val_loss: 0.2958 - val_mse:
0.2882 - val_rmse: 0.5368 - val_mae: 0.2958 - val_mape: 9.7022 - lr: 0.0010
Epoch 28/1000
287/318 [=====>...] - ETA: 0s - loss: 0.3277 - mse: 0.3695
- rmse: 0.6079 - mae: 0.3277 - mape: 10.2207
Epoch 28: val_loss improved from 0.29579 to 0.28232, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3266 - mse:
0.3654 - rmse: 0.6044 - mae: 0.3266 - mape: 10.1863 - val_loss: 0.2823 -
val_mse: 0.2656 - val_rmse: 0.5154 - val_mae: 0.2823 - val_mape: 8.9473 - lr:
0.0010
Epoch 29/1000
311/318 [=====>.] - ETA: 0s - loss: 0.3046 - mse: 0.3112
- rmse: 0.5578 - mae: 0.3046 - mape: 9.5704
Epoch 29: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3063 - mse:
0.3153 - rmse: 0.5615 - mae: 0.3063 - mape: 9.6300 - val_loss: 0.4517 - val_mse:
0.9616 - val_rmse: 0.9806 - val_mae: 0.4517 - val_mape: 11.7673 - lr: 0.0010
Epoch 30/1000
316/318 [=====>.] - ETA: 0s - loss: 0.3157 - mse: 0.3419
- rmse: 0.5847 - mae: 0.3157 - mape: 9.8735
Epoch 30: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3158 - mse:
0.3424 - rmse: 0.5851 - mae: 0.3158 - mape: 9.8677 - val_loss: 0.3757 - val_mse:
0.4885 - val_rmse: 0.6990 - val_mae: 0.3757 - val_mape: 12.2207 - lr: 0.0010
Epoch 31/1000
309/318 [=====>.] - ETA: 0s - loss: 0.3284 - mse: 0.3731
- rmse: 0.6108 - mae: 0.3284 - mape: 10.2374
Epoch 31: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3283 - mse:
0.3725 - rmse: 0.6104 - mae: 0.3283 - mape: 10.2316 - val_loss: 0.2947 -
val_mse: 0.3011 - val_rmse: 0.5487 - val_mae: 0.2947 - val_mape: 9.5338 - lr:
0.0010
Epoch 32/1000
309/318 [=====>.] - ETA: 0s - loss: 0.3109 - mse: 0.3355
- rmse: 0.5792 - mae: 0.3109 - mape: 9.7974
Epoch 32: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3100 - mse:
0.3339 - rmse: 0.5779 - mae: 0.3100 - mape: 9.7700 - val_loss: 0.3394 - val_mse:
0.3974 - val_rmse: 0.6304 - val_mae: 0.3394 - val_mape: 10.3042 - lr: 0.0010
Epoch 33/1000
309/318 [=====>.] - ETA: 0s - loss: 0.3360 - mse: 0.4329

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- rmse: 0.6579 - mae: 0.3360 - mape: 10.2219
Epoch 33: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3382 - mse:
0.4418 - rmse: 0.6646 - mae: 0.3382 - mape: 10.2496 - val_loss: 0.3977 -
val_mse: 0.7022 - val_rmse: 0.8380 - val_mae: 0.3977 - val_mape: 10.9080 - lr:
0.0010
Epoch 34/1000
255/318 [=====>...] - ETA: 0s - loss: 0.4067 - mse: 0.7034
- rmse: 0.8387 - mae: 0.4067 - mape: 11.4975
Epoch 34: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.4057 - mse:
0.7049 - rmse: 0.8396 - mae: 0.4057 - mape: 11.4689 - val_loss: 0.4468 -
val_mse: 0.7327 - val_rmse: 0.8560 - val_mae: 0.4468 - val_mape: 12.6982 - lr:
0.0010
Epoch 35/1000
305/318 [=====>..] - ETA: 0s - loss: 0.4107 - mse: 0.7152
- rmse: 0.8457 - mae: 0.4107 - mape: 11.4551
Epoch 35: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.4107 - mse:
0.7143 - rmse: 0.8452 - mae: 0.4107 - mape: 11.4503 - val_loss: 0.3898 -
val_mse: 0.6757 - val_rmse: 0.8220 - val_mae: 0.3898 - val_mape: 10.9606 - lr:
0.0010
Epoch 36/1000
317/318 [=====>.] - ETA: 0s - loss: 0.3783 - mse: 0.5232
- rmse: 0.7233 - mae: 0.3783 - mape: 11.6255
Epoch 36: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3783 - mse:
0.5231 - rmse: 0.7233 - mae: 0.3783 - mape: 11.6266 - val_loss: 0.3520 -
val_mse: 0.3512 - val_rmse: 0.5926 - val_mae: 0.3520 - val_mape: 11.8169 - lr:
0.0010
Epoch 37/1000
258/318 [=====>...] - ETA: 0s - loss: 0.3299 - mse: 0.3512
- rmse: 0.5926 - mae: 0.3299 - mape: 10.3938
Epoch 37: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3251 - mse:
0.3462 - rmse: 0.5884 - mae: 0.3251 - mape: 10.2279 - val_loss: 0.3272 -
val_mse: 0.3574 - val_rmse: 0.5978 - val_mae: 0.3272 - val_mape: 10.3719 - lr:
0.0010
Epoch 38/1000
315/318 [=====>.] - ETA: 0s - loss: 0.3345 - mse: 0.3927
- rmse: 0.6267 - mae: 0.3345 - mape: 10.3465
Epoch 38: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3346 - mse:
0.3925 - rmse: 0.6265 - mae: 0.3346 - mape: 10.3443 - val_loss: 0.3834 -
val_mse: 0.4490 - val_rmse: 0.6701 - val_mae: 0.3834 - val_mape: 11.0122 - lr:
0.0010
Epoch 39/1000
313/318 [=====>.] - ETA: 0s - loss: 0.3177 - mse: 0.3429

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- rmse: 0.5855 - mae: 0.3177 - mape: 9.9467
Epoch 39: val_loss did not improve from 0.28232
318/318 [=====] - 0s 1ms/step - loss: 0.3179 - mse:
0.3440 - rmse: 0.5865 - mae: 0.3179 - mape: 9.9597 - val_loss: 0.3325 - val_mse:
0.3908 - val_rmse: 0.6251 - val_mae: 0.3325 - val_mape: 11.1727 - lr: 0.0010
Epoch 40/1000
297/318 [=====>..] - ETA: 0s - loss: 0.3124 - mse: 0.3382
- rmse: 0.5816 - mae: 0.3124 - mape: 9.8208
Epoch 40: val_loss improved from 0.28232 to 0.27923, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3131 - mse:
0.3410 - rmse: 0.5840 - mae: 0.3131 - mape: 9.8298 - val_loss: 0.2792 - val_mse:
0.2865 - val_rmse: 0.5353 - val_mae: 0.2792 - val_mape: 8.9768 - lr: 0.0010
Epoch 41/1000
257/318 [=====>...] - ETA: 0s - loss: 0.3593 - mse: 0.5167
- rmse: 0.7188 - mae: 0.3593 - mape: 10.7829
Epoch 41: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3708 - mse:
0.5580 - rmse: 0.7470 - mae: 0.3708 - mape: 10.9963 - val_loss: 0.4013 -
val_mse: 0.6888 - val_rmse: 0.8299 - val_mae: 0.4013 - val_mape: 11.5396 - lr:
0.0010
Epoch 42/1000
291/318 [=====>...] - ETA: 0s - loss: 0.4122 - mse: 0.7211
- rmse: 0.8492 - mae: 0.4122 - mape: 11.7809
Epoch 42: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.4126 - mse:
0.7224 - rmse: 0.8499 - mae: 0.4126 - mape: 11.7933 - val_loss: 0.4253 -
val_mse: 0.7905 - val_rmse: 0.8891 - val_mae: 0.4253 - val_mape: 11.6544 - lr:
0.0010
Epoch 43/1000
312/318 [=====>.] - ETA: 0s - loss: 0.4091 - mse: 0.7067
- rmse: 0.8407 - mae: 0.4091 - mape: 11.5499
Epoch 43: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.4087 - mse:
0.7056 - rmse: 0.8400 - mae: 0.4087 - mape: 11.5381 - val_loss: 0.4003 -
val_mse: 0.6668 - val_rmse: 0.8166 - val_mae: 0.4003 - val_mape: 11.5745 - lr:
0.0010
Epoch 44/1000
306/318 [=====>..] - ETA: 0s - loss: 0.3953 - mse: 0.6524
- rmse: 0.8077 - mae: 0.3953 - mape: 11.2040
Epoch 44: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3943 - mse:
0.6477 - rmse: 0.8048 - mae: 0.3943 - mape: 11.1710 - val_loss: 0.3504 -
val_mse: 0.4521 - val_rmse: 0.6724 - val_mae: 0.3504 - val_mape: 10.1984 - lr:
0.0010
Epoch 45/1000
258/318 [=====>...] - ETA: 0s - loss: 0.3413 - mse: 0.4153
- rmse: 0.6444 - mae: 0.3413 - mape: 10.2060

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Epoch 45: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3416 - mse:
0.4096 - rmse: 0.6400 - mae: 0.3416 - mape: 10.2225 - val_loss: 0.3279 -
val_mse: 0.3399 - val_rmse: 0.5830 - val_mae: 0.3279 - val_mape: 9.9218 - lr:
0.0010
Epoch 46/1000
261/318 [=====>...] - ETA: 0s - loss: 0.3214 - mse: 0.3381
- rmse: 0.5814 - mae: 0.3214 - mape: 9.8437
Epoch 46: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3198 - mse:
0.3357 - rmse: 0.5794 - mae: 0.3198 - mape: 9.8062 - val_loss: 0.3343 - val_mse:
0.3234 - val_rmse: 0.5687 - val_mae: 0.3343 - val_mape: 10.3462 - lr: 0.0010
Epoch 47/1000
259/318 [=====>...] - ETA: 0s - loss: 0.3114 - mse: 0.3082
- rmse: 0.5552 - mae: 0.3114 - mape: 9.5836
Epoch 47: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3111 - mse:
0.3115 - rmse: 0.5582 - mae: 0.3111 - mape: 9.6076 - val_loss: 0.3825 - val_mse:
0.4964 - val_rmse: 0.7045 - val_mae: 0.3825 - val_mape: 11.4552 - lr: 0.0010
Epoch 48/1000
258/318 [=====>...] - ETA: 0s - loss: 0.3687 - mse: 0.5428
- rmse: 0.7367 - mae: 0.3687 - mape: 10.8359
Epoch 48: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3737 - mse:
0.5635 - rmse: 0.7507 - mae: 0.3737 - mape: 11.0179 - val_loss: 0.4216 -
val_mse: 0.6976 - val_rmse: 0.8352 - val_mae: 0.4216 - val_mape: 12.0969 - lr:
0.0010
Epoch 49/1000
257/318 [=====>...] - ETA: 0s - loss: 0.3489 - mse: 0.4470
- rmse: 0.6685 - mae: 0.3489 - mape: 10.4539
Epoch 49: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3408 - mse:
0.4203 - rmse: 0.6483 - mae: 0.3408 - mape: 10.2478 - val_loss: 0.3198 -
val_mse: 0.3401 - val_rmse: 0.5832 - val_mae: 0.3198 - val_mape: 10.2160 - lr:
0.0010
Epoch 50/1000
260/318 [=====>...] - ETA: 0s - loss: 0.3011 - mse: 0.3061
- rmse: 0.5533 - mae: 0.3011 - mape: 9.3975
Epoch 50: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3019 - mse:
0.3086 - rmse: 0.5555 - mae: 0.3019 - mape: 9.3983 - val_loss: 0.2970 - val_mse:
0.2878 - val_rmse: 0.5365 - val_mae: 0.2970 - val_mape: 9.2133 - lr: 0.0010
Epoch 51/1000
259/318 [=====>...] - ETA: 0s - loss: 0.3124 - mse: 0.3367
- rmse: 0.5802 - mae: 0.3124 - mape: 9.7967
Epoch 51: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3077 - mse:
0.3240 - rmse: 0.5692 - mae: 0.3077 - mape: 9.6488 - val_loss: 0.2906 - val_mse:

0.2929 - val_rmse: 0.5412 - val_mae: 0.2906 - val_mape: 9.4142 - lr: 0.0010
Epoch 52/1000
260/318 [=====>...] - ETA: 0s - loss: 0.3002 - mse: 0.3113
- rmse: 0.5579 - mae: 0.3002 - mape: 9.5875
Epoch 52: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3029 - mse:
0.3194 - rmse: 0.5652 - mae: 0.3029 - mape: 9.5843 - val_loss: 0.2957 - val_mse:
0.2875 - val_rmse: 0.5362 - val_mae: 0.2957 - val_mape: 9.4243 - lr: 0.0010
Epoch 53/1000
310/318 [=====>.] - ETA: 0s - loss: 0.3164 - mse: 0.3424
- rmse: 0.5851 - mae: 0.3164 - mape: 9.9195
Epoch 53: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3154 - mse:
0.3403 - rmse: 0.5834 - mae: 0.3154 - mape: 9.8744 - val_loss: 0.2989 - val_mse:
0.3111 - val_rmse: 0.5577 - val_mae: 0.2989 - val_mape: 10.1487 - lr: 0.0010
Epoch 54/1000
263/318 [=====>...] - ETA: 0s - loss: 0.3072 - mse: 0.3380
- rmse: 0.5813 - mae: 0.3072 - mape: 9.6915
Epoch 54: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3121 - mse:
0.3477 - rmse: 0.5897 - mae: 0.3121 - mape: 9.8676 - val_loss: 0.3110 - val_mse:
0.3267 - val_rmse: 0.5716 - val_mae: 0.3110 - val_mape: 10.5218 - lr: 0.0010
Epoch 55/1000
264/318 [=====>...] - ETA: 0s - loss: 0.3196 - mse: 0.3535
- rmse: 0.5946 - mae: 0.3196 - mape: 10.0388
Epoch 55: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3173 - mse:
0.3492 - rmse: 0.5909 - mae: 0.3173 - mape: 9.9776 - val_loss: 0.2861 - val_mse:
0.2799 - val_rmse: 0.5291 - val_mae: 0.2861 - val_mape: 9.3641 - lr: 0.0010
Epoch 56/1000
263/318 [=====>...] - ETA: 0s - loss: 0.3243 - mse: 0.3838
- rmse: 0.6195 - mae: 0.3243 - mape: 10.1267
Epoch 56: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3206 - mse:
0.3715 - rmse: 0.6095 - mae: 0.3206 - mape: 10.0230 - val_loss: 0.2876 -
val_mse: 0.2718 - val_rmse: 0.5214 - val_mae: 0.2876 - val_mape: 9.1586 - lr:
0.0010
Epoch 57/1000
257/318 [=====>...] - ETA: 0s - loss: 0.2988 - mse: 0.3130
- rmse: 0.5595 - mae: 0.2988 - mape: 9.4668
Epoch 57: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3041 - mse:
0.3236 - rmse: 0.5689 - mae: 0.3041 - mape: 9.6171 - val_loss: 0.3313 - val_mse:
0.4028 - val_rmse: 0.6346 - val_mae: 0.3313 - val_mape: 9.3160 - lr: 0.0010
Epoch 58/1000
258/318 [=====>...] - ETA: 0s - loss: 0.3163 - mse: 0.3536
- rmse: 0.5947 - mae: 0.3163 - mape: 9.9240
Epoch 58: val_loss did not improve from 0.27923

318/318 [=====] - 0s 1ms/step - loss: 0.3126 - mse: 0.3446 - rmse: 0.5870 - mae: 0.3126 - mape: 9.8416 - val_loss: 0.2844 - val_mse: 0.2877 - val_rmse: 0.5364 - val_mae: 0.2844 - val_mape: 8.6776 - lr: 0.0010
Epoch 59/1000
318/318 [=====] - ETA: 0s - loss: 0.3182 - mse: 0.3467 - rmse: 0.5888 - mae: 0.3182 - mape: 9.9527
Epoch 59: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3182 - mse: 0.3467 - rmse: 0.5888 - mae: 0.3182 - mape: 9.9527 - val_loss: 0.3252 - val_mse: 0.3206 - val_rmse: 0.5662 - val_mae: 0.3252 - val_mape: 10.3003 - lr: 0.0010
Epoch 60/1000
315/318 [=====>.] - ETA: 0s - loss: 0.3145 - mse: 0.3519 - rmse: 0.5932 - mae: 0.3145 - mape: 9.8865
Epoch 60: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3144 - mse: 0.3511 - rmse: 0.5926 - mae: 0.3144 - mape: 9.8826 - val_loss: 0.2893 - val_mse: 0.2703 - val_rmse: 0.5199 - val_mae: 0.2893 - val_mape: 8.9748 - lr: 0.0010
Epoch 61/1000
256/318 [=====>...] - ETA: 0s - loss: 0.3093 - mse: 0.3339 - rmse: 0.5779 - mae: 0.3093 - mape: 9.7353
Epoch 61: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3093 - mse: 0.3369 - rmse: 0.5804 - mae: 0.3093 - mape: 9.7094 - val_loss: 0.2892 - val_mse: 0.2936 - val_rmse: 0.5419 - val_mae: 0.2892 - val_mape: 9.0831 - lr: 0.0010
Epoch 62/1000
318/318 [=====] - ETA: 0s - loss: 0.3138 - mse: 0.3419 - rmse: 0.5847 - mae: 0.3138 - mape: 9.8289
Epoch 62: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3138 - mse: 0.3419 - rmse: 0.5847 - mae: 0.3138 - mape: 9.8289 - val_loss: 0.2894 - val_mse: 0.2813 - val_rmse: 0.5303 - val_mae: 0.2894 - val_mape: 9.0531 - lr: 0.0010
Epoch 63/1000
297/318 [=====>..] - ETA: 0s - loss: 0.3076 - mse: 0.3320 - rmse: 0.5762 - mae: 0.3076 - mape: 9.5712
Epoch 63: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3072 - mse: 0.3326 - rmse: 0.5767 - mae: 0.3072 - mape: 9.5750 - val_loss: 0.3346 - val_mse: 0.4060 - val_rmse: 0.6372 - val_mae: 0.3346 - val_mape: 10.8631 - lr: 0.0010
Epoch 64/1000
315/318 [=====>.] - ETA: 0s - loss: 0.3042 - mse: 0.3252 - rmse: 0.5702 - mae: 0.3042 - mape: 9.5630
Epoch 64: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3046 - mse: 0.3263 - rmse: 0.5712 - mae: 0.3046 - mape: 9.5793 - val_loss: 0.3036 - val_mse: 0.3430 - val_rmse: 0.5857 - val_mae: 0.3036 - val_mape: 9.3781 - lr: 0.0010
Epoch 65/1000
317/318 [=====>.] - ETA: 0s - loss: 0.3071 - mse: 0.3412 - rmse: 0.5841 - mae: 0.3071 - mape: 9.6621

Epoch 65: val_loss did not improve from 0.27923
318/318 [=====] - 0s 1ms/step - loss: 0.3071 - mse: 0.3411 - rmse: 0.5840 - mae: 0.3071 - mape: 9.6617 - val_loss: 0.4097 - val_mse: 0.6268 - val_rmse: 0.7917 - val_mae: 0.4097 - val_mape: 13.1151 - lr: 0.0010
Epoch 66/1000
312/318 [=====>.] - ETA: 0s - loss: 0.3053 - mse: 0.3372 - rmse: 0.5806 - mae: 0.3053 - mape: 9.6498
Epoch 66: val_loss improved from 0.27923 to 0.27914, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3043 - mse: 0.3349 - rmse: 0.5787 - mae: 0.3043 - mape: 9.6161 - val_loss: 0.2791 - val_mse: 0.2739 - val_rmse: 0.5234 - val_mae: 0.2791 - val_mape: 8.6818 - lr: 0.0010
Epoch 67/1000
309/318 [=====>.] - ETA: 0s - loss: 0.3153 - mse: 0.3578 - rmse: 0.5982 - mae: 0.3153 - mape: 9.9187
Epoch 67: val_loss improved from 0.27914 to 0.27589, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3148 - mse: 0.3563 - rmse: 0.5969 - mae: 0.3148 - mape: 9.9166 - val_loss: 0.2759 - val_mse: 0.2617 - val_rmse: 0.5116 - val_mae: 0.2759 - val_mape: 8.6584 - lr: 0.0010
Epoch 68/1000
314/318 [=====>.] - ETA: 0s - loss: 0.3227 - mse: 0.3671 - rmse: 0.6059 - mae: 0.3227 - mape: 10.0840
Epoch 68: val_loss did not improve from 0.27589
318/318 [=====] - 0s 1ms/step - loss: 0.3227 - mse: 0.3666 - rmse: 0.6055 - mae: 0.3227 - mape: 10.0715 - val_loss: 0.2945 - val_mse: 0.2950 - val_rmse: 0.5432 - val_mae: 0.2945 - val_mape: 9.0472 - lr: 0.0010
Epoch 69/1000
259/318 [=====>...] - ETA: 0s - loss: 0.3212 - mse: 0.3656 - rmse: 0.6046 - mae: 0.3212 - mape: 10.0916
Epoch 69: val_loss did not improve from 0.27589
318/318 [=====] - 0s 1ms/step - loss: 0.3237 - mse: 0.3665 - rmse: 0.6054 - mae: 0.3237 - mape: 10.1890 - val_loss: 0.2781 - val_mse: 0.2600 - val_rmse: 0.5099 - val_mae: 0.2781 - val_mape: 8.8882 - lr: 0.0010
Epoch 70/1000
261/318 [=====>...] - ETA: 0s - loss: 0.3097 - mse: 0.3347 - rmse: 0.5786 - mae: 0.3097 - mape: 9.6776
Epoch 70: val_loss improved from 0.27589 to 0.27331, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.3030 - mse: 0.3217 - rmse: 0.5672 - mae: 0.3030 - mape: 9.4960 - val_loss: 0.2733 - val_mse: 0.2658 - val_rmse: 0.5156 - val_mae: 0.2733 - val_mape: 8.7325 - lr: 0.0010
Epoch 71/1000
258/318 [=====>...] - ETA: 0s - loss: 0.3090 - mse: 0.3386 - rmse: 0.5819 - mae: 0.3090 - mape: 9.5966
Epoch 71: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3069 - mse: 0.3337 - rmse: 0.5777 - mae: 0.3069 - mape: 9.5827 - val_loss: 0.3169 - val_mse: 0.3568 - val_rmse: 0.5974 - val_mae: 0.3169 - val_mape: 10.4599 - lr: 0.0010
Epoch 72/1000
261/318 [=====>...] - ETA: 0s - loss: 0.3026 - mse: 0.3314 - rmse: 0.5757 - mae: 0.3026 - mape: 9.5497
Epoch 72: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3058 - mse: 0.3404 - rmse: 0.5834 - mae: 0.3058 - mape: 9.5750 - val_loss: 0.3108 - val_mse: 0.3294 - val_rmse: 0.5739 - val_mae: 0.3108 - val_mape: 10.2298 - lr: 0.0010
Epoch 73/1000
264/318 [=====>...] - ETA: 0s - loss: 0.3241 - mse: 0.3777 - rmse: 0.6146 - mae: 0.3241 - mape: 10.1295
Epoch 73: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3175 - mse: 0.3625 - rmse: 0.6021 - mae: 0.3175 - mape: 9.8724 - val_loss: 0.2762 - val_mse: 0.2654 - val_rmse: 0.5152 - val_mae: 0.2762 - val_mape: 8.8589 - lr: 0.0010
Epoch 74/1000
316/318 [=====>.] - ETA: 0s - loss: 0.3026 - mse: 0.3250 - rmse: 0.5701 - mae: 0.3026 - mape: 9.5028
Epoch 74: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3026 - mse: 0.3247 - rmse: 0.5699 - mae: 0.3026 - mape: 9.5011 - val_loss: 0.3208 - val_mse: 0.3393 - val_rmse: 0.5825 - val_mae: 0.3208 - val_mape: 10.2536 - lr: 0.0010
Epoch 75/1000
262/318 [=====>...] - ETA: 0s - loss: 0.3919 - mse: 0.6306 - rmse: 0.7941 - mae: 0.3919 - mape: 11.3972
Epoch 75: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3961 - mse: 0.6480 - rmse: 0.8050 - mae: 0.3961 - mape: 11.4576 - val_loss: 0.4095 - val_mse: 0.7141 - val_rmse: 0.8450 - val_mae: 0.4095 - val_mape: 12.0700 - lr: 0.0010
Epoch 76/1000
318/318 [=====] - ETA: 0s - loss: 0.4099 - mse: 0.7169 - rmse: 0.8467 - mae: 0.4099 - mape: 11.8289
Epoch 76: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4099 - mse: 0.7169 - rmse: 0.8467 - mae: 0.4099 - mape: 11.8289 - val_loss: 0.4054 - val_mse: 0.6917 - val_rmse: 0.8317 - val_mae: 0.4054 - val_mape: 11.8421 - lr: 0.0010
Epoch 77/1000
301/318 [=====>...] - ETA: 0s - loss: 0.4148 - mse: 0.7279 - rmse: 0.8532 - mae: 0.4148 - mape: 12.0493
Epoch 77: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4138 - mse: 0.7250 - rmse: 0.8515 - mae: 0.4138 - mape: 12.0327 - val_loss: 0.4088 - val_mse: 0.7074 - val_rmse: 0.8411 - val_mae: 0.4088 - val_mape: 11.2943 - lr: 0.0010

Epoch 78/1000
265/318 [=====>...] - ETA: 0s - loss: 0.4011 - mse: 0.6927
- rmse: 0.8323 - mae: 0.4011 - mape: 11.4856
Epoch 78: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4036 - mse:
0.7014 - rmse: 0.8375 - mae: 0.4036 - mape: 11.5733 - val_loss: 0.3983 -
val_mse: 0.6944 - val_rmse: 0.8333 - val_mae: 0.3983 - val_mape: 11.6674 - lr:
0.0010
Epoch 79/1000
255/318 [=====>...] - ETA: 0s - loss: 0.4017 - mse: 0.6501
- rmse: 0.8063 - mae: 0.4017 - mape: 11.7868
Epoch 79: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3934 - mse:
0.6046 - rmse: 0.7776 - mae: 0.3934 - mape: 11.6717 - val_loss: 0.3421 -
val_mse: 0.3545 - val_rmse: 0.5954 - val_mae: 0.3421 - val_mape: 11.0239 - lr:
0.0010
Epoch 80/1000
281/318 [=====>...] - ETA: 0s - loss: 0.3478 - mse: 0.4474
- rmse: 0.6689 - mae: 0.3478 - mape: 10.1480
Epoch 80: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3477 - mse:
0.4457 - rmse: 0.6676 - mae: 0.3477 - mape: 10.1337 - val_loss: 0.3728 -
val_mse: 0.4939 - val_rmse: 0.7028 - val_mae: 0.3728 - val_mape: 10.8363 - lr:
0.0010
Epoch 81/1000
305/318 [=====>..] - ETA: 0s - loss: 0.3364 - mse: 0.4057
- rmse: 0.6369 - mae: 0.3364 - mape: 9.7802
Epoch 81: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3382 - mse:
0.4102 - rmse: 0.6405 - mae: 0.3382 - mape: 9.8265 - val_loss: 0.3343 - val_mse:
0.4037 - val_rmse: 0.6354 - val_mae: 0.3343 - val_mape: 9.6821 - lr: 0.0010
Epoch 82/1000
295/318 [=====>...] - ETA: 0s - loss: 0.3357 - mse: 0.3917
- rmse: 0.6258 - mae: 0.3357 - mape: 9.9042
Epoch 82: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3347 - mse:
0.3920 - rmse: 0.6261 - mae: 0.3347 - mape: 9.8693 - val_loss: 0.3270 - val_mse:
0.3561 - val_rmse: 0.5967 - val_mae: 0.3270 - val_mape: 9.8905 - lr: 0.0010
Epoch 83/1000
296/318 [=====>...] - ETA: 0s - loss: 0.3260 - mse: 0.3576
- rmse: 0.5980 - mae: 0.3260 - mape: 9.6797
Epoch 83: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3260 - mse:
0.3586 - rmse: 0.5988 - mae: 0.3260 - mape: 9.6945 - val_loss: 0.3039 - val_mse:
0.3067 - val_rmse: 0.5538 - val_mae: 0.3039 - val_mape: 9.0970 - lr: 0.0010
Epoch 84/1000
316/318 [=====>.] - ETA: 0s - loss: 0.3291 - mse: 0.3685
- rmse: 0.6071 - mae: 0.3291 - mape: 9.9647

Epoch 84: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3293 - mse:
0.3688 - rmse: 0.6073 - mae: 0.3293 - mape: 9.9687 - val_loss: 0.3051 - val_mse:
0.3236 - val_rmse: 0.5689 - val_mae: 0.3051 - val_mape: 8.9976 - lr: 0.0010
Epoch 85/1000
315/318 [=====>.] - ETA: 0s - loss: 0.4212 - mse: 0.7354
- rmse: 0.8576 - mae: 0.4212 - mape: 12.0121
Epoch 85: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4213 - mse:
0.7357 - rmse: 0.8577 - mae: 0.4213 - mape: 12.0139 - val_loss: 0.4880 -
val_mse: 0.9636 - val_rmse: 0.9816 - val_mae: 0.4880 - val_mape: 13.1164 - lr:
0.0010
Epoch 86/1000
301/318 [=====>..] - ETA: 0s - loss: 0.4206 - mse: 0.7509
- rmse: 0.8665 - mae: 0.4206 - mape: 11.7082
Epoch 86: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4196 - mse:
0.7463 - rmse: 0.8639 - mae: 0.4196 - mape: 11.7417 - val_loss: 0.4472 -
val_mse: 0.8584 - val_rmse: 0.9265 - val_mae: 0.4472 - val_mape: 12.2390 - lr:
0.0010
Epoch 87/1000
309/318 [=====>.] - ETA: 0s - loss: 0.4218 - mse: 0.7464
- rmse: 0.8640 - mae: 0.4218 - mape: 11.9243
Epoch 87: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4235 - mse:
0.7529 - rmse: 0.8677 - mae: 0.4235 - mape: 11.9447 - val_loss: 0.4790 -
val_mse: 0.9814 - val_rmse: 0.9907 - val_mae: 0.4790 - val_mape: 12.6304 - lr:
0.0010
Epoch 88/1000
312/318 [=====>.] - ETA: 0s - loss: 0.3938 - mse: 0.5951
- rmse: 0.7714 - mae: 0.3938 - mape: 11.6987
Epoch 88: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3947 - mse:
0.5974 - rmse: 0.7729 - mae: 0.3947 - mape: 11.7185 - val_loss: 0.3901 -
val_mse: 0.5735 - val_rmse: 0.7573 - val_mae: 0.3901 - val_mape: 11.5331 - lr:
0.0010
Epoch 89/1000
299/318 [=====>..] - ETA: 0s - loss: 0.4219 - mse: 0.7507
- rmse: 0.8664 - mae: 0.4219 - mape: 11.9354
Epoch 89: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4211 - mse:
0.7423 - rmse: 0.8616 - mae: 0.4211 - mape: 11.9564 - val_loss: 0.4305 -
val_mse: 0.7499 - val_rmse: 0.8659 - val_mae: 0.4305 - val_mape: 12.8440 - lr:
0.0010
Epoch 90/1000
307/318 [=====>..] - ETA: 0s - loss: 0.3875 - mse: 0.5664
- rmse: 0.7526 - mae: 0.3875 - mape: 11.6102
Epoch 90: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3871 - mse: 0.5630 - rmse: 0.7503 - mae: 0.3871 - mape: 11.6021 - val_loss: 0.3695 - val_mse: 0.4483 - val_rmse: 0.6695 - val_mae: 0.3695 - val_mape: 11.7054 - lr: 0.0010

Epoch 91/1000

307/318 [=====>..] - ETA: 0s - loss: 0.3549 - mse: 0.4407 - rmse: 0.6638 - mae: 0.3549 - mape: 11.2356

Epoch 91: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3556 - mse: 0.4443 - rmse: 0.6665 - mae: 0.3556 - mape: 11.2432 - val_loss: 0.3406 - val_mse: 0.4136 - val_rmse: 0.6431 - val_mae: 0.3406 - val_mape: 10.7243 - lr: 0.0010

Epoch 92/1000

298/318 [=====>..] - ETA: 0s - loss: 0.3513 - mse: 0.4501 - rmse: 0.6709 - mae: 0.3513 - mape: 10.6096

Epoch 92: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3494 - mse: 0.4462 - rmse: 0.6680 - mae: 0.3494 - mape: 10.5562 - val_loss: 0.3840 - val_mse: 0.5519 - val_rmse: 0.7429 - val_mae: 0.3840 - val_mape: 11.0500 - lr: 0.0010

Epoch 93/1000

312/318 [=====>..] - ETA: 0s - loss: 0.3839 - mse: 0.5638 - rmse: 0.7508 - mae: 0.3839 - mape: 11.2209

Epoch 93: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3845 - mse: 0.5654 - rmse: 0.7519 - mae: 0.3845 - mape: 11.2423 - val_loss: 0.4174 - val_mse: 0.7364 - val_rmse: 0.8581 - val_mae: 0.4174 - val_mape: 11.4604 - lr: 0.0010

Epoch 94/1000

312/318 [=====>..] - ETA: 0s - loss: 0.4099 - mse: 0.6901 - rmse: 0.8307 - mae: 0.4099 - mape: 11.6620

Epoch 94: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.4085 - mse: 0.6852 - rmse: 0.8278 - mae: 0.4085 - mape: 11.6250 - val_loss: 0.3437 - val_mse: 0.4472 - val_rmse: 0.6687 - val_mae: 0.3437 - val_mape: 10.0197 - lr: 0.0010

Epoch 95/1000

305/318 [=====>..] - ETA: 0s - loss: 0.3360 - mse: 0.4030 - rmse: 0.6348 - mae: 0.3360 - mape: 10.0943

Epoch 95: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3358 - mse: 0.4021 - rmse: 0.6341 - mae: 0.3358 - mape: 10.0829 - val_loss: 0.4566 - val_mse: 0.8012 - val_rmse: 0.8951 - val_mae: 0.4566 - val_mape: 13.6419 - lr: 0.0010

Epoch 96/1000

318/318 [=====] - ETA: 0s - loss: 0.3953 - mse: 0.6141 - rmse: 0.7837 - mae: 0.3953 - mape: 11.5229

Epoch 96: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3953 - mse: 0.6141 - rmse: 0.7837 - mae: 0.3953 - mape: 11.5229 - val_loss: 0.3337 - val_mse: 0.4290 - val_rmse: 0.6550 - val_mae: 0.3337 - val_mape: 9.5253 - lr: 0.0010

Epoch 97/1000

312/318 [=====>.] - ETA: 0s - loss: 0.3349 - mse: 0.4157 - rmse: 0.6447 - mae: 0.3349 - mape: 9.9345

Epoch 97: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3355 - mse: 0.4164 - rmse: 0.6453 - mae: 0.3355 - mape: 9.9481 - val_loss: 0.3584 - val_mse: 0.4827 - val_rmse: 0.6947 - val_mae: 0.3584 - val_mape: 10.4081 - lr: 0.0010

Epoch 98/1000

298/318 [=====>..] - ETA: 0s - loss: 0.3340 - mse: 0.3984 - rmse: 0.6312 - mae: 0.3340 - mape: 10.0550

Epoch 98: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3326 - mse: 0.3948 - rmse: 0.6283 - mae: 0.3326 - mape: 10.0424 - val_loss: 0.2990 - val_mse: 0.3095 - val_rmse: 0.5563 - val_mae: 0.2990 - val_mape: 9.0185 - lr: 0.0010

Epoch 99/1000

304/318 [=====>..] - ETA: 0s - loss: 0.3329 - mse: 0.3999 - rmse: 0.6324 - mae: 0.3329 - mape: 10.0930

Epoch 99: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3321 - mse: 0.3971 - rmse: 0.6302 - mae: 0.3321 - mape: 10.0813 - val_loss: 0.3087 - val_mse: 0.3314 - val_rmse: 0.5757 - val_mae: 0.3087 - val_mape: 9.2322 - lr: 0.0010

Epoch 100/1000

315/318 [=====>.] - ETA: 0s - loss: 0.3329 - mse: 0.3987 - rmse: 0.6314 - mae: 0.3329 - mape: 10.1555

Epoch 100: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3335 - mse: 0.3995 - rmse: 0.6321 - mae: 0.3335 - mape: 10.1700 - val_loss: 0.3545 - val_mse: 0.4385 - val_rmse: 0.6622 - val_mae: 0.3545 - val_mape: 11.2508 - lr: 0.0010

Epoch 101/1000

318/318 [=====] - ETA: 0s - loss: 0.3169 - mse: 0.3441 - rmse: 0.5866 - mae: 0.3169 - mape: 9.7410

Epoch 101: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3169 - mse: 0.3441 - rmse: 0.5866 - mae: 0.3169 - mape: 9.7410 - val_loss: 0.3007 - val_mse: 0.3075 - val_rmse: 0.5545 - val_mae: 0.3007 - val_mape: 9.1886 - lr: 0.0010

Epoch 102/1000

305/318 [=====>..] - ETA: 0s - loss: 0.3379 - mse: 0.4238 - rmse: 0.6510 - mae: 0.3379 - mape: 10.3193

Epoch 102: val_loss did not improve from 0.27331

318/318 [=====] - 0s 1ms/step - loss: 0.3417 - mse: 0.4383 - rmse: 0.6620 - mae: 0.3417 - mape: 10.4059 - val_loss: 0.4351 -


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val_mse: 0.8051 - val_rmse: 0.8973 - val_mae: 0.4351 - val_mape: 12.9315 - lr:
0.0010
Epoch 103/1000
300/318 [=====>..] - ETA: 0s - loss: 0.3312 - mse: 0.3900
- rmse: 0.6245 - mae: 0.3312 - mape: 10.2005
Epoch 103: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3293 - mse:
0.3851 - rmse: 0.6205 - mae: 0.3293 - mape: 10.1429 - val_loss: 0.3095 -
val_mse: 0.3350 - val_rmse: 0.5788 - val_mae: 0.3095 - val_mape: 9.3151 - lr:
0.0010
Epoch 104/1000
315/318 [=====>..] - ETA: 0s - loss: 0.3216 - mse: 0.3649
- rmse: 0.6041 - mae: 0.3216 - mape: 9.9474
Epoch 104: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3212 - mse:
0.3642 - rmse: 0.6035 - mae: 0.3212 - mape: 9.9305 - val_loss: 0.3212 - val_mse:
0.3557 - val_rmse: 0.5964 - val_mae: 0.3212 - val_mape: 9.5750 - lr: 0.0010
Epoch 105/1000
303/318 [=====>..] - ETA: 0s - loss: 0.3160 - mse: 0.3436
- rmse: 0.5862 - mae: 0.3160 - mape: 9.8909
Epoch 105: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3154 - mse:
0.3412 - rmse: 0.5842 - mae: 0.3154 - mape: 9.8612 - val_loss: 0.3416 - val_mse:
0.3812 - val_rmse: 0.6174 - val_mae: 0.3416 - val_mape: 10.7712 - lr: 0.0010
Epoch 106/1000
317/318 [=====>..] - ETA: 0s - loss: 0.3179 - mse: 0.3514
- rmse: 0.5928 - mae: 0.3179 - mape: 9.9139
Epoch 106: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3180 - mse:
0.3514 - rmse: 0.5928 - mae: 0.3180 - mape: 9.9162 - val_loss: 0.2893 - val_mse:
0.2783 - val_rmse: 0.5276 - val_mae: 0.2893 - val_mape: 9.2505 - lr: 0.0010
Epoch 107/1000
306/318 [=====>..] - ETA: 0s - loss: 0.3187 - mse: 0.3484
- rmse: 0.5903 - mae: 0.3187 - mape: 10.0804
Epoch 107: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3174 - mse:
0.3459 - rmse: 0.5881 - mae: 0.3174 - mape: 10.0423 - val_loss: 0.3233 -
val_mse: 0.3629 - val_rmse: 0.6024 - val_mae: 0.3233 - val_mape: 10.4487 - lr:
0.0010
Epoch 108/1000
299/318 [=====>..] - ETA: 0s - loss: 0.3560 - mse: 0.5001
- rmse: 0.7072 - mae: 0.3560 - mape: 10.7093
Epoch 108: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3624 - mse:
0.5219 - rmse: 0.7224 - mae: 0.3624 - mape: 10.8383 - val_loss: 0.4292 -
val_mse: 0.7900 - val_rmse: 0.8888 - val_mae: 0.4292 - val_mape: 11.8449 - lr:
0.0010
Epoch 109/1000

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306/318 [=====>..] - ETA: 0s - loss: 0.4150 - mse: 0.7114
- rmse: 0.8435 - mae: 0.4150 - mape: 11.9422
Epoch 109: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4180 - mse:
0.7206 - rmse: 0.8489 - mae: 0.4180 - mape: 11.9922 - val_loss: 0.5122 -
val_mse: 1.0133 - val_rmse: 1.0066 - val_mae: 0.5122 - val_mape: 13.4696 - lr:
0.0010
Epoch 110/1000
317/318 [=====>..] - ETA: 0s - loss: 0.4168 - mse: 0.6963
- rmse: 0.8344 - mae: 0.4168 - mape: 12.0860
Epoch 110: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4166 - mse:
0.6958 - rmse: 0.8341 - mae: 0.4166 - mape: 12.0816 - val_loss: 0.4473 -
val_mse: 0.8918 - val_rmse: 0.9443 - val_mae: 0.4473 - val_mape: 11.9073 - lr:
0.0010
Epoch 111/1000
307/318 [=====>..] - ETA: 0s - loss: 0.4031 - mse: 0.7157
- rmse: 0.8460 - mae: 0.4031 - mape: 11.1595
Epoch 111: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.4031 - mse:
0.7139 - rmse: 0.8449 - mae: 0.4031 - mape: 11.1850 - val_loss: 0.3951 -
val_mse: 0.6844 - val_rmse: 0.8273 - val_mae: 0.3951 - val_mape: 11.0562 - lr:
1.0000e-04
Epoch 112/1000
261/318 [=====>...] - ETA: 0s - loss: 0.3940 - mse: 0.6769
- rmse: 0.8227 - mae: 0.3940 - mape: 11.0645
Epoch 112: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3953 - mse:
0.6827 - rmse: 0.8262 - mae: 0.3953 - mape: 11.1175 - val_loss: 0.3933 -
val_mse: 0.6792 - val_rmse: 0.8241 - val_mae: 0.3933 - val_mape: 11.1130 - lr:
1.0000e-04
Epoch 113/1000
262/318 [=====>...] - ETA: 0s - loss: 0.3952 - mse: 0.6807
- rmse: 0.8251 - mae: 0.3952 - mape: 11.1256
Epoch 113: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3939 - mse:
0.6806 - rmse: 0.8250 - mae: 0.3939 - mape: 11.1112 - val_loss: 0.3916 -
val_mse: 0.6795 - val_rmse: 0.8243 - val_mae: 0.3916 - val_mape: 11.0770 - lr:
1.0000e-04
Epoch 114/1000
310/318 [=====>..] - ETA: 0s - loss: 0.3931 - mse: 0.6837
- rmse: 0.8269 - mae: 0.3931 - mape: 11.1266
Epoch 114: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3930 - mse:
0.6820 - rmse: 0.8258 - mae: 0.3930 - mape: 11.1251 - val_loss: 0.3898 -
val_mse: 0.6689 - val_rmse: 0.8179 - val_mae: 0.3898 - val_mape: 11.1095 - lr:
1.0000e-04
Epoch 115/1000

318/318 [=====] - ETA: 0s - loss: 0.3919 - mse: 0.6808
- rmse: 0.8251 - mae: 0.3919 - mape: 11.0949
Epoch 115: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3919 - mse:
0.6808 - rmse: 0.8251 - mae: 0.3919 - mape: 11.0949 - val_loss: 0.3953 -
val_mse: 0.6862 - val_rmse: 0.8284 - val_mae: 0.3953 - val_mape: 11.3936 - lr:
1.0000e-04
Epoch 116/1000
305/318 [=====>..] - ETA: 0s - loss: 0.3931 - mse: 0.6859
- rmse: 0.8282 - mae: 0.3931 - mape: 11.1430
Epoch 116: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3925 - mse:
0.6825 - rmse: 0.8261 - mae: 0.3925 - mape: 11.1463 - val_loss: 0.3903 -
val_mse: 0.6766 - val_rmse: 0.8225 - val_mae: 0.3903 - val_mape: 11.1141 - lr:
1.0000e-04
Epoch 117/1000
317/318 [=====>.] - ETA: 0s - loss: 0.3906 - mse: 0.6778
- rmse: 0.8233 - mae: 0.3906 - mape: 11.1053
Epoch 117: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3904 - mse:
0.6773 - rmse: 0.8230 - mae: 0.3904 - mape: 11.1004 - val_loss: 0.3986 -
val_mse: 0.7028 - val_rmse: 0.8383 - val_mae: 0.3986 - val_mape: 11.5105 - lr:
1.0000e-04
Epoch 118/1000
304/318 [=====>..] - ETA: 0s - loss: 0.3921 - mse: 0.6827
- rmse: 0.8263 - mae: 0.3921 - mape: 11.1638
Epoch 118: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3916 - mse:
0.6805 - rmse: 0.8249 - mae: 0.3916 - mape: 11.1467 - val_loss: 0.3889 -
val_mse: 0.6768 - val_rmse: 0.8227 - val_mae: 0.3889 - val_mape: 10.9845 - lr:
1.0000e-04
Epoch 119/1000
254/318 [=====>...] - ETA: 0s - loss: 0.3896 - mse: 0.6825
- rmse: 0.8261 - mae: 0.3896 - mape: 11.0987
Epoch 119: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3885 - mse:
0.6782 - rmse: 0.8235 - mae: 0.3885 - mape: 11.0135 - val_loss: 0.3860 -
val_mse: 0.6622 - val_rmse: 0.8138 - val_mae: 0.3860 - val_mape: 10.9741 - lr:
1.0000e-04
Epoch 120/1000
307/318 [=====>..] - ETA: 0s - loss: 0.3843 - mse: 0.6834
- rmse: 0.8267 - mae: 0.3843 - mape: 10.8068
Epoch 120: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3844 - mse:
0.6810 - rmse: 0.8252 - mae: 0.3844 - mape: 10.8107 - val_loss: 0.3804 -
val_mse: 0.6642 - val_rmse: 0.8150 - val_mae: 0.3804 - val_mape: 10.7210 - lr:
1.0000e-04
Epoch 121/1000

313/318 [=====>.] - ETA: 0s - loss: 0.3837 - mse: 0.6737
- rmse: 0.8208 - mae: 0.3837 - mape: 10.8185
Epoch 121: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3824 - mse:
0.6708 - rmse: 0.8190 - mae: 0.3824 - mape: 10.7812 - val_loss: 0.3788 -
val_mse: 0.6657 - val_rmse: 0.8159 - val_mae: 0.3788 - val_mape: 10.6467 - lr:
1.0000e-04
Epoch 122/1000
305/318 [=====>..] - ETA: 0s - loss: 0.3780 - mse: 0.6561
- rmse: 0.8100 - mae: 0.3780 - mape: 10.7110
Epoch 122: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3799 - mse:
0.6626 - rmse: 0.8140 - mae: 0.3799 - mape: 10.7369 - val_loss: 0.3757 -
val_mse: 0.6379 - val_rmse: 0.7987 - val_mae: 0.3757 - val_mape: 10.7009 - lr:
1.0000e-04
Epoch 123/1000
315/318 [=====>.] - ETA: 0s - loss: 0.3758 - mse: 0.6369
- rmse: 0.7981 - mae: 0.3758 - mape: 10.7000
Epoch 123: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3759 - mse:
0.6371 - rmse: 0.7982 - mae: 0.3759 - mape: 10.6947 - val_loss: 0.3718 -
val_mse: 0.6249 - val_rmse: 0.7905 - val_mae: 0.3718 - val_mape: 10.6223 - lr:
1.0000e-04
Epoch 124/1000
304/318 [=====>..] - ETA: 0s - loss: 0.3737 - mse: 0.6251
- rmse: 0.7906 - mae: 0.3737 - mape: 10.7010
Epoch 124: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3718 - mse:
0.6197 - rmse: 0.7872 - mae: 0.3718 - mape: 10.6488 - val_loss: 0.3766 -
val_mse: 0.6189 - val_rmse: 0.7867 - val_mae: 0.3766 - val_mape: 10.9275 - lr:
1.0000e-04
Epoch 125/1000
316/318 [=====>.] - ETA: 0s - loss: 0.3690 - mse: 0.6000
- rmse: 0.7746 - mae: 0.3690 - mape: 10.6369
Epoch 125: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3687 - mse:
0.5987 - rmse: 0.7738 - mae: 0.3687 - mape: 10.6319 - val_loss: 0.3652 -
val_mse: 0.5756 - val_rmse: 0.7587 - val_mae: 0.3652 - val_mape: 10.5606 - lr:
1.0000e-04
Epoch 126/1000
260/318 [=====>...] - ETA: 0s - loss: 0.3657 - mse: 0.5815
- rmse: 0.7626 - mae: 0.3657 - mape: 10.6075
Epoch 126: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3631 - mse:
0.5728 - rmse: 0.7568 - mae: 0.3631 - mape: 10.5477 - val_loss: 0.3617 -
val_mse: 0.5597 - val_rmse: 0.7481 - val_mae: 0.3617 - val_mape: 10.5678 - lr:
1.0000e-04
Epoch 127/1000

311/318 [=====>.] - ETA: 0s - loss: 0.3582 - mse: 0.5510
- rmse: 0.7423 - mae: 0.3582 - mape: 10.4864
Epoch 127: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3584 - mse:
0.5512 - rmse: 0.7424 - mae: 0.3584 - mape: 10.4845 - val_loss: 0.3535 -
val_mse: 0.5292 - val_rmse: 0.7274 - val_mae: 0.3535 - val_mape: 10.3449 - lr:
1.0000e-04
Epoch 128/1000
316/318 [=====>.] - ETA: 0s - loss: 0.3527 - mse: 0.5285
- rmse: 0.7270 - mae: 0.3527 - mape: 10.3571
Epoch 128: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3531 - mse:
0.5289 - rmse: 0.7272 - mae: 0.3531 - mape: 10.3693 - val_loss: 0.3491 -
val_mse: 0.5141 - val_rmse: 0.7170 - val_mae: 0.3491 - val_mape: 10.1841 - lr:
1.0000e-04
Epoch 129/1000
303/318 [=====>..] - ETA: 0s - loss: 0.3469 - mse: 0.5041
- rmse: 0.7100 - mae: 0.3469 - mape: 10.2255
Epoch 129: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3468 - mse:
0.5043 - rmse: 0.7102 - mae: 0.3468 - mape: 10.2164 - val_loss: 0.3434 -
val_mse: 0.4772 - val_rmse: 0.6908 - val_mae: 0.3434 - val_mape: 10.2162 - lr:
1.0000e-04
Epoch 130/1000
314/318 [=====>.] - ETA: 0s - loss: 0.3409 - mse: 0.4800
- rmse: 0.6928 - mae: 0.3409 - mape: 10.1200
Epoch 130: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3405 - mse:
0.4789 - rmse: 0.6920 - mae: 0.3405 - mape: 10.1058 - val_loss: 0.3405 -
val_mse: 0.4774 - val_rmse: 0.6910 - val_mae: 0.3405 - val_mape: 10.1444 - lr:
1.0000e-04
Epoch 131/1000
308/318 [=====>.] - ETA: 0s - loss: 0.3325 - mse: 0.4548
- rmse: 0.6744 - mae: 0.3325 - mape: 9.8683
Epoch 131: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3323 - mse:
0.4541 - rmse: 0.6739 - mae: 0.3323 - mape: 9.8648 - val_loss: 0.3285 - val_mse:
0.4484 - val_rmse: 0.6696 - val_mae: 0.3285 - val_mape: 9.7171 - lr: 1.0000e-04
Epoch 132/1000
259/318 [=====>...] - ETA: 0s - loss: 0.3233 - mse: 0.4279
- rmse: 0.6541 - mae: 0.3233 - mape: 9.6381
Epoch 132: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3250 - mse:
0.4265 - rmse: 0.6531 - mae: 0.3250 - mape: 9.6558 - val_loss: 0.3212 - val_mse:
0.4055 - val_rmse: 0.6368 - val_mae: 0.3212 - val_mape: 9.6088 - lr: 1.0000e-04
Epoch 133/1000
301/318 [=====>..] - ETA: 0s - loss: 0.3210 - mse: 0.4074
- rmse: 0.6383 - mae: 0.3210 - mape: 9.5875

Epoch 133: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3205 - mse:
0.4051 - rmse: 0.6365 - mae: 0.3205 - mape: 9.5734 - val_loss: 0.3156 - val_mse:
0.3900 - val_rmse: 0.6245 - val_mae: 0.3156 - val_mape: 9.4418 - lr: 1.0000e-04
Epoch 134/1000
255/318 [=====>...] - ETA: 0s - loss: 0.3192 - mse: 0.3970
- rmse: 0.6301 - mae: 0.3192 - mape: 9.6152
Epoch 134: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3171 - mse:
0.3941 - rmse: 0.6277 - mae: 0.3171 - mape: 9.5221 - val_loss: 0.3129 - val_mse:
0.3835 - val_rmse: 0.6192 - val_mae: 0.3129 - val_mape: 9.4159 - lr: 1.0000e-04
Epoch 135/1000
308/318 [=====>.] - ETA: 0s - loss: 0.3137 - mse: 0.3799
- rmse: 0.6163 - mae: 0.3137 - mape: 9.4733
Epoch 135: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3141 - mse:
0.3809 - rmse: 0.6172 - mae: 0.3141 - mape: 9.4740 - val_loss: 0.3092 - val_mse:
0.3692 - val_rmse: 0.6076 - val_mae: 0.3092 - val_mape: 9.2400 - lr: 1.0000e-04
Epoch 136/1000
315/318 [=====>.] - ETA: 0s - loss: 0.3116 - mse: 0.3704
- rmse: 0.6086 - mae: 0.3116 - mape: 9.3843
Epoch 136: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3114 - mse:
0.3697 - rmse: 0.6080 - mae: 0.3114 - mape: 9.3887 - val_loss: 0.3126 - val_mse:
0.3635 - val_rmse: 0.6029 - val_mae: 0.3126 - val_mape: 9.4322 - lr: 1.0000e-04
Epoch 137/1000
308/318 [=====>.] - ETA: 0s - loss: 0.3108 - mse: 0.3652
- rmse: 0.6043 - mae: 0.3108 - mape: 9.4130
Epoch 137: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3115 - mse:
0.3659 - rmse: 0.6049 - mae: 0.3115 - mape: 9.4344 - val_loss: 0.3222 - val_mse:
0.3849 - val_rmse: 0.6204 - val_mae: 0.3222 - val_mape: 9.9760 - lr: 1.0000e-04
Epoch 138/1000
308/318 [=====>.] - ETA: 0s - loss: 0.3060 - mse: 0.3518
- rmse: 0.5931 - mae: 0.3060 - mape: 9.2960
Epoch 138: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3061 - mse:
0.3523 - rmse: 0.5935 - mae: 0.3061 - mape: 9.3129 - val_loss: 0.3079 - val_mse:
0.3556 - val_rmse: 0.5963 - val_mae: 0.3079 - val_mape: 9.3828 - lr: 1.0000e-04
Epoch 139/1000
258/318 [=====>...] - ETA: 0s - loss: 0.3025 - mse: 0.3368
- rmse: 0.5803 - mae: 0.3025 - mape: 9.1682
Epoch 139: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3049 - mse:
0.3435 - rmse: 0.5861 - mae: 0.3049 - mape: 9.2917 - val_loss: 0.3042 - val_mse:
0.3475 - val_rmse: 0.5895 - val_mae: 0.3042 - val_mape: 9.3939 - lr: 1.0000e-04
Epoch 140/1000
303/318 [=====>..] - ETA: 0s - loss: 0.3027 - mse: 0.3383

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- rmse: 0.5816 - mae: 0.3027 - mape: 9.2948
Epoch 140: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3020 - mse:
0.3361 - rmse: 0.5798 - mae: 0.3020 - mape: 9.2777 - val_loss: 0.2984 - val_mse:
0.3268 - val_rmse: 0.5717 - val_mae: 0.2984 - val_mape: 9.1940 - lr: 1.0000e-04
Epoch 141/1000
279/318 [=====>...] - ETA: 0s - loss: 0.3001 - mse: 0.3285
- rmse: 0.5731 - mae: 0.3001 - mape: 9.2252
Epoch 141: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.3016 - mse:
0.3308 - rmse: 0.5751 - mae: 0.3016 - mape: 9.2844 - val_loss: 0.2953 - val_mse:
0.3157 - val_rmse: 0.5619 - val_mae: 0.2953 - val_mape: 9.0576 - lr: 1.0000e-04
Epoch 142/1000
301/318 [=====>...] - ETA: 0s - loss: 0.2977 - mse: 0.3183
- rmse: 0.5642 - mae: 0.2977 - mape: 9.1702
Epoch 142: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2981 - mse:
0.3186 - rmse: 0.5644 - mae: 0.2981 - mape: 9.1837 - val_loss: 0.2946 - val_mse:
0.3127 - val_rmse: 0.5592 - val_mae: 0.2946 - val_mape: 9.0329 - lr: 1.0000e-04
Epoch 143/1000
318/318 [=====] - ETA: 0s - loss: 0.2959 - mse: 0.3138
- rmse: 0.5602 - mae: 0.2959 - mape: 9.1614
Epoch 143: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2959 - mse:
0.3138 - rmse: 0.5602 - mae: 0.2959 - mape: 9.1614 - val_loss: 0.2914 - val_mse:
0.3036 - val_rmse: 0.5510 - val_mae: 0.2914 - val_mape: 9.0359 - lr: 1.0000e-04
Epoch 144/1000
308/318 [=====>...] - ETA: 0s - loss: 0.2951 - mse: 0.3106
- rmse: 0.5573 - mae: 0.2951 - mape: 9.1809
Epoch 144: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2940 - mse:
0.3082 - rmse: 0.5551 - mae: 0.2940 - mape: 9.1446 - val_loss: 0.2913 - val_mse:
0.3027 - val_rmse: 0.5502 - val_mae: 0.2913 - val_mape: 8.9561 - lr: 1.0000e-04
Epoch 145/1000
318/318 [=====] - ETA: 0s - loss: 0.2917 - mse: 0.3015
- rmse: 0.5491 - mae: 0.2917 - mape: 9.0665
Epoch 145: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2917 - mse:
0.3015 - rmse: 0.5491 - mae: 0.2917 - mape: 9.0665 - val_loss: 0.2969 - val_mse:
0.3104 - val_rmse: 0.5572 - val_mae: 0.2969 - val_mape: 9.1376 - lr: 1.0000e-04
Epoch 146/1000
302/318 [=====>...] - ETA: 0s - loss: 0.2887 - mse: 0.2953
- rmse: 0.5435 - mae: 0.2887 - mape: 8.9823
Epoch 146: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2892 - mse:
0.2967 - rmse: 0.5447 - mae: 0.2892 - mape: 8.9883 - val_loss: 0.2864 - val_mse:
0.2910 - val_rmse: 0.5395 - val_mae: 0.2864 - val_mape: 8.9168 - lr: 1.0000e-04
Epoch 147/1000

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308/318 [=====>.] - ETA: 0s - loss: 0.2864 - mse: 0.2893
- rmse: 0.5379 - mae: 0.2864 - mape: 8.9624
Epoch 147: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2870 - mse:
0.2904 - rmse: 0.5389 - mae: 0.2870 - mape: 8.9667 - val_loss: 0.2846 - val_mse:
0.2878 - val_rmse: 0.5365 - val_mae: 0.2846 - val_mape: 8.8336 - lr: 1.0000e-04
Epoch 148/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2880 - mse: 0.2955
- rmse: 0.5436 - mae: 0.2880 - mape: 8.9874
Epoch 148: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2862 - mse:
0.2907 - rmse: 0.5391 - mae: 0.2862 - mape: 8.9534 - val_loss: 0.2815 - val_mse:
0.2812 - val_rmse: 0.5303 - val_mae: 0.2815 - val_mape: 8.9575 - lr: 1.0000e-04
Epoch 149/1000
318/318 [=====] - ETA: 0s - loss: 0.2840 - mse: 0.2861
- rmse: 0.5349 - mae: 0.2840 - mape: 8.9458
Epoch 149: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2840 - mse:
0.2861 - rmse: 0.5349 - mae: 0.2840 - mape: 8.9458 - val_loss: 0.2851 - val_mse:
0.2924 - val_rmse: 0.5407 - val_mae: 0.2851 - val_mape: 8.8389 - lr: 1.0000e-04
Epoch 150/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2829 - mse: 0.2874
- rmse: 0.5361 - mae: 0.2829 - mape: 8.8720
Epoch 150: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2818 - mse:
0.2845 - rmse: 0.5334 - mae: 0.2818 - mape: 8.8468 - val_loss: 0.2802 - val_mse:
0.2757 - val_rmse: 0.5250 - val_mae: 0.2802 - val_mape: 8.7343 - lr: 1.0000e-04
Epoch 151/1000
259/318 [=====>...] - ETA: 0s - loss: 0.2790 - mse: 0.2768
- rmse: 0.5261 - mae: 0.2790 - mape: 8.7359
Epoch 151: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2772 - mse:
0.2729 - rmse: 0.5224 - mae: 0.2772 - mape: 8.7043 - val_loss: 0.2767 - val_mse:
0.2729 - val_rmse: 0.5224 - val_mae: 0.2767 - val_mape: 8.7041 - lr: 1.0000e-05
Epoch 152/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2762 - mse: 0.2709
- rmse: 0.5204 - mae: 0.2762 - mape: 8.6544
Epoch 152: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2770 - mse:
0.2734 - rmse: 0.5228 - mae: 0.2770 - mape: 8.7020 - val_loss: 0.2763 - val_mse:
0.2720 - val_rmse: 0.5215 - val_mae: 0.2763 - val_mape: 8.6955 - lr: 1.0000e-05
Epoch 153/1000
255/318 [=====>...] - ETA: 0s - loss: 0.2767 - mse: 0.2711
- rmse: 0.5207 - mae: 0.2767 - mape: 8.7031
Epoch 153: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2767 - mse:
0.2736 - rmse: 0.5231 - mae: 0.2767 - mape: 8.7010 - val_loss: 0.2761 - val_mse:
0.2729 - val_rmse: 0.5224 - val_mae: 0.2761 - val_mape: 8.6732 - lr: 1.0000e-05

Epoch 154/1000
 312/318 [=====>.] - ETA: 0s - loss: 0.2758 - mse: 0.2735
 - rmse: 0.5230 - mae: 0.2758 - mape: 8.6916
 Epoch 154: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2762 - mse:
 0.2740 - rmse: 0.5234 - mae: 0.2762 - mape: 8.6988 - val_loss: 0.2762 - val_mse:
 0.2732 - val_rmse: 0.5227 - val_mae: 0.2762 - val_mape: 8.6924 - lr: 1.0000e-05
 Epoch 155/1000
 291/318 [=====>...] - ETA: 0s - loss: 0.2768 - mse: 0.2746
 - rmse: 0.5241 - mae: 0.2768 - mape: 8.7153
 Epoch 155: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2761 - mse:
 0.2744 - rmse: 0.5238 - mae: 0.2761 - mape: 8.6943 - val_loss: 0.2760 - val_mse:
 0.2747 - val_rmse: 0.5241 - val_mae: 0.2760 - val_mape: 8.7535 - lr: 1.0000e-05
 Epoch 156/1000
 306/318 [=====>..] - ETA: 0s - loss: 0.2761 - mse: 0.2747
 - rmse: 0.5242 - mae: 0.2761 - mape: 8.7122
 Epoch 156: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2761 - mse:
 0.2745 - rmse: 0.5239 - mae: 0.2761 - mape: 8.7174 - val_loss: 0.2761 - val_mse:
 0.2745 - val_rmse: 0.5239 - val_mae: 0.2761 - val_mape: 8.6510 - lr: 1.0000e-05
 Epoch 157/1000
 317/318 [=====>.] - ETA: 0s - loss: 0.2758 - mse: 0.2745
 - rmse: 0.5239 - mae: 0.2758 - mape: 8.7028
 Epoch 157: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2758 - mse:
 0.2745 - rmse: 0.5239 - mae: 0.2758 - mape: 8.7012 - val_loss: 0.2754 - val_mse:
 0.2739 - val_rmse: 0.5234 - val_mae: 0.2754 - val_mape: 8.6514 - lr: 1.0000e-05
 Epoch 158/1000
 299/318 [=====>..] - ETA: 0s - loss: 0.2747 - mse: 0.2720
 - rmse: 0.5215 - mae: 0.2747 - mape: 8.6780
 Epoch 158: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2756 - mse:
 0.2745 - rmse: 0.5240 - mae: 0.2756 - mape: 8.7046 - val_loss: 0.2750 - val_mse:
 0.2747 - val_rmse: 0.5241 - val_mae: 0.2750 - val_mape: 8.6782 - lr: 1.0000e-05
 Epoch 159/1000
 313/318 [=====>.] - ETA: 0s - loss: 0.2750 - mse: 0.2746
 - rmse: 0.5240 - mae: 0.2750 - mape: 8.6886
 Epoch 159: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2752 - mse:
 0.2747 - rmse: 0.5241 - mae: 0.2752 - mape: 8.6891 - val_loss: 0.2760 - val_mse:
 0.2754 - val_rmse: 0.5248 - val_mae: 0.2760 - val_mape: 8.6470 - lr: 1.0000e-05
 Epoch 160/1000
 304/318 [=====>..] - ETA: 0s - loss: 0.2762 - mse: 0.2763
 - rmse: 0.5256 - mae: 0.2762 - mape: 8.7173
 Epoch 160: val_loss did not improve from 0.27331
 318/318 [=====] - 0s 1ms/step - loss: 0.2753 - mse:
 0.2747 - rmse: 0.5241 - mae: 0.2753 - mape: 8.6883 - val_loss: 0.2751 - val_mse:

0.2738 - val_rmse: 0.5232 - val_mae: 0.2751 - val_mape: 8.6534 - lr: 1.0000e-05
Epoch 161/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2754 - mse: 0.2756
- rmse: 0.5250 - mae: 0.2754 - mape: 8.7137
Epoch 161: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2749 - mse:
0.2741 - rmse: 0.5235 - mae: 0.2749 - mape: 8.6877 - val_loss: 0.2745 - val_mse:
0.2739 - val_rmse: 0.5233 - val_mae: 0.2745 - val_mape: 8.6413 - lr: 1.0000e-05
Epoch 162/1000
317/318 [=====>.] - ETA: 0s - loss: 0.2750 - mse: 0.2748
- rmse: 0.5242 - mae: 0.2750 - mape: 8.6839
Epoch 162: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2749 - mse:
0.2746 - rmse: 0.5241 - mae: 0.2749 - mape: 8.6799 - val_loss: 0.2741 - val_mse:
0.2733 - val_rmse: 0.5228 - val_mae: 0.2741 - val_mape: 8.6640 - lr: 1.0000e-05
Epoch 163/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2742 - mse: 0.2746
- rmse: 0.5240 - mae: 0.2742 - mape: 8.6483
Epoch 163: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2745 - mse:
0.2751 - rmse: 0.5245 - mae: 0.2745 - mape: 8.6748 - val_loss: 0.2741 - val_mse:
0.2730 - val_rmse: 0.5225 - val_mae: 0.2741 - val_mape: 8.6556 - lr: 1.0000e-05
Epoch 164/1000
255/318 [=====>...] - ETA: 0s - loss: 0.2743 - mse: 0.2721
- rmse: 0.5217 - mae: 0.2743 - mape: 8.6801
Epoch 164: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2746 - mse:
0.2743 - rmse: 0.5237 - mae: 0.2746 - mape: 8.6773 - val_loss: 0.2742 - val_mse:
0.2740 - val_rmse: 0.5234 - val_mae: 0.2742 - val_mape: 8.7024 - lr: 1.0000e-05
Epoch 165/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2751 - mse: 0.2747
- rmse: 0.5241 - mae: 0.2751 - mape: 8.6821
Epoch 165: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2743 - mse:
0.2739 - rmse: 0.5233 - mae: 0.2743 - mape: 8.6838 - val_loss: 0.2738 - val_mse:
0.2737 - val_rmse: 0.5231 - val_mae: 0.2738 - val_mape: 8.6382 - lr: 1.0000e-05
Epoch 166/1000
318/318 [=====] - ETA: 0s - loss: 0.2741 - mse: 0.2741
- rmse: 0.5236 - mae: 0.2741 - mape: 8.6713
Epoch 166: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2741 - mse:
0.2741 - rmse: 0.5236 - mae: 0.2741 - mape: 8.6713 - val_loss: 0.2739 - val_mse:
0.2743 - val_rmse: 0.5238 - val_mae: 0.2739 - val_mape: 8.6788 - lr: 1.0000e-05
Epoch 167/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2757 - mse: 0.2777
- rmse: 0.5269 - mae: 0.2757 - mape: 8.6718
Epoch 167: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2741 - mse:

0.2734 - rmse: 0.5229 - mae: 0.2741 - mape: 8.6697 - val_loss: 0.2734 - val_mse:
0.2730 - val_rmse: 0.5225 - val_mae: 0.2734 - val_mape: 8.6482 - lr: 1.0000e-05
Epoch 168/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2741 - mse: 0.2743
- rmse: 0.5237 - mae: 0.2741 - mape: 8.6660
Epoch 168: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2739 - mse:
0.2737 - rmse: 0.5231 - mae: 0.2739 - mape: 8.6599 - val_loss: 0.2736 - val_mse:
0.2721 - val_rmse: 0.5216 - val_mae: 0.2736 - val_mape: 8.6747 - lr: 1.0000e-05
Epoch 169/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2731 - mse: 0.2715
- rmse: 0.5210 - mae: 0.2731 - mape: 8.6442
Epoch 169: val_loss did not improve from 0.27331
318/318 [=====] - 0s 1ms/step - loss: 0.2740 - mse:
0.2735 - rmse: 0.5230 - mae: 0.2740 - mape: 8.6712 - val_loss: 0.2737 - val_mse:
0.2742 - val_rmse: 0.5237 - val_mae: 0.2737 - val_mape: 8.7107 - lr: 1.0000e-05
Epoch 170/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2744 - mse: 0.2748
- rmse: 0.5242 - mae: 0.2744 - mape: 8.6956
Epoch 170: val_loss improved from 0.27331 to 0.27305, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2738 - mse:
0.2739 - rmse: 0.5233 - mae: 0.2738 - mape: 8.6783 - val_loss: 0.2730 - val_mse:
0.2723 - val_rmse: 0.5219 - val_mae: 0.2730 - val_mape: 8.6405 - lr: 1.0000e-05
Epoch 171/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2729 - mse: 0.2725
- rmse: 0.5220 - mae: 0.2729 - mape: 8.6368
Epoch 171: val_loss did not improve from 0.27305
318/318 [=====] - 0s 1ms/step - loss: 0.2733 - mse:
0.2730 - rmse: 0.5225 - mae: 0.2733 - mape: 8.6558 - val_loss: 0.2732 - val_mse:
0.2734 - val_rmse: 0.5228 - val_mae: 0.2732 - val_mape: 8.6723 - lr: 1.0000e-05
Epoch 172/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2723 - mse: 0.2697
- rmse: 0.5194 - mae: 0.2723 - mape: 8.6222
Epoch 172: val_loss improved from 0.27305 to 0.27296, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2731 - mse:
0.2728 - rmse: 0.5223 - mae: 0.2731 - mape: 8.6490 - val_loss: 0.2730 - val_mse:
0.2734 - val_rmse: 0.5228 - val_mae: 0.2730 - val_mape: 8.6751 - lr: 1.0000e-05
Epoch 173/1000
271/318 [=====>...] - ETA: 0s - loss: 0.2735 - mse: 0.2742
- rmse: 0.5236 - mae: 0.2735 - mape: 8.6761
Epoch 173: val_loss improved from 0.27296 to 0.27271, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2730 - mse:
0.2725 - rmse: 0.5220 - mae: 0.2730 - mape: 8.6590 - val_loss: 0.2727 - val_mse:
0.2717 - val_rmse: 0.5212 - val_mae: 0.2727 - val_mape: 8.6124 - lr: 1.0000e-05
Epoch 174/1000

295/318 [=====>...] - ETA: 0s - loss: 0.2747 - mse: 0.2747
- rmse: 0.5242 - mae: 0.2747 - mape: 8.7222
Epoch 174: val_loss did not improve from 0.27271
318/318 [=====] - 0s 1ms/step - loss: 0.2732 - mse:
0.2729 - rmse: 0.5224 - mae: 0.2732 - mape: 8.6577 - val_loss: 0.2730 - val_mse:
0.2740 - val_rmse: 0.5234 - val_mae: 0.2730 - val_mape: 8.6751 - lr: 1.0000e-05
Epoch 175/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2727 - mse: 0.2710
- rmse: 0.5206 - mae: 0.2727 - mape: 8.6521
Epoch 175: val_loss improved from 0.27271 to 0.27221, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2729 - mse:
0.2728 - rmse: 0.5223 - mae: 0.2729 - mape: 8.6557 - val_loss: 0.2722 - val_mse:
0.2708 - val_rmse: 0.5204 - val_mae: 0.2722 - val_mape: 8.6250 - lr: 1.0000e-05
Epoch 176/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2727 - mse: 0.2717
- rmse: 0.5213 - mae: 0.2727 - mape: 8.6485
Epoch 176: val_loss improved from 0.27221 to 0.27221, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2729 - mse:
0.2722 - rmse: 0.5217 - mae: 0.2729 - mape: 8.6486 - val_loss: 0.2722 - val_mse:
0.2714 - val_rmse: 0.5209 - val_mae: 0.2722 - val_mape: 8.5989 - lr: 1.0000e-05
Epoch 177/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2708 - mse: 0.2687
- rmse: 0.5184 - mae: 0.2708 - mape: 8.6025
Epoch 177: val_loss improved from 0.27221 to 0.27185, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2727 - mse:
0.2722 - rmse: 0.5218 - mae: 0.2727 - mape: 8.6421 - val_loss: 0.2719 - val_mse:
0.2711 - val_rmse: 0.5207 - val_mae: 0.2719 - val_mape: 8.6284 - lr: 1.0000e-05
Epoch 178/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2712 - mse: 0.2691
- rmse: 0.5188 - mae: 0.2712 - mape: 8.5976
Epoch 178: val_loss did not improve from 0.27185
318/318 [=====] - 0s 1ms/step - loss: 0.2723 - mse:
0.2718 - rmse: 0.5213 - mae: 0.2723 - mape: 8.6322 - val_loss: 0.2720 - val_mse:
0.2709 - val_rmse: 0.5205 - val_mae: 0.2720 - val_mape: 8.6057 - lr: 1.0000e-05
Epoch 179/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2715 - mse: 0.2699
- rmse: 0.5195 - mae: 0.2715 - mape: 8.6265
Epoch 179: val_loss improved from 0.27185 to 0.27165, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2722 - mse:
0.2720 - rmse: 0.5216 - mae: 0.2722 - mape: 8.6416 - val_loss: 0.2716 - val_mse:
0.2710 - val_rmse: 0.5206 - val_mae: 0.2716 - val_mape: 8.6126 - lr: 1.0000e-05
Epoch 180/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2729 - mse: 0.2735
- rmse: 0.5229 - mae: 0.2729 - mape: 8.6431

Epoch 180: val_loss did not improve from 0.27165
318/318 [=====] - 0s 1ms/step - loss: 0.2724 - mse:
0.2718 - rmse: 0.5213 - mae: 0.2724 - mape: 8.6414 - val_loss: 0.2719 - val_mse:
0.2704 - val_rmse: 0.5200 - val_mae: 0.2719 - val_mape: 8.6062 - lr: 1.0000e-05
Epoch 181/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2728 - mse: 0.2731
- rmse: 0.5226 - mae: 0.2728 - mape: 8.6532
Epoch 181: val_loss did not improve from 0.27165
318/318 [=====] - 0s 1ms/step - loss: 0.2726 - mse:
0.2722 - rmse: 0.5217 - mae: 0.2726 - mape: 8.6527 - val_loss: 0.2722 - val_mse:
0.2717 - val_rmse: 0.5212 - val_mae: 0.2722 - val_mape: 8.5901 - lr: 1.0000e-05
Epoch 182/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2711 - mse: 0.2695
- rmse: 0.5191 - mae: 0.2711 - mape: 8.6028
Epoch 182: val_loss improved from 0.27165 to 0.27145, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2720 - mse:
0.2718 - rmse: 0.5214 - mae: 0.2720 - mape: 8.6278 - val_loss: 0.2714 - val_mse:
0.2710 - val_rmse: 0.5206 - val_mae: 0.2714 - val_mape: 8.6157 - lr: 1.0000e-05
Epoch 183/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2727 - mse: 0.2733
- rmse: 0.5228 - mae: 0.2727 - mape: 8.6499
Epoch 183: val_loss improved from 0.27145 to 0.27129, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2721 - mse:
0.2720 - rmse: 0.5215 - mae: 0.2721 - mape: 8.6255 - val_loss: 0.2713 - val_mse:
0.2710 - val_rmse: 0.5206 - val_mae: 0.2713 - val_mape: 8.6192 - lr: 1.0000e-05
Epoch 184/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2708 - mse: 0.2701
- rmse: 0.5197 - mae: 0.2708 - mape: 8.6119
Epoch 184: val_loss did not improve from 0.27129
318/318 [=====] - 0s 1ms/step - loss: 0.2718 - mse:
0.2716 - rmse: 0.5212 - mae: 0.2718 - mape: 8.6325 - val_loss: 0.2715 - val_mse:
0.2710 - val_rmse: 0.5206 - val_mae: 0.2715 - val_mape: 8.5987 - lr: 1.0000e-05
Epoch 185/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2720 - mse: 0.2728
- rmse: 0.5223 - mae: 0.2720 - mape: 8.6343
Epoch 185: val_loss improved from 0.27129 to 0.27099, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2718 - mse:
0.2722 - rmse: 0.5217 - mae: 0.2718 - mape: 8.6328 - val_loss: 0.2710 - val_mse:
0.2706 - val_rmse: 0.5202 - val_mae: 0.2710 - val_mape: 8.5979 - lr: 1.0000e-05
Epoch 186/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2711 - mse: 0.2708
- rmse: 0.5204 - mae: 0.2711 - mape: 8.6030
Epoch 186: val_loss did not improve from 0.27099
318/318 [=====] - 0s 1ms/step - loss: 0.2716 - mse:
0.2718 - rmse: 0.5213 - mae: 0.2716 - mape: 8.6156 - val_loss: 0.2711 - val_mse:

0.2702 - val_rmse: 0.5198 - val_mae: 0.2711 - val_mape: 8.5867 - lr: 1.0000e-05
Epoch 187/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2701 - mse: 0.2700
- rmse: 0.5196 - mae: 0.2701 - mape: 8.5629
Epoch 187: val_loss did not improve from 0.27099
318/318 [=====] - 0s 1ms/step - loss: 0.2714 - mse:
0.2715 - rmse: 0.5211 - mae: 0.2714 - mape: 8.6091 - val_loss: 0.2712 - val_mse:
0.2704 - val_rmse: 0.5200 - val_mae: 0.2712 - val_mape: 8.5952 - lr: 1.0000e-05
Epoch 188/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2719 - mse: 0.2717
- rmse: 0.5212 - mae: 0.2719 - mape: 8.6144
Epoch 188: val_loss improved from 0.27099 to 0.27074, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2716 - mse:
0.2712 - rmse: 0.5208 - mae: 0.2716 - mape: 8.6156 - val_loss: 0.2707 - val_mse:
0.2700 - val_rmse: 0.5196 - val_mae: 0.2707 - val_mape: 8.5683 - lr: 1.0000e-05
Epoch 189/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2698 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2698 - mape: 8.5534
Epoch 189: val_loss did not improve from 0.27074
318/318 [=====] - 0s 1ms/step - loss: 0.2712 - mse:
0.2714 - rmse: 0.5210 - mae: 0.2712 - mape: 8.6046 - val_loss: 0.2712 - val_mse:
0.2715 - val_rmse: 0.5210 - val_mae: 0.2712 - val_mape: 8.6453 - lr: 1.0000e-05
Epoch 190/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2714 - mse: 0.2715
- rmse: 0.5211 - mae: 0.2714 - mape: 8.6127
Epoch 190: val_loss did not improve from 0.27074
318/318 [=====] - 0s 1ms/step - loss: 0.2712 - mse:
0.2714 - rmse: 0.5210 - mae: 0.2712 - mape: 8.6176 - val_loss: 0.2708 - val_mse:
0.2700 - val_rmse: 0.5196 - val_mae: 0.2708 - val_mape: 8.5776 - lr: 1.0000e-05
Epoch 191/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2718 - mse: 0.2731
- rmse: 0.5226 - mae: 0.2718 - mape: 8.6446
Epoch 191: val_loss did not improve from 0.27074
318/318 [=====] - 0s 1ms/step - loss: 0.2716 - mse:
0.2712 - rmse: 0.5208 - mae: 0.2716 - mape: 8.6264 - val_loss: 0.2711 - val_mse:
0.2700 - val_rmse: 0.5196 - val_mae: 0.2711 - val_mape: 8.5700 - lr: 1.0000e-05
Epoch 192/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2714 - mse: 0.2714
- rmse: 0.5210 - mae: 0.2714 - mape: 8.6092
Epoch 192: val_loss did not improve from 0.27074
318/318 [=====] - 0s 1ms/step - loss: 0.2714 - mse:
0.2711 - rmse: 0.5206 - mae: 0.2714 - mape: 8.6109 - val_loss: 0.2710 - val_mse:
0.2713 - val_rmse: 0.5209 - val_mae: 0.2710 - val_mape: 8.6237 - lr: 1.0000e-05
Epoch 193/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2700 - mse: 0.2690
- rmse: 0.5186 - mae: 0.2700 - mape: 8.5637
Epoch 193: val_loss improved from 0.27074 to 0.27048, saving model to

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model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2709 - mse:
0.2704 - rmse: 0.5200 - mae: 0.2709 - mape: 8.6002 - val_loss: 0.2705 - val_mse:
0.2699 - val_rmse: 0.5195 - val_mae: 0.2705 - val_mape: 8.5603 - lr: 1.0000e-05
Epoch 194/1000
255/318 [=====>...] - ETA: 0s - loss: 0.2691 - mse: 0.2674
- rmse: 0.5171 - mae: 0.2691 - mape: 8.5019
Epoch 194: val_loss improved from 0.27048 to 0.27027, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2709 - mse:
0.2709 - rmse: 0.5205 - mae: 0.2709 - mape: 8.6004 - val_loss: 0.2703 - val_mse:
0.2701 - val_rmse: 0.5197 - val_mae: 0.2703 - val_mape: 8.5728 - lr: 1.0000e-05
Epoch 195/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2714 - mse: 0.2723
- rmse: 0.5218 - mae: 0.2714 - mape: 8.6166
Epoch 195: val_loss did not improve from 0.27027
318/318 [=====] - 0s 1ms/step - loss: 0.2705 - mse:
0.2706 - rmse: 0.5202 - mae: 0.2705 - mape: 8.5986 - val_loss: 0.2733 - val_mse:
0.2747 - val_rmse: 0.5241 - val_mae: 0.2733 - val_mape: 8.5835 - lr: 1.0000e-05
Epoch 196/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2707 - mse: 0.2699
- rmse: 0.5196 - mae: 0.2707 - mape: 8.5886
Epoch 196: val_loss did not improve from 0.27027
318/318 [=====] - 0s 1ms/step - loss: 0.2710 - mse:
0.2707 - rmse: 0.5203 - mae: 0.2710 - mape: 8.6021 - val_loss: 0.2705 - val_mse:
0.2702 - val_rmse: 0.5198 - val_mae: 0.2705 - val_mape: 8.6250 - lr: 1.0000e-05
Epoch 197/1000
312/318 [=====>..] - ETA: 0s - loss: 0.2707 - mse: 0.2701
- rmse: 0.5197 - mae: 0.2707 - mape: 8.6048
Epoch 197: val_loss improved from 0.27027 to 0.27013, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2707 - mse:
0.2701 - rmse: 0.5197 - mae: 0.2707 - mape: 8.5990 - val_loss: 0.2701 - val_mse:
0.2695 - val_rmse: 0.5191 - val_mae: 0.2701 - val_mape: 8.6206 - lr: 1.0000e-05
Epoch 198/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2698 - mse: 0.2682
- rmse: 0.5179 - mae: 0.2698 - mape: 8.5663
Epoch 198: val_loss did not improve from 0.27013
318/318 [=====] - 0s 1ms/step - loss: 0.2703 - mse:
0.2699 - rmse: 0.5195 - mae: 0.2703 - mape: 8.5825 - val_loss: 0.2703 - val_mse:
0.2710 - val_rmse: 0.5206 - val_mae: 0.2703 - val_mape: 8.6219 - lr: 1.0000e-05
Epoch 199/1000
308/318 [=====>..] - ETA: 0s - loss: 0.2706 - mse: 0.2710
- rmse: 0.5206 - mae: 0.2706 - mape: 8.6164
Epoch 199: val_loss improved from 0.27013 to 0.27001, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2707 - mse:
0.2713 - rmse: 0.5209 - mae: 0.2707 - mape: 8.6034 - val_loss: 0.2700 - val_mse:

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0.2701 - val_rmse: 0.5197 - val_mae: 0.2700 - val_mape: 8.5913 - lr: 1.0000e-05
Epoch 200/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2704 - mse: 0.2694
- rmse: 0.5190 - mae: 0.2704 - mape: 8.5663
Epoch 200: val_loss improved from 0.27001 to 0.26981, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2705 - mse:
0.2703 - rmse: 0.5199 - mae: 0.2705 - mape: 8.5938 - val_loss: 0.2698 - val_mse:
0.2692 - val_rmse: 0.5188 - val_mae: 0.2698 - val_mape: 8.5587 - lr: 1.0000e-05
Epoch 201/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2711 - mse: 0.2709
- rmse: 0.5204 - mae: 0.2711 - mape: 8.6032
Epoch 201: val_loss did not improve from 0.26981
318/318 [=====] - 0s 1ms/step - loss: 0.2704 - mse:
0.2704 - rmse: 0.5200 - mae: 0.2704 - mape: 8.5900 - val_loss: 0.2698 - val_mse:
0.2701 - val_rmse: 0.5197 - val_mae: 0.2698 - val_mape: 8.5916 - lr: 1.0000e-05
Epoch 202/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2713 - mse: 0.2723
- rmse: 0.5218 - mae: 0.2713 - mape: 8.5815
Epoch 202: val_loss did not improve from 0.26981
318/318 [=====] - 0s 1ms/step - loss: 0.2701 - mse:
0.2701 - rmse: 0.5197 - mae: 0.2701 - mape: 8.5857 - val_loss: 0.2701 - val_mse:
0.2698 - val_rmse: 0.5195 - val_mae: 0.2701 - val_mape: 8.5484 - lr: 1.0000e-05
Epoch 203/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2706 - mse: 0.2716
- rmse: 0.5211 - mae: 0.2706 - mape: 8.5958
Epoch 203: val_loss did not improve from 0.26981
318/318 [=====] - 0s 1ms/step - loss: 0.2704 - mse:
0.2701 - rmse: 0.5197 - mae: 0.2704 - mape: 8.5798 - val_loss: 0.2698 - val_mse:
0.2703 - val_rmse: 0.5199 - val_mae: 0.2698 - val_mape: 8.5990 - lr: 1.0000e-05
Epoch 204/1000
285/318 [=====>...] - ETA: 0s - loss: 0.2709 - mse: 0.2728
- rmse: 0.5223 - mae: 0.2709 - mape: 8.6159
Epoch 204: val_loss did not improve from 0.26981
318/318 [=====] - 0s 1ms/step - loss: 0.2700 - mse:
0.2706 - rmse: 0.5202 - mae: 0.2700 - mape: 8.5836 - val_loss: 0.2700 - val_mse:
0.2699 - val_rmse: 0.5195 - val_mae: 0.2700 - val_mape: 8.5702 - lr: 1.0000e-05
Epoch 205/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2689 - mse: 0.2674
- rmse: 0.5171 - mae: 0.2689 - mape: 8.5435
Epoch 205: val_loss improved from 0.26981 to 0.26957, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2702 - mse:
0.2699 - rmse: 0.5195 - mae: 0.2702 - mape: 8.5814 - val_loss: 0.2696 - val_mse:
0.2703 - val_rmse: 0.5199 - val_mae: 0.2696 - val_mape: 8.5681 - lr: 1.0000e-05
Epoch 206/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2712 - mse: 0.2712
- rmse: 0.5207 - mae: 0.2712 - mape: 8.6213

Epoch 206: val_loss did not improve from 0.26957
318/318 [=====] - 0s 1ms/step - loss: 0.2700 - mse:
0.2698 - rmse: 0.5194 - mae: 0.2700 - mape: 8.5813 - val_loss: 0.2697 - val_mse:
0.2705 - val_rmse: 0.5201 - val_mae: 0.2697 - val_mape: 8.5870 - lr: 1.0000e-05
Epoch 207/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2708 - mse: 0.2743
- rmse: 0.5237 - mae: 0.2708 - mape: 8.6073
Epoch 207: val_loss improved from 0.26957 to 0.26916, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2699 - mse:
0.2700 - rmse: 0.5196 - mae: 0.2699 - mape: 8.5742 - val_loss: 0.2692 - val_mse:
0.2692 - val_rmse: 0.5188 - val_mae: 0.2692 - val_mape: 8.5481 - lr: 1.0000e-05
Epoch 208/1000
305/318 [=====>...] - ETA: 0s - loss: 0.2701 - mse: 0.2706
- rmse: 0.5202 - mae: 0.2701 - mape: 8.5699
Epoch 208: val_loss did not improve from 0.26916
318/318 [=====] - 0s 1ms/step - loss: 0.2698 - mse:
0.2704 - rmse: 0.5200 - mae: 0.2698 - mape: 8.5762 - val_loss: 0.2692 - val_mse:
0.2692 - val_rmse: 0.5189 - val_mae: 0.2692 - val_mape: 8.5742 - lr: 1.0000e-05
Epoch 209/1000
300/318 [=====>...] - ETA: 0s - loss: 0.2707 - mse: 0.2729
- rmse: 0.5224 - mae: 0.2707 - mape: 8.6117
Epoch 209: val_loss did not improve from 0.26916
318/318 [=====] - 0s 1ms/step - loss: 0.2698 - mse:
0.2703 - rmse: 0.5199 - mae: 0.2698 - mape: 8.5773 - val_loss: 0.2703 - val_mse:
0.2709 - val_rmse: 0.5205 - val_mae: 0.2703 - val_mape: 8.5185 - lr: 1.0000e-05
Epoch 210/1000
302/318 [=====>...] - ETA: 0s - loss: 0.2692 - mse: 0.2691
- rmse: 0.5188 - mae: 0.2692 - mape: 8.5698
Epoch 210: val_loss did not improve from 0.26916
318/318 [=====] - 0s 1ms/step - loss: 0.2697 - mse:
0.2700 - rmse: 0.5196 - mae: 0.2697 - mape: 8.5742 - val_loss: 0.2694 - val_mse:
0.2700 - val_rmse: 0.5196 - val_mae: 0.2694 - val_mape: 8.5997 - lr: 1.0000e-05
Epoch 211/1000
305/318 [=====>...] - ETA: 0s - loss: 0.2695 - mse: 0.2695
- rmse: 0.5192 - mae: 0.2695 - mape: 8.5677
Epoch 211: val_loss did not improve from 0.26916
318/318 [=====] - 0s 1ms/step - loss: 0.2698 - mse:
0.2705 - rmse: 0.5201 - mae: 0.2698 - mape: 8.5794 - val_loss: 0.2693 - val_mse:
0.2688 - val_rmse: 0.5185 - val_mae: 0.2693 - val_mape: 8.5314 - lr: 1.0000e-05
Epoch 212/1000
272/318 [=====>...] - ETA: 0s - loss: 0.2697 - mse: 0.2687
- rmse: 0.5183 - mae: 0.2697 - mape: 8.5842
Epoch 212: val_loss improved from 0.26916 to 0.26892, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2694 - mse:
0.2692 - rmse: 0.5189 - mae: 0.2694 - mape: 8.5621 - val_loss: 0.2689 - val_mse:
0.2689 - val_rmse: 0.5186 - val_mae: 0.2689 - val_mape: 8.5396 - lr: 1.0000e-05

Epoch 213/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2698 - mse: 0.2705
- rmse: 0.5201 - mae: 0.2698 - mape: 8.5718
Epoch 213: val_loss improved from 0.26892 to 0.26880, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2696 - mse:
0.2702 - rmse: 0.5198 - mae: 0.2696 - mape: 8.5714 - val_loss: 0.2688 - val_mse:
0.2684 - val_rmse: 0.5180 - val_mae: 0.2688 - val_mape: 8.5413 - lr: 1.0000e-05
Epoch 214/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2686 - mse: 0.2695
- rmse: 0.5191 - mae: 0.2686 - mape: 8.5576
Epoch 214: val_loss did not improve from 0.26880
318/318 [=====] - 0s 1ms/step - loss: 0.2690 - mse:
0.2695 - rmse: 0.5191 - mae: 0.2690 - mape: 8.5636 - val_loss: 0.2699 - val_mse:
0.2701 - val_rmse: 0.5197 - val_mae: 0.2699 - val_mape: 8.5249 - lr: 1.0000e-05
Epoch 215/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2687 - mse: 0.2679
- rmse: 0.5176 - mae: 0.2687 - mape: 8.5153
Epoch 215: val_loss improved from 0.26880 to 0.26869, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2693 - mse:
0.2693 - rmse: 0.5190 - mae: 0.2693 - mape: 8.5514 - val_loss: 0.2687 - val_mse:
0.2687 - val_rmse: 0.5183 - val_mae: 0.2687 - val_mape: 8.5526 - lr: 1.0000e-05
Epoch 216/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2690 - mse: 0.2694
- rmse: 0.5190 - mae: 0.2690 - mape: 8.5504
Epoch 216: val_loss did not improve from 0.26869
318/318 [=====] - 0s 1ms/step - loss: 0.2695 - mse:
0.2697 - rmse: 0.5193 - mae: 0.2695 - mape: 8.5682 - val_loss: 0.2692 - val_mse:
0.2694 - val_rmse: 0.5190 - val_mae: 0.2692 - val_mape: 8.6184 - lr: 1.0000e-05
Epoch 217/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2697 - mse: 0.2710
- rmse: 0.5206 - mae: 0.2697 - mape: 8.6039
Epoch 217: val_loss did not improve from 0.26869
318/318 [=====] - 0s 1ms/step - loss: 0.2690 - mse:
0.2692 - rmse: 0.5189 - mae: 0.2690 - mape: 8.5679 - val_loss: 0.2688 - val_mse:
0.2693 - val_rmse: 0.5189 - val_mae: 0.2688 - val_mape: 8.5312 - lr: 1.0000e-05
Epoch 218/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2690 - mse: 0.2702
- rmse: 0.5198 - mae: 0.2690 - mape: 8.5674
Epoch 218: val_loss did not improve from 0.26869
318/318 [=====] - 0s 1ms/step - loss: 0.2692 - mse:
0.2699 - rmse: 0.5196 - mae: 0.2692 - mape: 8.5639 - val_loss: 0.2688 - val_mse:
0.2698 - val_rmse: 0.5194 - val_mae: 0.2688 - val_mape: 8.5719 - lr: 1.0000e-05
Epoch 219/1000
285/318 [=====>...] - ETA: 0s - loss: 0.2694 - mse: 0.2701
- rmse: 0.5197 - mae: 0.2694 - mape: 8.5824
Epoch 219: val_loss improved from 0.26869 to 0.26843, saving model to

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model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2691 - mse:
0.2690 - rmse: 0.5187 - mae: 0.2691 - mape: 8.5570 - val_loss: 0.2684 - val_mse:
0.2685 - val_rmse: 0.5181 - val_mae: 0.2684 - val_mape: 8.5382 - lr: 1.0000e-05
Epoch 220/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2671 - mse: 0.2661
- rmse: 0.5159 - mae: 0.2671 - mape: 8.4637
Epoch 220: val_loss did not improve from 0.26843
318/318 [=====] - 0s 1ms/step - loss: 0.2689 - mse:
0.2689 - rmse: 0.5186 - mae: 0.2689 - mape: 8.5457 - val_loss: 0.2685 - val_mse:
0.2688 - val_rmse: 0.5184 - val_mae: 0.2685 - val_mape: 8.5575 - lr: 1.0000e-05
Epoch 221/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2689 - mse: 0.2708
- rmse: 0.5204 - mae: 0.2689 - mape: 8.5521
Epoch 221: val_loss did not improve from 0.26843
318/318 [=====] - 0s 1ms/step - loss: 0.2688 - mse:
0.2692 - rmse: 0.5188 - mae: 0.2688 - mape: 8.5608 - val_loss: 0.2693 - val_mse:
0.2690 - val_rmse: 0.5187 - val_mae: 0.2693 - val_mape: 8.5131 - lr: 1.0000e-05
Epoch 222/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2697 - mse: 0.2704
- rmse: 0.5200 - mae: 0.2697 - mape: 8.5646
Epoch 222: val_loss did not improve from 0.26843
318/318 [=====] - 0s 1ms/step - loss: 0.2687 - mse:
0.2686 - rmse: 0.5182 - mae: 0.2687 - mape: 8.5413 - val_loss: 0.2685 - val_mse:
0.2691 - val_rmse: 0.5188 - val_mae: 0.2685 - val_mape: 8.5767 - lr: 1.0000e-05
Epoch 223/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2692 - mse: 0.2708
- rmse: 0.5204 - mae: 0.2692 - mape: 8.5761
Epoch 223: val_loss improved from 0.26843 to 0.26818, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2688 - mse:
0.2692 - rmse: 0.5188 - mae: 0.2688 - mape: 8.5429 - val_loss: 0.2682 - val_mse:
0.2682 - val_rmse: 0.5179 - val_mae: 0.2682 - val_mape: 8.5439 - lr: 1.0000e-05
Epoch 224/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2689 - mse: 0.2704
- rmse: 0.5200 - mae: 0.2689 - mape: 8.5510
Epoch 224: val_loss did not improve from 0.26818
318/318 [=====] - 0s 1ms/step - loss: 0.2688 - mse:
0.2699 - rmse: 0.5195 - mae: 0.2688 - mape: 8.5556 - val_loss: 0.2693 - val_mse:
0.2696 - val_rmse: 0.5193 - val_mae: 0.2693 - val_mape: 8.5159 - lr: 1.0000e-05
Epoch 225/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2684 - mse: 0.2687
- rmse: 0.5183 - mae: 0.2684 - mape: 8.5498
Epoch 225: val_loss did not improve from 0.26818
318/318 [=====] - 0s 1ms/step - loss: 0.2687 - mse:
0.2692 - rmse: 0.5188 - mae: 0.2687 - mape: 8.5528 - val_loss: 0.2686 - val_mse:
0.2688 - val_rmse: 0.5185 - val_mae: 0.2686 - val_mape: 8.5835 - lr: 1.0000e-05
Epoch 226/1000

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297/318 [=====>..] - ETA: 0s - loss: 0.2697 - mse: 0.2723
- rmse: 0.5218 - mae: 0.2697 - mape: 8.5819
Epoch 226: val_loss did not improve from 0.26818
318/318 [=====] - 0s 1ms/step - loss: 0.2687 - mse:
0.2689 - rmse: 0.5185 - mae: 0.2687 - mape: 8.5500 - val_loss: 0.2684 - val_mse:
0.2687 - val_rmse: 0.5184 - val_mae: 0.2684 - val_mape: 8.5851 - lr: 1.0000e-05
Epoch 227/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2674 - mse: 0.2668
- rmse: 0.5165 - mae: 0.2674 - mape: 8.5090
Epoch 227: val_loss did not improve from 0.26818
318/318 [=====] - 0s 1ms/step - loss: 0.2687 - mse:
0.2685 - rmse: 0.5182 - mae: 0.2687 - mape: 8.5416 - val_loss: 0.2684 - val_mse:
0.2679 - val_rmse: 0.5176 - val_mae: 0.2684 - val_mape: 8.5386 - lr: 1.0000e-05
Epoch 228/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2681 - mse: 0.2688
- rmse: 0.5184 - mae: 0.2681 - mape: 8.5294
Epoch 228: val_loss improved from 0.26818 to 0.26805, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2684 - mse:
0.2688 - rmse: 0.5184 - mae: 0.2684 - mape: 8.5462 - val_loss: 0.2680 - val_mse:
0.2689 - val_rmse: 0.5185 - val_mae: 0.2680 - val_mape: 8.5439 - lr: 1.0000e-05
Epoch 229/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2681 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2681 - mape: 8.5160
Epoch 229: val_loss improved from 0.26805 to 0.26790, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2685 - mse:
0.2684 - rmse: 0.5181 - mae: 0.2685 - mape: 8.5489 - val_loss: 0.2679 - val_mse:
0.2679 - val_rmse: 0.5176 - val_mae: 0.2679 - val_mape: 8.5046 - lr: 1.0000e-05
Epoch 230/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2685 - mse: 0.2692
- rmse: 0.5188 - mae: 0.2685 - mape: 8.5544
Epoch 230: val_loss did not improve from 0.26790
318/318 [=====] - 0s 1ms/step - loss: 0.2682 - mse:
0.2684 - rmse: 0.5180 - mae: 0.2682 - mape: 8.5426 - val_loss: 0.2702 - val_mse:
0.2710 - val_rmse: 0.5206 - val_mae: 0.2702 - val_mape: 8.5249 - lr: 1.0000e-05
Epoch 231/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2667 - mse: 0.2659
- rmse: 0.5157 - mae: 0.2667 - mape: 8.4891
Epoch 231: val_loss did not improve from 0.26790
318/318 [=====] - 0s 1ms/step - loss: 0.2683 - mse:
0.2683 - rmse: 0.5179 - mae: 0.2683 - mape: 8.5299 - val_loss: 0.2680 - val_mse:
0.2684 - val_rmse: 0.5181 - val_mae: 0.2680 - val_mape: 8.5584 - lr: 1.0000e-05
Epoch 232/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2685 - mse: 0.2690
- rmse: 0.5187 - mae: 0.2685 - mape: 8.5445
Epoch 232: val_loss improved from 0.26790 to 0.26781, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.2686 - mse:
0.2700 - rmse: 0.5196 - mae: 0.2686 - mape: 8.5369 - val_loss: 0.2678 - val_mse:
0.2680 - val_rmse: 0.5177 - val_mae: 0.2678 - val_mape: 8.5517 - lr: 1.0000e-05
Epoch 233/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2697 - mse: 0.2722
- rmse: 0.5218 - mae: 0.2697 - mape: 8.5665
Epoch 233: val_loss improved from 0.26781 to 0.26756, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2683 - mse:
0.2690 - rmse: 0.5186 - mae: 0.2683 - mape: 8.5362 - val_loss: 0.2676 - val_mse:
0.2680 - val_rmse: 0.5177 - val_mae: 0.2676 - val_mape: 8.5324 - lr: 1.0000e-05
Epoch 234/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2691 - mse: 0.2708
- rmse: 0.5204 - mae: 0.2691 - mape: 8.5789
Epoch 234: val_loss did not improve from 0.26756
318/318 [=====] - 0s 1ms/step - loss: 0.2683 - mse:
0.2693 - rmse: 0.5190 - mae: 0.2683 - mape: 8.5482 - val_loss: 0.2690 - val_mse:
0.2684 - val_rmse: 0.5181 - val_mae: 0.2690 - val_mape: 8.5224 - lr: 1.0000e-05
Epoch 235/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2668 - mse: 0.2656
- rmse: 0.5154 - mae: 0.2668 - mape: 8.5070
Epoch 235: val_loss did not improve from 0.26756
318/318 [=====] - 0s 1ms/step - loss: 0.2681 - mse:
0.2685 - rmse: 0.5181 - mae: 0.2681 - mape: 8.5419 - val_loss: 0.2676 - val_mse:
0.2680 - val_rmse: 0.5177 - val_mae: 0.2676 - val_mape: 8.5334 - lr: 1.0000e-05
Epoch 236/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2684 - mse: 0.2696
- rmse: 0.5193 - mae: 0.2684 - mape: 8.5662
Epoch 236: val_loss improved from 0.26756 to 0.26748, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2681 - mse:
0.2684 - rmse: 0.5181 - mae: 0.2681 - mape: 8.5312 - val_loss: 0.2675 - val_mse:
0.2672 - val_rmse: 0.5170 - val_mae: 0.2675 - val_mape: 8.5312 - lr: 1.0000e-05
Epoch 237/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2684 - mse: 0.2697
- rmse: 0.5193 - mae: 0.2684 - mape: 8.5401
Epoch 237: val_loss improved from 0.26748 to 0.26742, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2682 - mse:
0.2690 - rmse: 0.5186 - mae: 0.2682 - mape: 8.5408 - val_loss: 0.2674 - val_mse:
0.2678 - val_rmse: 0.5175 - val_mae: 0.2674 - val_mape: 8.5081 - lr: 1.0000e-05
Epoch 238/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2673 - mse: 0.2661
- rmse: 0.5158 - mae: 0.2673 - mape: 8.5029
Epoch 238: val_loss improved from 0.26742 to 0.26724, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2680 - mse:
0.2684 - rmse: 0.5180 - mae: 0.2680 - mape: 8.5252 - val_loss: 0.2672 - val_mse:

0.2670 - val_rmse: 0.5168 - val_mae: 0.2672 - val_mape: 8.4999 - lr: 1.0000e-05
Epoch 239/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2690 - mse: 0.2701
- rmse: 0.5197 - mae: 0.2690 - mape: 8.5659
Epoch 239: val_loss did not improve from 0.26724
318/318 [=====] - 0s 1ms/step - loss: 0.2678 - mse:
0.2680 - rmse: 0.5177 - mae: 0.2678 - mape: 8.5219 - val_loss: 0.2673 - val_mse:
0.2674 - val_rmse: 0.5171 - val_mae: 0.2673 - val_mape: 8.4996 - lr: 1.0000e-05
Epoch 240/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2688 - mse: 0.2706
- rmse: 0.5202 - mae: 0.2688 - mape: 8.5678
Epoch 240: val_loss did not improve from 0.26724
318/318 [=====] - 0s 1ms/step - loss: 0.2678 - mse:
0.2686 - rmse: 0.5182 - mae: 0.2678 - mape: 8.5256 - val_loss: 0.2673 - val_mse:
0.2675 - val_rmse: 0.5172 - val_mae: 0.2673 - val_mape: 8.4934 - lr: 1.0000e-05
Epoch 241/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2675 - mse: 0.2665
- rmse: 0.5162 - mae: 0.2675 - mape: 8.5123
Epoch 241: val_loss did not improve from 0.26724
318/318 [=====] - 0s 1ms/step - loss: 0.2677 - mse:
0.2679 - rmse: 0.5176 - mae: 0.2677 - mape: 8.5212 - val_loss: 0.2682 - val_mse:
0.2684 - val_rmse: 0.5181 - val_mae: 0.2682 - val_mape: 8.4749 - lr: 1.0000e-05
Epoch 242/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2674 - mse: 0.2672
- rmse: 0.5169 - mae: 0.2674 - mape: 8.5111
Epoch 242: val_loss improved from 0.26724 to 0.26702, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2677 - mse:
0.2678 - rmse: 0.5175 - mae: 0.2677 - mape: 8.5101 - val_loss: 0.2670 - val_mse:
0.2669 - val_rmse: 0.5167 - val_mae: 0.2670 - val_mape: 8.4965 - lr: 1.0000e-05
Epoch 243/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2677 - mse: 0.2673
- rmse: 0.5170 - mae: 0.2677 - mape: 8.5149
Epoch 243: val_loss did not improve from 0.26702
318/318 [=====] - 0s 1ms/step - loss: 0.2678 - mse:
0.2678 - rmse: 0.5175 - mae: 0.2678 - mape: 8.5212 - val_loss: 0.2676 - val_mse:
0.2680 - val_rmse: 0.5177 - val_mae: 0.2676 - val_mape: 8.5478 - lr: 1.0000e-05
Epoch 244/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2663 - mse: 0.2648
- rmse: 0.5146 - mae: 0.2663 - mape: 8.4785
Epoch 244: val_loss did not improve from 0.26702
318/318 [=====] - 0s 1ms/step - loss: 0.2673 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2673 - mape: 8.5072 - val_loss: 0.2671 - val_mse:
0.2676 - val_rmse: 0.5173 - val_mae: 0.2671 - val_mape: 8.5053 - lr: 1.0000e-05
Epoch 245/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2693 - mse: 0.2703
- rmse: 0.5199 - mae: 0.2693 - mape: 8.5663
Epoch 245: val_loss did not improve from 0.26702

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318/318 [=====] - 0s 1ms/step - loss: 0.2675 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2675 - mape: 8.5102 - val_loss: 0.2672 - val_mse:
0.2678 - val_rmse: 0.5175 - val_mae: 0.2672 - val_mape: 8.5348 - lr: 1.0000e-05
Epoch 246/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2665 - mse: 0.2654
- rmse: 0.5151 - mae: 0.2665 - mape: 8.4754
Epoch 246: val_loss did not improve from 0.26702
318/318 [=====] - 0s 1ms/step - loss: 0.2676 - mse:
0.2687 - rmse: 0.5183 - mae: 0.2676 - mape: 8.5225 - val_loss: 0.2671 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2671 - val_mape: 8.4823 - lr: 1.0000e-05
Epoch 247/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2685 - mse: 0.2699
- rmse: 0.5196 - mae: 0.2685 - mape: 8.5431
Epoch 247: val_loss improved from 0.26702 to 0.26698, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2677 - mse:
0.2678 - rmse: 0.5174 - mae: 0.2677 - mape: 8.5259 - val_loss: 0.2670 - val_mse:
0.2670 - val_rmse: 0.5168 - val_mae: 0.2670 - val_mape: 8.5362 - lr: 1.0000e-05
Epoch 248/1000
271/318 [=====>...] - ETA: 0s - loss: 0.2679 - mse: 0.2691
- rmse: 0.5188 - mae: 0.2679 - mape: 8.5316
Epoch 248: val_loss improved from 0.26698 to 0.26688, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2674 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2674 - mape: 8.5139 - val_loss: 0.2669 - val_mse:
0.2673 - val_rmse: 0.5170 - val_mae: 0.2669 - val_mape: 8.5296 - lr: 1.0000e-05
Epoch 249/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2684 - mse: 0.2703
- rmse: 0.5199 - mae: 0.2684 - mape: 8.5171
Epoch 249: val_loss did not improve from 0.26688
318/318 [=====] - 0s 1ms/step - loss: 0.2673 - mse:
0.2675 - rmse: 0.5172 - mae: 0.2673 - mape: 8.5026 - val_loss: 0.2671 - val_mse:
0.2675 - val_rmse: 0.5172 - val_mae: 0.2671 - val_mape: 8.4675 - lr: 1.0000e-05
Epoch 250/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2684 - mse: 0.2713
- rmse: 0.5209 - mae: 0.2684 - mape: 8.5493
Epoch 250: val_loss did not improve from 0.26688
318/318 [=====] - 0s 1ms/step - loss: 0.2674 - mse:
0.2685 - rmse: 0.5181 - mae: 0.2674 - mape: 8.5143 - val_loss: 0.2673 - val_mse:
0.2672 - val_rmse: 0.5169 - val_mae: 0.2673 - val_mape: 8.5491 - lr: 1.0000e-05
Epoch 251/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2677 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2677 - mape: 8.5054
Epoch 251: val_loss improved from 0.26688 to 0.26655, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2672 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2672 - mape: 8.5068 - val_loss: 0.2665 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2665 - val_mape: 8.4751 - lr: 1.0000e-05

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Epoch 252/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2688 - mse: 0.2702
- rmse: 0.5198 - mae: 0.2688 - mape: 8.5608
Epoch 252: val_loss did not improve from 0.26655
318/318 [=====] - 0s 1ms/step - loss: 0.2675 - mse:
0.2678 - rmse: 0.5175 - mae: 0.2675 - mape: 8.5121 - val_loss: 0.2671 - val_mse:
0.2678 - val_rmse: 0.5175 - val_mae: 0.2671 - val_mape: 8.5224 - lr: 1.0000e-05
Epoch 253/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2655 - mse: 0.2649
- rmse: 0.5146 - mae: 0.2655 - mape: 8.4492
Epoch 253: val_loss improved from 0.26655 to 0.26654, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2672 - mse:
0.2674 - rmse: 0.5171 - mae: 0.2672 - mape: 8.4987 - val_loss: 0.2665 - val_mse:
0.2668 - val_rmse: 0.5166 - val_mae: 0.2665 - val_mape: 8.5137 - lr: 1.0000e-05
Epoch 254/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2684 - mse: 0.2699
- rmse: 0.5195 - mae: 0.2684 - mape: 8.5454
Epoch 254: val_loss did not improve from 0.26654
318/318 [=====] - 0s 1ms/step - loss: 0.2671 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2671 - mape: 8.5090 - val_loss: 0.2666 - val_mse:
0.2661 - val_rmse: 0.5159 - val_mae: 0.2666 - val_mape: 8.5189 - lr: 1.0000e-05
Epoch 255/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2681 - mse: 0.2695
- rmse: 0.5192 - mae: 0.2681 - mape: 8.5274
Epoch 255: val_loss did not improve from 0.26654
318/318 [=====] - 0s 1ms/step - loss: 0.2674 - mse:
0.2683 - rmse: 0.5180 - mae: 0.2674 - mape: 8.5133 - val_loss: 0.2666 - val_mse:
0.2656 - val_rmse: 0.5154 - val_mae: 0.2666 - val_mape: 8.4854 - lr: 1.0000e-05
Epoch 256/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2665 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2665 - mape: 8.4947
Epoch 256: val_loss improved from 0.26654 to 0.26649, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2669 - mse:
0.2673 - rmse: 0.5171 - mae: 0.2669 - mape: 8.5057 - val_loss: 0.2665 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2665 - val_mape: 8.4595 - lr: 1.0000e-05
Epoch 257/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2656 - mse: 0.2642
- rmse: 0.5140 - mae: 0.2656 - mape: 8.4817
Epoch 257: val_loss improved from 0.26649 to 0.26646, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2669 - mse:
0.2678 - rmse: 0.5175 - mae: 0.2669 - mape: 8.5086 - val_loss: 0.2665 - val_mse:
0.2666 - val_rmse: 0.5164 - val_mae: 0.2665 - val_mape: 8.4984 - lr: 1.0000e-05
Epoch 258/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2663 - mse: 0.2655
- rmse: 0.5152 - mae: 0.2663 - mape: 8.4885

Epoch 258: val_loss improved from 0.26646 to 0.26609, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2668 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2668 - mape: 8.4951 - val_loss: 0.2661 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2661 - val_mape: 8.4790 - lr: 1.0000e-05
Epoch 259/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2650 - mse: 0.2630
- rmse: 0.5128 - mae: 0.2650 - mape: 8.4395
Epoch 259: val_loss did not improve from 0.26609
318/318 [=====] - 0s 1ms/step - loss: 0.2668 - mse:
0.2671 - rmse: 0.5169 - mae: 0.2668 - mape: 8.5037 - val_loss: 0.2662 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2662 - val_mape: 8.4837 - lr: 1.0000e-05
Epoch 260/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2664 - mse: 0.2666
- rmse: 0.5164 - mae: 0.2664 - mape: 8.4805
Epoch 260: val_loss did not improve from 0.26609
318/318 [=====] - 0s 1ms/step - loss: 0.2665 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2665 - mape: 8.4983 - val_loss: 0.2663 - val_mse:
0.2668 - val_rmse: 0.5166 - val_mae: 0.2663 - val_mape: 8.4912 - lr: 1.0000e-05
Epoch 261/1000
299/318 [=====>...] - ETA: 0s - loss: 0.2670 - mse: 0.2688
- rmse: 0.5185 - mae: 0.2670 - mape: 8.5146
Epoch 261: val_loss improved from 0.26609 to 0.26593, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2666 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2666 - mape: 8.4917 - val_loss: 0.2659 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2659 - val_mape: 8.4649 - lr: 1.0000e-05
Epoch 262/1000
303/318 [=====>...] - ETA: 0s - loss: 0.2666 - mse: 0.2678
- rmse: 0.5175 - mae: 0.2666 - mape: 8.4906
Epoch 262: val_loss did not improve from 0.26593
318/318 [=====] - 0s 1ms/step - loss: 0.2665 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2665 - mape: 8.4859 - val_loss: 0.2660 - val_mse:
0.2653 - val_rmse: 0.5151 - val_mae: 0.2660 - val_mape: 8.4657 - lr: 1.0000e-05
Epoch 263/1000
303/318 [=====>...] - ETA: 0s - loss: 0.2673 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2673 - mape: 8.5167
Epoch 263: val_loss did not improve from 0.26593
318/318 [=====] - 0s 1ms/step - loss: 0.2666 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2666 - mape: 8.4942 - val_loss: 0.2663 - val_mse:
0.2660 - val_rmse: 0.5158 - val_mae: 0.2663 - val_mape: 8.4625 - lr: 1.0000e-05
Epoch 264/1000
299/318 [=====>...] - ETA: 0s - loss: 0.2637 - mse: 0.2599
- rmse: 0.5098 - mae: 0.2637 - mape: 8.3912
Epoch 264: val_loss did not improve from 0.26593
318/318 [=====] - 0s 1ms/step - loss: 0.2666 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2666 - mape: 8.4810 - val_loss: 0.2660 - val_mse:
0.2664 - val_rmse: 0.5162 - val_mae: 0.2660 - val_mape: 8.5044 - lr: 1.0000e-05

Epoch 265/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2667 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2667 - mape: 8.4766
Epoch 265: val_loss improved from 0.26593 to 0.26588, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2666 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2666 - mape: 8.4945 - val_loss: 0.2659 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2659 - val_mape: 8.4861 - lr: 1.0000e-05
Epoch 266/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2662 - mse: 0.2670
- rmse: 0.5167 - mae: 0.2662 - mape: 8.4742
Epoch 266: val_loss did not improve from 0.26588
318/318 [=====] - 0s 1ms/step - loss: 0.2663 - mse:
0.2670 - rmse: 0.5168 - mae: 0.2663 - mape: 8.4802 - val_loss: 0.2660 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2660 - val_mape: 8.5045 - lr: 1.0000e-05
Epoch 267/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2661 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2661 - mape: 8.4801
Epoch 267: val_loss improved from 0.26588 to 0.26576, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2662 - mse:
0.2670 - rmse: 0.5168 - mae: 0.2662 - mape: 8.4801 - val_loss: 0.2658 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2658 - val_mape: 8.4706 - lr: 1.0000e-05
Epoch 268/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2676 - mse: 0.2698
- rmse: 0.5194 - mae: 0.2676 - mape: 8.4894
Epoch 268: val_loss improved from 0.26576 to 0.26572, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2663 - mse:
0.2668 - rmse: 0.5166 - mae: 0.2663 - mape: 8.4786 - val_loss: 0.2657 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2657 - val_mape: 8.4594 - lr: 1.0000e-05
Epoch 269/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2662 - mse: 0.2668
- rmse: 0.5165 - mae: 0.2662 - mape: 8.4651
Epoch 269: val_loss improved from 0.26572 to 0.26564, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2663 - mse:
0.2674 - rmse: 0.5171 - mae: 0.2663 - mape: 8.4841 - val_loss: 0.2656 - val_mse:
0.2659 - val_rmse: 0.5157 - val_mae: 0.2656 - val_mape: 8.4991 - lr: 1.0000e-05
Epoch 270/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2667 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2667 - mape: 8.4792
Epoch 270: val_loss improved from 0.26564 to 0.26559, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2663 - mse:
0.2675 - rmse: 0.5172 - mae: 0.2663 - mape: 8.4798 - val_loss: 0.2656 - val_mse:
0.2661 - val_rmse: 0.5158 - val_mae: 0.2656 - val_mape: 8.4401 - lr: 1.0000e-05
Epoch 271/1000

310/318 [=====>.] - ETA: 0s - loss: 0.2660 - mse: 0.2669
- rmse: 0.5166 - mae: 0.2660 - mape: 8.4716
Epoch 271: val_loss improved from 0.26559 to 0.26551, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2662 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2662 - mape: 8.4826 - val_loss: 0.2655 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2655 - val_mape: 8.4387 - lr: 1.0000e-05
Epoch 272/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2664 - mse: 0.2663
- rmse: 0.5160 - mae: 0.2664 - mape: 8.4861
Epoch 272: val_loss improved from 0.26551 to 0.26538, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2660 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2660 - mape: 8.4687 - val_loss: 0.2654 - val_mse:
0.2662 - val_rmse: 0.5159 - val_mae: 0.2654 - val_mape: 8.4353 - lr: 1.0000e-05
Epoch 273/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2659 - mse: 0.2675
- rmse: 0.5172 - mae: 0.2659 - mape: 8.4744
Epoch 273: val_loss did not improve from 0.26538
318/318 [=====] - 0s 1ms/step - loss: 0.2662 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2662 - mape: 8.4782 - val_loss: 0.2661 - val_mse:
0.2679 - val_rmse: 0.5176 - val_mae: 0.2661 - val_mape: 8.5314 - lr: 1.0000e-05
Epoch 274/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2665 - mse: 0.2687
- rmse: 0.5184 - mae: 0.2665 - mape: 8.4467
Epoch 274: val_loss improved from 0.26538 to 0.26536, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2659 - mse:
0.2665 - rmse: 0.5163 - mae: 0.2659 - mape: 8.4662 - val_loss: 0.2654 - val_mse:
0.2666 - val_rmse: 0.5163 - val_mae: 0.2654 - val_mape: 8.4694 - lr: 1.0000e-05
Epoch 275/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2659 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2659 - mape: 8.4531
Epoch 275: val_loss did not improve from 0.26536
318/318 [=====] - 0s 1ms/step - loss: 0.2659 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2659 - mape: 8.4682 - val_loss: 0.2658 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2658 - val_mape: 8.4378 - lr: 1.0000e-05
Epoch 276/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2660 - mse: 0.2689
- rmse: 0.5186 - mae: 0.2660 - mape: 8.4570
Epoch 276: val_loss did not improve from 0.26536
318/318 [=====] - 0s 1ms/step - loss: 0.2656 - mse:
0.2674 - rmse: 0.5171 - mae: 0.2656 - mape: 8.4511 - val_loss: 0.2663 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2663 - val_mape: 8.4378 - lr: 1.0000e-05
Epoch 277/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2664 - mse: 0.2695
- rmse: 0.5191 - mae: 0.2664 - mape: 8.4724
Epoch 277: val_loss did not improve from 0.26536

318/318 [=====] - 0s 1ms/step - loss: 0.2659 - mse: 0.2675 - rmse: 0.5172 - mae: 0.2659 - mape: 8.4613 - val_loss: 0.2654 - val_mse: 0.2669 - val_rmse: 0.5166 - val_mae: 0.2654 - val_mape: 8.4782 - lr: 1.0000e-05
Epoch 278/1000

282/318 [=====>...] - ETA: 0s - loss: 0.2648 - mse: 0.2633 - rmse: 0.5131 - mae: 0.2648 - mape: 8.4079
Epoch 278: val_loss improved from 0.26536 to 0.26498, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.2654 - mse: 0.2663 - rmse: 0.5161 - mae: 0.2654 - mape: 8.4458 - val_loss: 0.2650 - val_mse: 0.2659 - val_rmse: 0.5157 - val_mae: 0.2650 - val_mape: 8.4322 - lr: 1.0000e-05
Epoch 279/1000

296/318 [=====>...] - ETA: 0s - loss: 0.2664 - mse: 0.2689 - rmse: 0.5185 - mae: 0.2664 - mape: 8.4953
Epoch 279: val_loss did not improve from 0.26498

318/318 [=====] - 0s 1ms/step - loss: 0.2654 - mse: 0.2670 - rmse: 0.5168 - mae: 0.2654 - mape: 8.4451 - val_loss: 0.2658 - val_mse: 0.2670 - val_rmse: 0.5167 - val_mae: 0.2658 - val_mape: 8.4691 - lr: 1.0000e-05
Epoch 280/1000

307/318 [=====>..] - ETA: 0s - loss: 0.2666 - mse: 0.2688 - rmse: 0.5184 - mae: 0.2666 - mape: 8.4689
Epoch 280: val_loss did not improve from 0.26498

318/318 [=====] - 0s 1ms/step - loss: 0.2653 - mse: 0.2667 - rmse: 0.5165 - mae: 0.2653 - mape: 8.4431 - val_loss: 0.2671 - val_mse: 0.2709 - val_rmse: 0.5205 - val_mae: 0.2671 - val_mape: 8.5639 - lr: 1.0000e-05
Epoch 281/1000

266/318 [=====>...] - ETA: 0s - loss: 0.2645 - mse: 0.2658 - rmse: 0.5156 - mae: 0.2645 - mape: 8.4220
Epoch 281: val_loss did not improve from 0.26498

318/318 [=====] - 0s 1ms/step - loss: 0.2657 - mse: 0.2686 - rmse: 0.5182 - mae: 0.2657 - mape: 8.4589 - val_loss: 0.2658 - val_mse: 0.2695 - val_rmse: 0.5191 - val_mae: 0.2658 - val_mape: 8.5211 - lr: 1.0000e-05
Epoch 282/1000

288/318 [=====>...] - ETA: 0s - loss: 0.2662 - mse: 0.2675 - rmse: 0.5172 - mae: 0.2662 - mape: 8.4835
Epoch 282: val_loss improved from 0.26498 to 0.26495, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.2660 - mse: 0.2680 - rmse: 0.5177 - mae: 0.2660 - mape: 8.4738 - val_loss: 0.2650 - val_mse: 0.2669 - val_rmse: 0.5166 - val_mae: 0.2650 - val_mape: 8.4718 - lr: 1.0000e-05
Epoch 283/1000

294/318 [=====>...] - ETA: 0s - loss: 0.2661 - mse: 0.2691 - rmse: 0.5188 - mae: 0.2661 - mape: 8.4758
Epoch 283: val_loss improved from 0.26495 to 0.26460, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.2653 - mse: 0.2673 - rmse: 0.5170 - mae: 0.2653 - mape: 8.4562 - val_loss: 0.2646 - val_mse: 0.2660 - val_rmse: 0.5158 - val_mae: 0.2646 - val_mape: 8.4169 - lr: 1.0000e-05

Epoch 284/1000
261/318 [=====>...] - ETA: 0s - loss: 0.2644 - mse: 0.2672
- rmse: 0.5169 - mae: 0.2644 - mape: 8.4156
Epoch 284: val_loss did not improve from 0.26460
318/318 [=====] - 0s 1ms/step - loss: 0.2653 - mse:
0.2677 - rmse: 0.5174 - mae: 0.2653 - mape: 8.4521 - val_loss: 0.2656 - val_mse:
0.2678 - val_rmse: 0.5175 - val_mae: 0.2656 - val_mape: 8.4054 - lr: 1.0000e-05
Epoch 285/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2652 - mse: 0.2673
- rmse: 0.5170 - mae: 0.2652 - mape: 8.4181
Epoch 285: val_loss did not improve from 0.26460
318/318 [=====] - 0s 1ms/step - loss: 0.2650 - mse:
0.2668 - rmse: 0.5166 - mae: 0.2650 - mape: 8.4309 - val_loss: 0.2649 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2649 - val_mape: 8.4082 - lr: 1.0000e-05
Epoch 286/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2646 - mse: 0.2674
- rmse: 0.5172 - mae: 0.2646 - mape: 8.4111
Epoch 286: val_loss improved from 0.26460 to 0.26424, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2649 - mse:
0.2671 - rmse: 0.5169 - mae: 0.2649 - mape: 8.4290 - val_loss: 0.2642 - val_mse:
0.2659 - val_rmse: 0.5156 - val_mae: 0.2642 - val_mape: 8.4030 - lr: 1.0000e-05
Epoch 287/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2652 - mse: 0.2681
- rmse: 0.5178 - mae: 0.2652 - mape: 8.4407
Epoch 287: val_loss improved from 0.26424 to 0.26417, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2650 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2650 - mape: 8.4299 - val_loss: 0.2642 - val_mse:
0.2661 - val_rmse: 0.5159 - val_mae: 0.2642 - val_mape: 8.3996 - lr: 1.0000e-05
Epoch 288/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2630 - mse: 0.2628
- rmse: 0.5127 - mae: 0.2630 - mape: 8.3719
Epoch 288: val_loss did not improve from 0.26417
318/318 [=====] - 0s 1ms/step - loss: 0.2646 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2646 - mape: 8.4105 - val_loss: 0.2648 - val_mse:
0.2672 - val_rmse: 0.5169 - val_mae: 0.2648 - val_mape: 8.3846 - lr: 1.0000e-05
Epoch 289/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2653 - mse: 0.2683
- rmse: 0.5180 - mae: 0.2653 - mape: 8.4502
Epoch 289: val_loss improved from 0.26417 to 0.26416, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2649 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2649 - mape: 8.4321 - val_loss: 0.2642 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2642 - val_mape: 8.3791 - lr: 1.0000e-05
Epoch 290/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2621 - mse: 0.2620
- rmse: 0.5118 - mae: 0.2621 - mape: 8.3374

Epoch 290: val_loss improved from 0.26416 to 0.26379, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2648 - mse:
0.2679 - rmse: 0.5176 - mae: 0.2648 - mape: 8.4223 - val_loss: 0.2638 - val_mse:
0.2660 - val_rmse: 0.5157 - val_mae: 0.2638 - val_mape: 8.4082 - lr: 1.0000e-05
Epoch 291/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2646 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2646 - mape: 8.4118
Epoch 291: val_loss did not improve from 0.26379
318/318 [=====] - 0s 2ms/step - loss: 0.2643 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2643 - mape: 8.4020 - val_loss: 0.2647 - val_mse:
0.2675 - val_rmse: 0.5172 - val_mae: 0.2647 - val_mape: 8.4467 - lr: 1.0000e-05
Epoch 292/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2645 - mse: 0.2694
- rmse: 0.5191 - mae: 0.2645 - mape: 8.3939
Epoch 292: val_loss improved from 0.26379 to 0.26376, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2643 - mse:
0.2675 - rmse: 0.5172 - mae: 0.2643 - mape: 8.4010 - val_loss: 0.2638 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2638 - val_mape: 8.3906 - lr: 1.0000e-05
Epoch 293/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2633 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2633 - mape: 8.3619
Epoch 293: val_loss improved from 0.26376 to 0.26363, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2643 - mse:
0.2669 - rmse: 0.5166 - mae: 0.2643 - mape: 8.4022 - val_loss: 0.2636 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2636 - val_mape: 8.3796 - lr: 1.0000e-05
Epoch 294/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2658 - mse: 0.2704
- rmse: 0.5200 - mae: 0.2658 - mape: 8.4641
Epoch 294: val_loss did not improve from 0.26363
318/318 [=====] - 0s 2ms/step - loss: 0.2642 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2642 - mape: 8.4067 - val_loss: 0.2639 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2639 - val_mape: 8.4235 - lr: 1.0000e-05
Epoch 295/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2642 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2642 - mape: 8.4080
Epoch 295: val_loss did not improve from 0.26363
318/318 [=====] - 0s 1ms/step - loss: 0.2646 - mse:
0.2680 - rmse: 0.5177 - mae: 0.2646 - mape: 8.4116 - val_loss: 0.2643 - val_mse:
0.2676 - val_rmse: 0.5173 - val_mae: 0.2643 - val_mape: 8.4536 - lr: 1.0000e-05
Epoch 296/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2650 - mse: 0.2693
- rmse: 0.5189 - mae: 0.2650 - mape: 8.4335
Epoch 296: val_loss improved from 0.26363 to 0.26354, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2643 - mse:

0.2672 - rmse: 0.5169 - mae: 0.2643 - mape: 8.4105 - val_loss: 0.2635 - val_mse:
0.2665 - val_rmse: 0.5162 - val_mae: 0.2635 - val_mape: 8.3539 - lr: 1.0000e-05
Epoch 297/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2638 - mse: 0.2678
- rmse: 0.5175 - mae: 0.2638 - mape: 8.3900
Epoch 297: val_loss did not improve from 0.26354
318/318 [=====] - 0s 1ms/step - loss: 0.2640 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2640 - mape: 8.3908 - val_loss: 0.2636 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2636 - val_mape: 8.4038 - lr: 1.0000e-05
Epoch 298/1000
258/318 [=====>...] - ETA: 0s - loss: 0.2640 - mse: 0.2694
- rmse: 0.5190 - mae: 0.2640 - mape: 8.4120
Epoch 298: val_loss did not improve from 0.26354
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2674 - rmse: 0.5171 - mae: 0.2639 - mape: 8.3957 - val_loss: 0.2637 - val_mse:
0.2666 - val_rmse: 0.5163 - val_mae: 0.2637 - val_mape: 8.3858 - lr: 1.0000e-05
Epoch 299/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2630 - mse: 0.2659
- rmse: 0.5157 - mae: 0.2630 - mape: 8.3358
Epoch 299: val_loss improved from 0.26354 to 0.26345, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2678 - rmse: 0.5175 - mae: 0.2639 - mape: 8.3926 - val_loss: 0.2635 - val_mse:
0.2663 - val_rmse: 0.5161 - val_mae: 0.2635 - val_mape: 8.3828 - lr: 1.0000e-05
Epoch 300/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2635 - mse: 0.2665
- rmse: 0.5163 - mae: 0.2635 - mape: 8.3683
Epoch 300: val_loss did not improve from 0.26345
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2670 - rmse: 0.5168 - mae: 0.2639 - mape: 8.3964 - val_loss: 0.2639 - val_mse:
0.2669 - val_rmse: 0.5166 - val_mae: 0.2639 - val_mape: 8.3557 - lr: 1.0000e-05
Epoch 301/1000
260/318 [=====>...] - ETA: 0s - loss: 0.2671 - mse: 0.2745
- rmse: 0.5239 - mae: 0.2671 - mape: 8.4798
Epoch 301: val_loss improved from 0.26345 to 0.26337, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2674 - rmse: 0.5171 - mae: 0.2639 - mape: 8.3828 - val_loss: 0.2634 - val_mse:
0.2663 - val_rmse: 0.5160 - val_mae: 0.2634 - val_mape: 8.3664 - lr: 1.0000e-05
Epoch 302/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2631 - mse: 0.2654
- rmse: 0.5151 - mae: 0.2631 - mape: 8.3590
Epoch 302: val_loss did not improve from 0.26337
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2639 - mape: 8.3881 - val_loss: 0.2634 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2634 - val_mape: 8.3762 - lr: 1.0000e-05
Epoch 303/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2645 - mse: 0.2686

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- rmse: 0.5182 - mae: 0.2645 - mape: 8.4005
Epoch 303: val_loss improved from 0.26337 to 0.26337, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2641 - mse:
0.2671 - rmse: 0.5169 - mae: 0.2641 - mape: 8.3883 - val_loss: 0.2634 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2634 - val_mape: 8.3946 - lr: 1.0000e-05
Epoch 304/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2657 - mse: 0.2698
- rmse: 0.5194 - mae: 0.2657 - mape: 8.4337
Epoch 304: val_loss improved from 0.26337 to 0.26315, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2638 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2638 - mape: 8.3828 - val_loss: 0.2632 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2632 - val_mape: 8.3741 - lr: 1.0000e-05
Epoch 305/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2644 - mse: 0.2692
- rmse: 0.5188 - mae: 0.2644 - mape: 8.4046
Epoch 305: val_loss did not improve from 0.26315
318/318 [=====] - 0s 1ms/step - loss: 0.2640 - mse:
0.2681 - rmse: 0.5178 - mae: 0.2640 - mape: 8.3890 - val_loss: 0.2637 - val_mse:
0.2670 - val_rmse: 0.5167 - val_mae: 0.2637 - val_mape: 8.4088 - lr: 1.0000e-05
Epoch 306/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2638 - mse: 0.2678
- rmse: 0.5175 - mae: 0.2638 - mape: 8.3952
Epoch 306: val_loss did not improve from 0.26315
318/318 [=====] - 0s 1ms/step - loss: 0.2640 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2640 - mape: 8.3959 - val_loss: 0.2632 - val_mse:
0.2660 - val_rmse: 0.5158 - val_mae: 0.2632 - val_mape: 8.3602 - lr: 1.0000e-05
Epoch 307/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2640 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2640 - mape: 8.3790
Epoch 307: val_loss did not improve from 0.26315
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2639 - mape: 8.3805 - val_loss: 0.2632 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2632 - val_mape: 8.3878 - lr: 1.0000e-05
Epoch 308/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2641 - mse: 0.2673
- rmse: 0.5170 - mae: 0.2641 - mape: 8.4245
Epoch 308: val_loss did not improve from 0.26315
318/318 [=====] - 0s 1ms/step - loss: 0.2641 - mse:
0.2667 - rmse: 0.5164 - mae: 0.2641 - mape: 8.3939 - val_loss: 0.2637 - val_mse:
0.2673 - val_rmse: 0.5170 - val_mae: 0.2637 - val_mape: 8.4417 - lr: 1.0000e-05
Epoch 309/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2639 - mse: 0.2677
- rmse: 0.5174 - mae: 0.2639 - mape: 8.4046
Epoch 309: val_loss did not improve from 0.26315
318/318 [=====] - 0s 1ms/step - loss: 0.2637 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2637 - mape: 8.3924 - val_loss: 0.2633 - val_mse:

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0.2661 - val_rmse: 0.5159 - val_mae: 0.2633 - val_mape: 8.3839 - lr: 1.0000e-05
Epoch 310/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2624 - mse: 0.2655
- rmse: 0.5153 - mae: 0.2624 - mape: 8.3532
Epoch 310: val_loss did not improve from 0.26315
318/318 [=====] - 0s 1ms/step - loss: 0.2636 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2636 - mape: 8.3773 - val_loss: 0.2644 - val_mse:
0.2675 - val_rmse: 0.5172 - val_mae: 0.2644 - val_mape: 8.3386 - lr: 1.0000e-05
Epoch 311/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2661 - mse: 0.2712
- rmse: 0.5207 - mae: 0.2661 - mape: 8.4485
Epoch 311: val_loss improved from 0.26315 to 0.26304, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2639 - mse:
0.2667 - rmse: 0.5165 - mae: 0.2639 - mape: 8.3776 - val_loss: 0.2630 - val_mse:
0.2657 - val_rmse: 0.5154 - val_mae: 0.2630 - val_mape: 8.3463 - lr: 1.0000e-05
Epoch 312/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2659 - mse: 0.2701
- rmse: 0.5197 - mae: 0.2659 - mape: 8.4494
Epoch 312: val_loss did not improve from 0.26304
318/318 [=====] - 0s 1ms/step - loss: 0.2637 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2637 - mape: 8.3781 - val_loss: 0.2634 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2634 - val_mape: 8.3521 - lr: 1.0000e-05
Epoch 313/1000
309/318 [=====>..] - ETA: 0s - loss: 0.2635 - mse: 0.2679
- rmse: 0.5176 - mae: 0.2635 - mape: 8.3841
Epoch 313: val_loss did not improve from 0.26304
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2664 - rmse: 0.5161 - mae: 0.2630 - mape: 8.3664 - val_loss: 0.2642 - val_mse:
0.2684 - val_rmse: 0.5181 - val_mae: 0.2642 - val_mape: 8.4209 - lr: 1.0000e-05
Epoch 314/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2627 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2627 - mape: 8.3262
Epoch 314: val_loss improved from 0.26304 to 0.26300, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2637 - mse:
0.2672 - rmse: 0.5169 - mae: 0.2637 - mape: 8.3787 - val_loss: 0.2630 - val_mse:
0.2656 - val_rmse: 0.5154 - val_mae: 0.2630 - val_mape: 8.3270 - lr: 1.0000e-05
Epoch 315/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2629 - mse: 0.2659
- rmse: 0.5157 - mae: 0.2629 - mape: 8.3330
Epoch 315: val_loss did not improve from 0.26300
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2639 - mape: 8.3695 - val_loss: 0.2631 - val_mse:
0.2658 - val_rmse: 0.5155 - val_mae: 0.2631 - val_mape: 8.3627 - lr: 1.0000e-05
Epoch 316/1000
311/318 [=====>..] - ETA: 0s - loss: 0.2642 - mse: 0.2690
- rmse: 0.5186 - mae: 0.2642 - mape: 8.3844

Epoch 316: val_loss did not improve from 0.26300
318/318 [=====] - 0s 1ms/step - loss: 0.2635 - mse: 0.2671 - rmse: 0.5169 - mae: 0.2635 - mape: 8.3675 - val_loss: 0.2646 - val_mse: 0.2685 - val_rmse: 0.5181 - val_mae: 0.2646 - val_mape: 8.3282 - lr: 1.0000e-05
Epoch 317/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2632 - mse: 0.2658 - rmse: 0.5155 - mae: 0.2632 - mape: 8.3697
Epoch 317: val_loss improved from 0.26300 to 0.26291, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2637 - mse: 0.2670 - rmse: 0.5167 - mae: 0.2637 - mape: 8.3742 - val_loss: 0.2629 - val_mse: 0.2655 - val_rmse: 0.5153 - val_mae: 0.2629 - val_mape: 8.3426 - lr: 1.0000e-05
Epoch 318/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2621 - mse: 0.2656 - rmse: 0.5154 - mae: 0.2621 - mape: 8.3269
Epoch 318: val_loss did not improve from 0.26291
318/318 [=====] - 0s 1ms/step - loss: 0.2638 - mse: 0.2676 - rmse: 0.5173 - mae: 0.2638 - mape: 8.3726 - val_loss: 0.2634 - val_mse: 0.2667 - val_rmse: 0.5164 - val_mae: 0.2634 - val_mape: 8.3941 - lr: 1.0000e-05
Epoch 319/1000
257/318 [=====>...] - ETA: 0s - loss: 0.2635 - mse: 0.2650 - rmse: 0.5148 - mae: 0.2635 - mape: 8.3193
Epoch 319: val_loss did not improve from 0.26291
318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse: 0.2658 - rmse: 0.5156 - mae: 0.2633 - mape: 8.3578 - val_loss: 0.2649 - val_mse: 0.2702 - val_rmse: 0.5198 - val_mae: 0.2649 - val_mape: 8.4744 - lr: 1.0000e-05
Epoch 320/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2647 - mse: 0.2711 - rmse: 0.5207 - mae: 0.2647 - mape: 8.3840
Epoch 320: val_loss did not improve from 0.26291
318/318 [=====] - 0s 1ms/step - loss: 0.2639 - mse: 0.2668 - rmse: 0.5165 - mae: 0.2639 - mape: 8.3793 - val_loss: 0.2652 - val_mse: 0.2696 - val_rmse: 0.5192 - val_mae: 0.2652 - val_mape: 8.4779 - lr: 1.0000e-05
Epoch 321/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2637 - mse: 0.2685 - rmse: 0.5181 - mae: 0.2637 - mape: 8.3877
Epoch 321: val_loss did not improve from 0.26291
318/318 [=====] - 0s 1ms/step - loss: 0.2638 - mse: 0.2673 - rmse: 0.5170 - mae: 0.2638 - mape: 8.3776 - val_loss: 0.2631 - val_mse: 0.2653 - val_rmse: 0.5151 - val_mae: 0.2631 - val_mape: 8.3594 - lr: 1.0000e-05
Epoch 322/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2631 - mse: 0.2662 - rmse: 0.5159 - mae: 0.2631 - mape: 8.3422
Epoch 322: val_loss improved from 0.26291 to 0.26290, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse: 0.2665 - rmse: 0.5163 - mae: 0.2633 - mape: 8.3606 - val_loss: 0.2629 - val_mse: 0.2657 - val_rmse: 0.5155 - val_mae: 0.2629 - val_mape: 8.3449 - lr: 1.0000e-05

Epoch 323/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2645 - mse: 0.2691
- rmse: 0.5188 - mae: 0.2645 - mape: 8.3895
Epoch 323: val_loss did not improve from 0.26290
318/318 [=====] - 0s 1ms/step - loss: 0.2635 - mse:
0.2666 - rmse: 0.5164 - mae: 0.2635 - mape: 8.3637 - val_loss: 0.2631 - val_mse:
0.2660 - val_rmse: 0.5157 - val_mae: 0.2631 - val_mape: 8.3564 - lr: 1.0000e-05
Epoch 324/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2635 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2635 - mape: 8.3696
Epoch 324: val_loss improved from 0.26290 to 0.26288, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2634 - mse:
0.2672 - rmse: 0.5169 - mae: 0.2634 - mape: 8.3657 - val_loss: 0.2629 - val_mse:
0.2664 - val_rmse: 0.5162 - val_mae: 0.2629 - val_mape: 8.3546 - lr: 1.0000e-05
Epoch 325/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2631 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2631 - mape: 8.3452
Epoch 325: val_loss did not improve from 0.26288
318/318 [=====] - 0s 1ms/step - loss: 0.2636 - mse:
0.2677 - rmse: 0.5174 - mae: 0.2636 - mape: 8.3647 - val_loss: 0.2632 - val_mse:
0.2654 - val_rmse: 0.5152 - val_mae: 0.2632 - val_mape: 8.3795 - lr: 1.0000e-05
Epoch 326/1000
259/318 [=====>...] - ETA: 0s - loss: 0.2624 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2624 - mape: 8.3545
Epoch 326: val_loss did not improve from 0.26288
318/318 [=====] - 0s 1ms/step - loss: 0.2637 - mse:
0.2662 - rmse: 0.5160 - mae: 0.2637 - mape: 8.3740 - val_loss: 0.2633 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2633 - val_mape: 8.3580 - lr: 1.0000e-05
Epoch 327/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2632 - mse: 0.2663
- rmse: 0.5161 - mae: 0.2632 - mape: 8.3737
Epoch 327: val_loss did not improve from 0.26288
318/318 [=====] - 0s 1ms/step - loss: 0.2637 - mse:
0.2677 - rmse: 0.5174 - mae: 0.2637 - mape: 8.3696 - val_loss: 0.2642 - val_mse:
0.2689 - val_rmse: 0.5186 - val_mae: 0.2642 - val_mape: 8.4476 - lr: 1.0000e-05
Epoch 328/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2632
- rmse: 0.5130 - mae: 0.2613 - mape: 8.3178
Epoch 328: val_loss improved from 0.26288 to 0.26277, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2637 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2637 - mape: 8.3708 - val_loss: 0.2628 - val_mse:
0.2653 - val_rmse: 0.5151 - val_mae: 0.2628 - val_mape: 8.3484 - lr: 1.0000e-05
Epoch 329/1000
317/318 [=====>..] - ETA: 0s - loss: 0.2631 - mse: 0.2653
- rmse: 0.5151 - mae: 0.2631 - mape: 8.3485
Epoch 329: val_loss did not improve from 0.26277

318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse: 0.2652 - rmse: 0.5150 - mae: 0.2630 - mape: 8.3473 - val_loss: 0.2655 - val_mse: 0.2703 - val_rmse: 0.5199 - val_mae: 0.2655 - val_mape: 8.3308 - lr: 1.0000e-05
Epoch 330/1000

283/318 [=====>...] - ETA: 0s - loss: 0.2633 - mse: 0.2659 - rmse: 0.5157 - mae: 0.2633 - mape: 8.3374
Epoch 330: val_loss improved from 0.26277 to 0.26276, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.2636 - mse: 0.2670 - rmse: 0.5167 - mae: 0.2636 - mape: 8.3596 - val_loss: 0.2628 - val_mse: 0.2658 - val_rmse: 0.5156 - val_mae: 0.2628 - val_mape: 8.3471 - lr: 1.0000e-05
Epoch 331/1000

293/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2608 - rmse: 0.5107 - mae: 0.2617 - mape: 8.3134
Epoch 331: val_loss did not improve from 0.26276

318/318 [=====] - 0s 1ms/step - loss: 0.2634 - mse: 0.2658 - rmse: 0.5155 - mae: 0.2634 - mape: 8.3533 - val_loss: 0.2634 - val_mse: 0.2673 - val_rmse: 0.5170 - val_mae: 0.2634 - val_mape: 8.3941 - lr: 1.0000e-05
Epoch 332/1000

276/318 [=====>...] - ETA: 0s - loss: 0.2637 - mse: 0.2676 - rmse: 0.5173 - mae: 0.2637 - mape: 8.3878
Epoch 332: val_loss improved from 0.26276 to 0.26272, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 0s 1ms/step - loss: 0.2632 - mse: 0.2669 - rmse: 0.5166 - mae: 0.2632 - mape: 8.3602 - val_loss: 0.2627 - val_mse: 0.2656 - val_rmse: 0.5154 - val_mae: 0.2627 - val_mape: 8.3227 - lr: 1.0000e-05
Epoch 333/1000

288/318 [=====>...] - ETA: 0s - loss: 0.2651 - mse: 0.2692 - rmse: 0.5189 - mae: 0.2651 - mape: 8.3963
Epoch 333: val_loss did not improve from 0.26272

318/318 [=====] - 0s 1ms/step - loss: 0.2634 - mse: 0.2665 - rmse: 0.5163 - mae: 0.2634 - mape: 8.3538 - val_loss: 0.2635 - val_mse: 0.2655 - val_rmse: 0.5153 - val_mae: 0.2635 - val_mape: 8.3900 - lr: 1.0000e-05
Epoch 334/1000

302/318 [=====>..] - ETA: 0s - loss: 0.2633 - mse: 0.2656 - rmse: 0.5153 - mae: 0.2633 - mape: 8.3565
Epoch 334: val_loss did not improve from 0.26272

318/318 [=====] - 0s 1ms/step - loss: 0.2631 - mse: 0.2658 - rmse: 0.5156 - mae: 0.2631 - mape: 8.3543 - val_loss: 0.2637 - val_mse: 0.2677 - val_rmse: 0.5174 - val_mae: 0.2637 - val_mape: 8.4225 - lr: 1.0000e-05
Epoch 335/1000

296/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2633 - rmse: 0.5131 - mae: 0.2618 - mape: 8.2972
Epoch 335: val_loss did not improve from 0.26272

318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse: 0.2662 - rmse: 0.5160 - mae: 0.2633 - mape: 8.3606 - val_loss: 0.2628 - val_mse: 0.2658 - val_rmse: 0.5156 - val_mae: 0.2628 - val_mape: 8.3308 - lr: 1.0000e-05
Epoch 336/1000

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305/318 [=====>..] - ETA: 0s - loss: 0.2630 - mse: 0.2652
- rmse: 0.5150 - mae: 0.2630 - mape: 8.3330
Epoch 336: val_loss did not improve from 0.26272
318/318 [=====] - 0s 2ms/step - loss: 0.2632 - mse:
0.2664 - rmse: 0.5162 - mae: 0.2632 - mape: 8.3470 - val_loss: 0.2631 - val_mse:
0.2660 - val_rmse: 0.5157 - val_mae: 0.2631 - val_mape: 8.3132 - lr: 1.0000e-05
Epoch 337/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2627
- rmse: 0.5126 - mae: 0.2619 - mape: 8.3129
Epoch 337: val_loss did not improve from 0.26272
318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse:
0.2666 - rmse: 0.5164 - mae: 0.2633 - mape: 8.3565 - val_loss: 0.2628 - val_mse:
0.2661 - val_rmse: 0.5159 - val_mae: 0.2628 - val_mape: 8.3661 - lr: 1.0000e-05
Epoch 338/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2636 - mse: 0.2670
- rmse: 0.5167 - mae: 0.2636 - mape: 8.3626
Epoch 338: val_loss did not improve from 0.26272
318/318 [=====] - 0s 1ms/step - loss: 0.2634 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2634 - mape: 8.3656 - val_loss: 0.2631 - val_mse:
0.2664 - val_rmse: 0.5162 - val_mae: 0.2631 - val_mape: 8.3704 - lr: 1.0000e-05
Epoch 339/1000
255/318 [=====>...] - ETA: 0s - loss: 0.2611 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2611 - mape: 8.2937
Epoch 339: val_loss did not improve from 0.26272
318/318 [=====] - 0s 1ms/step - loss: 0.2635 - mse:
0.2667 - rmse: 0.5164 - mae: 0.2635 - mape: 8.3583 - val_loss: 0.2628 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2628 - val_mape: 8.3728 - lr: 1.0000e-05
Epoch 340/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2645 - mse: 0.2684
- rmse: 0.5181 - mae: 0.2645 - mape: 8.4224
Epoch 340: val_loss did not improve from 0.26272
318/318 [=====] - 0s 1ms/step - loss: 0.2636 - mse:
0.2676 - rmse: 0.5173 - mae: 0.2636 - mape: 8.3843 - val_loss: 0.2630 - val_mse:
0.2663 - val_rmse: 0.5161 - val_mae: 0.2630 - val_mape: 8.3224 - lr: 1.0000e-05
Epoch 341/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2642 - mse: 0.2695
- rmse: 0.5192 - mae: 0.2642 - mape: 8.3708
Epoch 341: val_loss did not improve from 0.26272
318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse:
0.2666 - rmse: 0.5163 - mae: 0.2633 - mape: 8.3558 - val_loss: 0.2634 - val_mse:
0.2665 - val_rmse: 0.5162 - val_mae: 0.2634 - val_mape: 8.4045 - lr: 1.0000e-05
Epoch 342/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2634 - mse: 0.2660
- rmse: 0.5158 - mae: 0.2634 - mape: 8.3650
Epoch 342: val_loss improved from 0.26272 to 0.26265, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2634 - mse:
0.2663 - rmse: 0.5160 - mae: 0.2634 - mape: 8.3641 - val_loss: 0.2627 - val_mse:

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0.2654 - val_rmse: 0.5152 - val_mae: 0.2627 - val_mape: 8.3205 - lr: 1.0000e-05
Epoch 343/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2637 - mse: 0.2663
- rmse: 0.5160 - mae: 0.2637 - mape: 8.3655
Epoch 343: val_loss did not improve from 0.26265
318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse:
0.2668 - rmse: 0.5166 - mae: 0.2633 - mape: 8.3531 - val_loss: 0.2633 - val_mse:
0.2669 - val_rmse: 0.5166 - val_mae: 0.2633 - val_mape: 8.3439 - lr: 1.0000e-05
Epoch 344/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2630 - mse: 0.2681
- rmse: 0.5177 - mae: 0.2630 - mape: 8.3747
Epoch 344: val_loss did not improve from 0.26265
318/318 [=====] - 0s 1ms/step - loss: 0.2632 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2632 - mape: 8.3661 - val_loss: 0.2627 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2627 - val_mape: 8.3283 - lr: 1.0000e-05
Epoch 345/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2647 - mse: 0.2699
- rmse: 0.5195 - mae: 0.2647 - mape: 8.3760
Epoch 345: val_loss did not improve from 0.26265
318/318 [=====] - 0s 1ms/step - loss: 0.2633 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2633 - mape: 8.3501 - val_loss: 0.2641 - val_mse:
0.2684 - val_rmse: 0.5181 - val_mae: 0.2641 - val_mape: 8.4522 - lr: 1.0000e-05
Epoch 346/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2625 - mse: 0.2653
- rmse: 0.5150 - mae: 0.2625 - mape: 8.3475
Epoch 346: val_loss improved from 0.26265 to 0.26257, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2634 - mse:
0.2673 - rmse: 0.5170 - mae: 0.2634 - mape: 8.3719 - val_loss: 0.2626 - val_mse:
0.2665 - val_rmse: 0.5162 - val_mae: 0.2626 - val_mape: 8.3314 - lr: 1.0000e-05
Epoch 347/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2636 - mse: 0.2681
- rmse: 0.5178 - mae: 0.2636 - mape: 8.3865
Epoch 347: val_loss improved from 0.26257 to 0.26256, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2664 - rmse: 0.5162 - mae: 0.2629 - mape: 8.3480 - val_loss: 0.2626 - val_mse:
0.2663 - val_rmse: 0.5161 - val_mae: 0.2626 - val_mape: 8.3559 - lr: 1.0000e-05
Epoch 348/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2631 - mse: 0.2674
- rmse: 0.5171 - mae: 0.2631 - mape: 8.3482
Epoch 348: val_loss did not improve from 0.26256
318/318 [=====] - 0s 1ms/step - loss: 0.2631 - mse:
0.2671 - rmse: 0.5169 - mae: 0.2631 - mape: 8.3675 - val_loss: 0.2647 - val_mse:
0.2689 - val_rmse: 0.5185 - val_mae: 0.2647 - val_mape: 8.3347 - lr: 1.0000e-05
Epoch 349/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2624 - mse: 0.2656
- rmse: 0.5154 - mae: 0.2624 - mape: 8.3381

Epoch 349: val_loss did not improve from 0.26256
318/318 [=====] - 0s 1ms/step - loss: 0.2634 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2634 - mape: 8.3572 - val_loss: 0.2632 - val_mse:
0.2674 - val_rmse: 0.5171 - val_mae: 0.2632 - val_mape: 8.4048 - lr: 1.0000e-05
Epoch 350/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2637 - mse: 0.2691
- rmse: 0.5188 - mae: 0.2637 - mape: 8.3807
Epoch 350: val_loss improved from 0.26256 to 0.26243, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2664 - rmse: 0.5162 - mae: 0.2630 - mape: 8.3559 - val_loss: 0.2624 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2624 - val_mape: 8.3385 - lr: 1.0000e-05
Epoch 351/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2623 - mse: 0.2640
- rmse: 0.5138 - mae: 0.2623 - mape: 8.3086
Epoch 351: val_loss did not improve from 0.26243
318/318 [=====] - 0s 2ms/step - loss: 0.2631 - mse:
0.2666 - rmse: 0.5164 - mae: 0.2631 - mape: 8.3521 - val_loss: 0.2625 - val_mse:
0.2657 - val_rmse: 0.5154 - val_mae: 0.2625 - val_mape: 8.3320 - lr: 1.0000e-05
Epoch 352/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2639 - mse: 0.2681
- rmse: 0.5178 - mae: 0.2639 - mape: 8.3758
Epoch 352: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2630 - mape: 8.3648 - val_loss: 0.2628 - val_mse:
0.2660 - val_rmse: 0.5157 - val_mae: 0.2628 - val_mape: 8.3804 - lr: 1.0000e-05
Epoch 353/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2623 - mse: 0.2664
- rmse: 0.5161 - mae: 0.2623 - mape: 8.3273
Epoch 353: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2631 - mse:
0.2666 - rmse: 0.5163 - mae: 0.2631 - mape: 8.3524 - val_loss: 0.2629 - val_mse:
0.2663 - val_rmse: 0.5160 - val_mae: 0.2629 - val_mape: 8.3147 - lr: 1.0000e-05
Epoch 354/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2638 - mse: 0.2667
- rmse: 0.5164 - mae: 0.2638 - mape: 8.3566
Epoch 354: val_loss did not improve from 0.26243
318/318 [=====] - 0s 2ms/step - loss: 0.2634 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2634 - mape: 8.3516 - val_loss: 0.2627 - val_mse:
0.2659 - val_rmse: 0.5156 - val_mae: 0.2627 - val_mape: 8.3640 - lr: 1.0000e-05
Epoch 355/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2637 - mse: 0.2682
- rmse: 0.5179 - mae: 0.2637 - mape: 8.3627
Epoch 355: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2631 - mse:
0.2672 - rmse: 0.5169 - mae: 0.2631 - mape: 8.3596 - val_loss: 0.2625 - val_mse:
0.2652 - val_rmse: 0.5150 - val_mae: 0.2625 - val_mape: 8.3301 - lr: 1.0000e-05
Epoch 356/1000

291/318 [=====>...] - ETA: 0s - loss: 0.2635 - mse: 0.2681
- rmse: 0.5178 - mae: 0.2635 - mape: 8.3629
Epoch 356: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2667 - rmse: 0.5165 - mae: 0.2630 - mape: 8.3538 - val_loss: 0.2626 - val_mse:
0.2653 - val_rmse: 0.5151 - val_mae: 0.2626 - val_mape: 8.3295 - lr: 1.0000e-05
Epoch 357/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2629 - mse: 0.2651
- rmse: 0.5149 - mae: 0.2629 - mape: 8.3457
Epoch 357: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2631 - mse:
0.2661 - rmse: 0.5159 - mae: 0.2631 - mape: 8.3542 - val_loss: 0.2625 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2625 - val_mape: 8.3362 - lr: 1.0000e-05
Epoch 358/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2632 - mse: 0.2654
- rmse: 0.5152 - mae: 0.2632 - mape: 8.3387
Epoch 358: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2667 - rmse: 0.5164 - mae: 0.2630 - mape: 8.3562 - val_loss: 0.2626 - val_mse:
0.2660 - val_rmse: 0.5158 - val_mae: 0.2626 - val_mape: 8.3047 - lr: 1.0000e-05
Epoch 359/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2634 - mse: 0.2690
- rmse: 0.5187 - mae: 0.2634 - mape: 8.3560
Epoch 359: val_loss did not improve from 0.26243
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2662 - rmse: 0.5159 - mae: 0.2627 - mape: 8.3421 - val_loss: 0.2626 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2626 - val_mape: 8.3613 - lr: 1.0000e-05
Epoch 360/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2632 - mse: 0.2677
- rmse: 0.5174 - mae: 0.2632 - mape: 8.3655
Epoch 360: val_loss improved from 0.26243 to 0.26231, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2669 - rmse: 0.5166 - mae: 0.2629 - mape: 8.3519 - val_loss: 0.2623 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2623 - val_mape: 8.3172 - lr: 1.0000e-05
Epoch 361/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2625 - mse: 0.2674
- rmse: 0.5171 - mae: 0.2625 - mape: 8.3594
Epoch 361: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2632 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2632 - mape: 8.3622 - val_loss: 0.2632 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2632 - val_mape: 8.3284 - lr: 1.0000e-05
Epoch 362/1000
309/318 [=====>..] - ETA: 0s - loss: 0.2627 - mse: 0.2658
- rmse: 0.5156 - mae: 0.2627 - mape: 8.3381
Epoch 362: val_loss did not improve from 0.26231
318/318 [=====] - 0s 2ms/step - loss: 0.2630 - mse:
0.2663 - rmse: 0.5160 - mae: 0.2630 - mape: 8.3506 - val_loss: 0.2644 - val_mse:

0.2688 - val_rmse: 0.5185 - val_mae: 0.2644 - val_mape: 8.3277 - lr: 1.0000e-05
Epoch 363/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2617 - mape: 8.2945
Epoch 363: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2662 - rmse: 0.5160 - mae: 0.2628 - mape: 8.3329 - val_loss: 0.2630 - val_mse:
0.2672 - val_rmse: 0.5169 - val_mae: 0.2630 - val_mape: 8.3501 - lr: 1.0000e-05
Epoch 364/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2629 - mse: 0.2667
- rmse: 0.5165 - mae: 0.2629 - mape: 8.3653
Epoch 364: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2666 - rmse: 0.5164 - mae: 0.2629 - mape: 8.3541 - val_loss: 0.2625 - val_mse:
0.2649 - val_rmse: 0.5147 - val_mae: 0.2625 - val_mape: 8.3329 - lr: 1.0000e-05
Epoch 365/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2624 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2624 - mape: 8.3115
Epoch 365: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2671 - rmse: 0.5169 - mae: 0.2629 - mape: 8.3544 - val_loss: 0.2626 - val_mse:
0.2649 - val_rmse: 0.5147 - val_mae: 0.2626 - val_mape: 8.3579 - lr: 1.0000e-05
Epoch 366/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2628 - mse: 0.2650
- rmse: 0.5148 - mae: 0.2628 - mape: 8.3308
Epoch 366: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2632 - mse:
0.2664 - rmse: 0.5162 - mae: 0.2632 - mape: 8.3467 - val_loss: 0.2628 - val_mse:
0.2659 - val_rmse: 0.5157 - val_mae: 0.2628 - val_mape: 8.3620 - lr: 1.0000e-05
Epoch 367/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2627 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2627 - mape: 8.3378
Epoch 367: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2630 - mape: 8.3572 - val_loss: 0.2623 - val_mse:
0.2661 - val_rmse: 0.5158 - val_mae: 0.2623 - val_mape: 8.3386 - lr: 1.0000e-05
Epoch 368/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2626 - mse: 0.2647
- rmse: 0.5144 - mae: 0.2626 - mape: 8.3606
Epoch 368: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2658 - rmse: 0.5155 - mae: 0.2627 - mape: 8.3499 - val_loss: 0.2628 - val_mse:
0.2663 - val_rmse: 0.5160 - val_mae: 0.2628 - val_mape: 8.3711 - lr: 1.0000e-05
Epoch 369/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2644 - mse: 0.2687
- rmse: 0.5183 - mae: 0.2644 - mape: 8.3778
Epoch 369: val_loss did not improve from 0.26231
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:

0.2658 - rmse: 0.5156 - mae: 0.2629 - mape: 8.3456 - val_loss: 0.2625 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2625 - val_mape: 8.3178 - lr: 1.0000e-05
Epoch 370/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2627 - mse: 0.2649
- rmse: 0.5146 - mae: 0.2627 - mape: 8.3197
Epoch 370: val_loss improved from 0.26231 to 0.26221, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2632 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2632 - mape: 8.3530 - val_loss: 0.2622 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2622 - val_mape: 8.3213 - lr: 1.0000e-05
Epoch 371/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2618 - mse: 0.2635
- rmse: 0.5133 - mae: 0.2618 - mape: 8.3102
Epoch 371: val_loss did not improve from 0.26221
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2661 - rmse: 0.5158 - mae: 0.2627 - mape: 8.3464 - val_loss: 0.2633 - val_mse:
0.2666 - val_rmse: 0.5163 - val_mae: 0.2633 - val_mape: 8.3823 - lr: 1.0000e-05
Epoch 372/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2626 - mse: 0.2652
- rmse: 0.5150 - mae: 0.2626 - mape: 8.3291
Epoch 372: val_loss did not improve from 0.26221
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2660 - rmse: 0.5158 - mae: 0.2630 - mape: 8.3445 - val_loss: 0.2634 - val_mse:
0.2654 - val_rmse: 0.5151 - val_mae: 0.2634 - val_mape: 8.3991 - lr: 1.0000e-05
Epoch 373/1000
309/318 [=====>..] - ETA: 0s - loss: 0.2638 - mse: 0.2675
- rmse: 0.5172 - mae: 0.2638 - mape: 8.3728
Epoch 373: val_loss did not improve from 0.26221
318/318 [=====] - 0s 2ms/step - loss: 0.2628 - mse:
0.2658 - rmse: 0.5155 - mae: 0.2628 - mape: 8.3434 - val_loss: 0.2628 - val_mse:
0.2665 - val_rmse: 0.5162 - val_mae: 0.2628 - val_mape: 8.2929 - lr: 1.0000e-05
Epoch 374/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2642 - mse: 0.2704
- rmse: 0.5200 - mae: 0.2642 - mape: 8.3888
Epoch 374: val_loss did not improve from 0.26221
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2667 - rmse: 0.5165 - mae: 0.2626 - mape: 8.3353 - val_loss: 0.2641 - val_mse:
0.2683 - val_rmse: 0.5180 - val_mae: 0.2641 - val_mape: 8.3159 - lr: 1.0000e-05
Epoch 375/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2635 - mse: 0.2665
- rmse: 0.5163 - mae: 0.2635 - mape: 8.3400
Epoch 375: val_loss did not improve from 0.26221
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2667 - rmse: 0.5165 - mae: 0.2628 - mape: 8.3336 - val_loss: 0.2625 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2625 - val_mape: 8.3543 - lr: 1.0000e-05
Epoch 376/1000
313/318 [=====>..] - ETA: 0s - loss: 0.2630 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2630 - mape: 8.3444

Epoch 376: val_loss improved from 0.26221 to 0.26216, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2628 - mse:
0.2669 - rmse: 0.5166 - mae: 0.2628 - mape: 8.3389 - val_loss: 0.2622 - val_mse:
0.2654 - val_rmse: 0.5152 - val_mae: 0.2622 - val_mape: 8.3399 - lr: 1.0000e-05
Epoch 377/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2621 - mse: 0.2656
- rmse: 0.5154 - mae: 0.2621 - mape: 8.3093
Epoch 377: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2664 - rmse: 0.5161 - mae: 0.2626 - mape: 8.3454 - val_loss: 0.2624 - val_mse:
0.2644 - val_rmse: 0.5142 - val_mae: 0.2624 - val_mape: 8.3202 - lr: 1.0000e-05
Epoch 378/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2627 - mse: 0.2653
- rmse: 0.5151 - mae: 0.2627 - mape: 8.3124
Epoch 378: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2656 - rmse: 0.5154 - mae: 0.2628 - mape: 8.3385 - val_loss: 0.2623 - val_mse:
0.2652 - val_rmse: 0.5150 - val_mae: 0.2623 - val_mape: 8.3084 - lr: 1.0000e-05
Epoch 379/1000
258/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2607
- rmse: 0.5106 - mae: 0.2599 - mape: 8.2665
Epoch 379: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2662 - rmse: 0.5160 - mae: 0.2629 - mape: 8.3330 - val_loss: 0.2624 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2624 - val_mape: 8.3258 - lr: 1.0000e-05
Epoch 380/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2636 - mse: 0.2691
- rmse: 0.5187 - mae: 0.2636 - mape: 8.3575
Epoch 380: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2630 - mape: 8.3459 - val_loss: 0.2623 - val_mse:
0.2659 - val_rmse: 0.5156 - val_mae: 0.2623 - val_mape: 8.3333 - lr: 1.0000e-05
Epoch 381/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2618
- rmse: 0.5117 - mae: 0.2605 - mape: 8.2952
Epoch 381: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse:
0.2654 - rmse: 0.5152 - mae: 0.2622 - mape: 8.3257 - val_loss: 0.2623 - val_mse:
0.2652 - val_rmse: 0.5150 - val_mae: 0.2623 - val_mape: 8.3193 - lr: 1.0000e-05
Epoch 382/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2638 - mse: 0.2672
- rmse: 0.5169 - mae: 0.2638 - mape: 8.3801
Epoch 382: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2656 - rmse: 0.5154 - mae: 0.2626 - mape: 8.3335 - val_loss: 0.2624 - val_mse:
0.2653 - val_rmse: 0.5150 - val_mae: 0.2624 - val_mape: 8.3057 - lr: 1.0000e-05
Epoch 383/1000

296/318 [=====>...] - ETA: 0s - loss: 0.2629 - mse: 0.2666
- rmse: 0.5164 - mae: 0.2629 - mape: 8.3432
Epoch 383: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2663 - rmse: 0.5160 - mae: 0.2626 - mape: 8.3358 - val_loss: 0.2623 - val_mse:
0.2660 - val_rmse: 0.5158 - val_mae: 0.2623 - val_mape: 8.3335 - lr: 1.0000e-05
Epoch 384/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2639 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2639 - mape: 8.3338
Epoch 384: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2662 - rmse: 0.5159 - mae: 0.2629 - mape: 8.3448 - val_loss: 0.2624 - val_mse:
0.2659 - val_rmse: 0.5156 - val_mae: 0.2624 - val_mape: 8.3069 - lr: 1.0000e-05
Epoch 385/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2629 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2629 - mape: 8.3623
Epoch 385: val_loss improved from 0.26216 to 0.26216, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2674 - rmse: 0.5171 - mae: 0.2628 - mape: 8.3411 - val_loss: 0.2622 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2622 - val_mape: 8.3284 - lr: 1.0000e-05
Epoch 386/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2643 - mse: 0.2689
- rmse: 0.5185 - mae: 0.2643 - mape: 8.3840
Epoch 386: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2661 - rmse: 0.5158 - mae: 0.2628 - mape: 8.3397 - val_loss: 0.2622 - val_mse:
0.2651 - val_rmse: 0.5148 - val_mae: 0.2622 - val_mape: 8.3094 - lr: 1.0000e-05
Epoch 387/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2628 - mse: 0.2683
- rmse: 0.5180 - mae: 0.2628 - mape: 8.3445
Epoch 387: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2626 - mape: 8.3409 - val_loss: 0.2624 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2624 - val_mape: 8.3484 - lr: 1.0000e-05
Epoch 388/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2632 - mse: 0.2667
- rmse: 0.5164 - mae: 0.2632 - mape: 8.3701
Epoch 388: val_loss did not improve from 0.26216
318/318 [=====] - 0s 1ms/step - loss: 0.2629 - mse:
0.2668 - rmse: 0.5166 - mae: 0.2629 - mape: 8.3489 - val_loss: 0.2622 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2622 - val_mape: 8.3164 - lr: 1.0000e-05
Epoch 389/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2628 - mse: 0.2658
- rmse: 0.5156 - mae: 0.2628 - mape: 8.3343
Epoch 389: val_loss did not improve from 0.26216
318/318 [=====] - 0s 2ms/step - loss: 0.2625 - mse:
0.2654 - rmse: 0.5152 - mae: 0.2625 - mape: 8.3275 - val_loss: 0.2622 - val_mse:

0.2650 - val_rmse: 0.5148 - val_mae: 0.2622 - val_mape: 8.3256 - lr: 1.0000e-05
Epoch 390/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2633 - mse: 0.2670
- rmse: 0.5167 - mae: 0.2633 - mape: 8.3702
Epoch 390: val_loss improved from 0.26216 to 0.26202, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2659 - rmse: 0.5156 - mae: 0.2626 - mape: 8.3421 - val_loss: 0.2620 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2620 - val_mape: 8.3195 - lr: 1.0000e-05
Epoch 391/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2613 - mape: 8.2956
Epoch 391: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:
0.2661 - rmse: 0.5159 - mae: 0.2623 - mape: 8.3331 - val_loss: 0.2622 - val_mse:
0.2646 - val_rmse: 0.5144 - val_mae: 0.2622 - val_mape: 8.3232 - lr: 1.0000e-05
Epoch 392/1000
318/318 [=====] - ETA: 0s - loss: 0.2627 - mse: 0.2657
- rmse: 0.5154 - mae: 0.2627 - mape: 8.3339
Epoch 392: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2657 - rmse: 0.5154 - mae: 0.2627 - mape: 8.3339 - val_loss: 0.2626 - val_mse:
0.2671 - val_rmse: 0.5168 - val_mae: 0.2626 - val_mape: 8.3048 - lr: 1.0000e-05
Epoch 393/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2628 - mse: 0.2664
- rmse: 0.5161 - mae: 0.2628 - mape: 8.3669
Epoch 393: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2669 - rmse: 0.5167 - mae: 0.2628 - mape: 8.3489 - val_loss: 0.2625 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2625 - val_mape: 8.3284 - lr: 1.0000e-05
Epoch 394/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2645 - mse: 0.2700
- rmse: 0.5196 - mae: 0.2645 - mape: 8.4015
Epoch 394: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2663 - rmse: 0.5160 - mae: 0.2627 - mape: 8.3399 - val_loss: 0.2623 - val_mse:
0.2669 - val_rmse: 0.5166 - val_mae: 0.2623 - val_mape: 8.3664 - lr: 1.0000e-05
Epoch 395/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2613 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2613 - mape: 8.2946
Epoch 395: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2627 - mape: 8.3370 - val_loss: 0.2633 - val_mse:
0.2671 - val_rmse: 0.5168 - val_mae: 0.2633 - val_mape: 8.4016 - lr: 1.0000e-05
Epoch 396/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2622 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2622 - mape: 8.3215
Epoch 396: val_loss did not improve from 0.26202

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318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2665 - rmse: 0.5163 - mae: 0.2626 - mape: 8.3419 - val_loss: 0.2621 - val_mse:
0.2640 - val_rmse: 0.5138 - val_mae: 0.2621 - val_mape: 8.3079 - lr: 1.0000e-05
Epoch 397/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2643 - mse: 0.2708
- rmse: 0.5204 - mae: 0.2643 - mape: 8.3583
Epoch 397: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2628 - mape: 8.3386 - val_loss: 0.2638 - val_mse:
0.2707 - val_rmse: 0.5203 - val_mae: 0.2638 - val_mape: 8.4344 - lr: 1.0000e-05
Epoch 398/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2620 - mse: 0.2667
- rmse: 0.5165 - mae: 0.2620 - mape: 8.3252
Epoch 398: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:
0.2665 - rmse: 0.5163 - mae: 0.2623 - mape: 8.3382 - val_loss: 0.2621 - val_mse:
0.2657 - val_rmse: 0.5155 - val_mae: 0.2621 - val_mape: 8.3279 - lr: 1.0000e-05
Epoch 399/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2625 - mse: 0.2660
- rmse: 0.5158 - mae: 0.2625 - mape: 8.3607
Epoch 399: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2669 - rmse: 0.5166 - mae: 0.2630 - mape: 8.3505 - val_loss: 0.2626 - val_mse:
0.2671 - val_rmse: 0.5168 - val_mae: 0.2626 - val_mape: 8.3904 - lr: 1.0000e-05
Epoch 400/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2647
- rmse: 0.5145 - mae: 0.2618 - mape: 8.3244
Epoch 400: val_loss did not improve from 0.26202
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse:
0.2661 - rmse: 0.5158 - mae: 0.2624 - mape: 8.3374 - val_loss: 0.2632 - val_mse:
0.2677 - val_rmse: 0.5174 - val_mae: 0.2632 - val_mape: 8.3132 - lr: 1.0000e-05
Epoch 401/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2617 - mape: 8.3252
Epoch 401: val_loss improved from 0.26202 to 0.26198, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2628 - mse:
0.2669 - rmse: 0.5166 - mae: 0.2628 - mape: 8.3381 - val_loss: 0.2620 - val_mse:
0.2662 - val_rmse: 0.5159 - val_mae: 0.2620 - val_mape: 8.3155 - lr: 1.0000e-05
Epoch 402/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2622 - mse: 0.2648
- rmse: 0.5146 - mae: 0.2622 - mape: 8.3189
Epoch 402: val_loss did not improve from 0.26198
318/318 [=====] - 0s 2ms/step - loss: 0.2626 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2626 - mape: 8.3393 - val_loss: 0.2623 - val_mse:
0.2663 - val_rmse: 0.5161 - val_mae: 0.2623 - val_mape: 8.2953 - lr: 1.0000e-05
Epoch 403/1000
273/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2658

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- rmse: 0.5156 - mae: 0.2607 - mape: 8.3111
Epoch 403: val_loss did not improve from 0.26198
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2660 - rmse: 0.5158 - mae: 0.2621 - mape: 8.3360 - val_loss: 0.2655 - val_mse:
0.2712 - val_rmse: 0.5208 - val_mae: 0.2655 - val_mape: 8.3281 - lr: 1.0000e-05
Epoch 404/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2617
- rmse: 0.5115 - mae: 0.2613 - mape: 8.2699
Epoch 404: val_loss did not improve from 0.26198
318/318 [=====] - 0s 2ms/step - loss: 0.2630 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2630 - mape: 8.3433 - val_loss: 0.2623 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2623 - val_mape: 8.3063 - lr: 1.0000e-05
Epoch 405/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2639 - mse: 0.2690
- rmse: 0.5186 - mae: 0.2639 - mape: 8.3724
Epoch 405: val_loss did not improve from 0.26198
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse:
0.2664 - rmse: 0.5161 - mae: 0.2624 - mape: 8.3334 - val_loss: 0.2623 - val_mse:
0.2663 - val_rmse: 0.5160 - val_mae: 0.2623 - val_mape: 8.2956 - lr: 1.0000e-05
Epoch 406/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2625 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2625 - mape: 8.3326
Epoch 406: val_loss did not improve from 0.26198
318/318 [=====] - 0s 1ms/step - loss: 0.2625 - mse:
0.2658 - rmse: 0.5155 - mae: 0.2625 - mape: 8.3239 - val_loss: 0.2629 - val_mse:
0.2667 - val_rmse: 0.5164 - val_mae: 0.2629 - val_mape: 8.2816 - lr: 1.0000e-05
Epoch 407/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2626 - mse: 0.2672
- rmse: 0.5169 - mae: 0.2626 - mape: 8.3095
Epoch 407: val_loss improved from 0.26198 to 0.26183, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2627 - mape: 8.3285 - val_loss: 0.2618 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2618 - val_mape: 8.3192 - lr: 1.0000e-05
Epoch 408/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2614 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2614 - mape: 8.3048
Epoch 408: val_loss improved from 0.26183 to 0.26170, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2626 - mape: 8.3363 - val_loss: 0.2617 - val_mse:
0.2658 - val_rmse: 0.5155 - val_mae: 0.2617 - val_mape: 8.3189 - lr: 1.0000e-05
Epoch 409/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2631 - mse: 0.2665
- rmse: 0.5163 - mae: 0.2631 - mape: 8.3590
Epoch 409: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2625 - mse:
0.2658 - rmse: 0.5156 - mae: 0.2625 - mape: 8.3344 - val_loss: 0.2627 - val_mse:

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0.2676 - val_rmse: 0.5173 - val_mae: 0.2627 - val_mape: 8.3386 - lr: 1.0000e-05
Epoch 410/1000
258/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2636
- rmse: 0.5135 - mae: 0.2615 - mape: 8.2811
Epoch 410: val_loss did not improve from 0.26170
318/318 [=====] - 0s 2ms/step - loss: 0.2625 - mse:
0.2665 - rmse: 0.5162 - mae: 0.2625 - mape: 8.3300 - val_loss: 0.2630 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2630 - val_mape: 8.3827 - lr: 1.0000e-05
Epoch 411/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2640 - mse: 0.2682
- rmse: 0.5178 - mae: 0.2640 - mape: 8.3664
Epoch 411: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse:
0.2667 - rmse: 0.5165 - mae: 0.2627 - mape: 8.3394 - val_loss: 0.2619 - val_mse:
0.2663 - val_rmse: 0.5160 - val_mae: 0.2619 - val_mape: 8.3065 - lr: 1.0000e-05
Epoch 412/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2641 - mse: 0.2688
- rmse: 0.5185 - mae: 0.2641 - mape: 8.3513
Epoch 412: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse:
0.2652 - rmse: 0.5150 - mae: 0.2622 - mape: 8.3155 - val_loss: 0.2632 - val_mse:
0.2691 - val_rmse: 0.5187 - val_mae: 0.2632 - val_mape: 8.3423 - lr: 1.0000e-05
Epoch 413/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2636 - mse: 0.2677
- rmse: 0.5174 - mae: 0.2636 - mape: 8.3629
Epoch 413: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2666 - rmse: 0.5163 - mae: 0.2626 - mape: 8.3367 - val_loss: 0.2640 - val_mse:
0.2688 - val_rmse: 0.5185 - val_mae: 0.2640 - val_mape: 8.4313 - lr: 1.0000e-05
Epoch 414/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2623 - mse: 0.2663
- rmse: 0.5161 - mae: 0.2623 - mape: 8.3419
Epoch 414: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2630 - mse:
0.2675 - rmse: 0.5172 - mae: 0.2630 - mape: 8.3453 - val_loss: 0.2617 - val_mse:
0.2655 - val_rmse: 0.5152 - val_mae: 0.2617 - val_mape: 8.3251 - lr: 1.0000e-05
Epoch 415/1000
258/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2643
- rmse: 0.5141 - mae: 0.2617 - mape: 8.3092
Epoch 415: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse:
0.2671 - rmse: 0.5168 - mae: 0.2624 - mape: 8.3355 - val_loss: 0.2620 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2620 - val_mape: 8.3258 - lr: 1.0000e-05
Epoch 416/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2624 - mse: 0.2656
- rmse: 0.5154 - mae: 0.2624 - mape: 8.3275
Epoch 416: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:

0.2666 - rmse: 0.5164 - mae: 0.2623 - mape: 8.3275 - val_loss: 0.2619 - val_mse:
0.2659 - val_rmse: 0.5157 - val_mae: 0.2619 - val_mape: 8.3143 - lr: 1.0000e-05
Epoch 417/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2635
- rmse: 0.5134 - mae: 0.2615 - mape: 8.3324
Epoch 417: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse:
0.2652 - rmse: 0.5149 - mae: 0.2624 - mape: 8.3172 - val_loss: 0.2626 - val_mse:
0.2678 - val_rmse: 0.5175 - val_mae: 0.2626 - val_mape: 8.3832 - lr: 1.0000e-05
Epoch 418/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2622 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2622 - mape: 8.2977
Epoch 418: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:
0.2670 - rmse: 0.5167 - mae: 0.2623 - mape: 8.3358 - val_loss: 0.2621 - val_mse:
0.2650 - val_rmse: 0.5147 - val_mae: 0.2621 - val_mape: 8.2803 - lr: 1.0000e-05
Epoch 419/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2637 - mse: 0.2678
- rmse: 0.5174 - mae: 0.2637 - mape: 8.3638
Epoch 419: val_loss did not improve from 0.26170
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse:
0.2655 - rmse: 0.5152 - mae: 0.2622 - mape: 8.3216 - val_loss: 0.2618 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2618 - val_mape: 8.2948 - lr: 1.0000e-05
Epoch 420/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2632 - mse: 0.2685
- rmse: 0.5182 - mae: 0.2632 - mape: 8.3346
Epoch 420: val_loss improved from 0.26170 to 0.26169, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse:
0.2661 - rmse: 0.5158 - mae: 0.2624 - mape: 8.3220 - val_loss: 0.2617 - val_mse:
0.2656 - val_rmse: 0.5153 - val_mae: 0.2617 - val_mape: 8.3227 - lr: 1.0000e-05
Epoch 421/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2630 - mse: 0.2685
- rmse: 0.5181 - mae: 0.2630 - mape: 8.3507
Epoch 421: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2626 - mape: 8.3299 - val_loss: 0.2619 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2619 - val_mape: 8.3265 - lr: 1.0000e-05
Epoch 422/1000
259/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2635
- rmse: 0.5134 - mae: 0.2613 - mape: 8.3352
Epoch 422: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse:
0.2666 - rmse: 0.5163 - mae: 0.2624 - mape: 8.3269 - val_loss: 0.2624 - val_mse:
0.2670 - val_rmse: 0.5167 - val_mae: 0.2624 - val_mape: 8.3810 - lr: 1.0000e-05
Epoch 423/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2633 - mse: 0.2686
- rmse: 0.5183 - mae: 0.2633 - mape: 8.3765

Epoch 423: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse: 0.2659 - rmse: 0.5156 - mae: 0.2622 - mape: 8.3383 - val_loss: 0.2626 - val_mse: 0.2671 - val_rmse: 0.5168 - val_mae: 0.2626 - val_mape: 8.2925 - lr: 1.0000e-05
Epoch 424/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2633 - rmse: 0.5132 - mae: 0.2610 - mape: 8.2871
Epoch 424: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse: 0.2664 - rmse: 0.5161 - mae: 0.2622 - mape: 8.3355 - val_loss: 0.2623 - val_mse: 0.2681 - val_rmse: 0.5177 - val_mae: 0.2623 - val_mape: 8.3527 - lr: 1.0000e-05
Epoch 425/1000
317/318 [=====>.] - ETA: 0s - loss: 0.2622 - mse: 0.2656 - rmse: 0.5153 - mae: 0.2622 - mape: 8.3299
Epoch 425: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse: 0.2655 - rmse: 0.5153 - mae: 0.2622 - mape: 8.3299 - val_loss: 0.2622 - val_mse: 0.2665 - val_rmse: 0.5163 - val_mae: 0.2622 - val_mape: 8.2846 - lr: 1.0000e-05
Epoch 426/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2611 - mse: 0.2649 - rmse: 0.5147 - mae: 0.2611 - mape: 8.2783
Epoch 426: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse: 0.2658 - rmse: 0.5155 - mae: 0.2622 - mape: 8.3232 - val_loss: 0.2617 - val_mse: 0.2653 - val_rmse: 0.5151 - val_mae: 0.2617 - val_mape: 8.3167 - lr: 1.0000e-05
Epoch 427/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2638 - mse: 0.2691 - rmse: 0.5188 - mae: 0.2638 - mape: 8.3843
Epoch 427: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2624 - mse: 0.2656 - rmse: 0.5154 - mae: 0.2624 - mape: 8.3313 - val_loss: 0.2618 - val_mse: 0.2659 - val_rmse: 0.5157 - val_mae: 0.2618 - val_mape: 8.3439 - lr: 1.0000e-05
Epoch 428/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2623 - mse: 0.2666 - rmse: 0.5163 - mae: 0.2623 - mape: 8.3173
Epoch 428: val_loss did not improve from 0.26169
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse: 0.2651 - rmse: 0.5149 - mae: 0.2622 - mape: 8.3150 - val_loss: 0.2622 - val_mse: 0.2642 - val_rmse: 0.5140 - val_mae: 0.2622 - val_mape: 8.3247 - lr: 1.0000e-05
Epoch 429/1000
298/318 [=====>...] - ETA: 0s - loss: 0.2639 - mse: 0.2695 - rmse: 0.5191 - mae: 0.2639 - mape: 8.3806
Epoch 429: val_loss improved from 0.26169 to 0.26161, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2627 - mse: 0.2669 - rmse: 0.5166 - mae: 0.2627 - mape: 8.3402 - val_loss: 0.2616 - val_mse: 0.2649 - val_rmse: 0.5147 - val_mae: 0.2616 - val_mape: 8.2915 - lr: 1.0000e-05
Epoch 430/1000

299/318 [=====>..] - ETA: 0s - loss: 0.2621 - mse: 0.2662
- rmse: 0.5159 - mae: 0.2621 - mape: 8.3112
Epoch 430: val_loss did not improve from 0.26161
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2663 - rmse: 0.5160 - mae: 0.2621 - mape: 8.3147 - val_loss: 0.2627 - val_mse:
0.2655 - val_rmse: 0.5152 - val_mae: 0.2627 - val_mape: 8.3907 - lr: 1.0000e-05
Epoch 431/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2621 - mse: 0.2636
- rmse: 0.5134 - mae: 0.2621 - mape: 8.3234
Epoch 431: val_loss improved from 0.26161 to 0.26158, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2625 - mse:
0.2658 - rmse: 0.5155 - mae: 0.2625 - mape: 8.3330 - val_loss: 0.2616 - val_mse:
0.2656 - val_rmse: 0.5154 - val_mae: 0.2616 - val_mape: 8.3112 - lr: 1.0000e-05
Epoch 432/1000
257/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2634
- rmse: 0.5133 - mae: 0.2610 - mape: 8.2911
Epoch 432: val_loss did not improve from 0.26158
318/318 [=====] - 0s 2ms/step - loss: 0.2621 - mse:
0.2675 - rmse: 0.5172 - mae: 0.2621 - mape: 8.3321 - val_loss: 0.2636 - val_mse:
0.2683 - val_rmse: 0.5180 - val_mae: 0.2636 - val_mape: 8.2921 - lr: 1.0000e-05
Epoch 433/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2629 - mse: 0.2672
- rmse: 0.5169 - mae: 0.2629 - mape: 8.3454
Epoch 433: val_loss did not improve from 0.26158
318/318 [=====] - 0s 1ms/step - loss: 0.2622 - mse:
0.2663 - rmse: 0.5161 - mae: 0.2622 - mape: 8.3282 - val_loss: 0.2620 - val_mse:
0.2657 - val_rmse: 0.5154 - val_mae: 0.2620 - val_mape: 8.2750 - lr: 1.0000e-05
Epoch 434/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2628 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2628 - mape: 8.3498
Epoch 434: val_loss did not improve from 0.26158
318/318 [=====] - 0s 2ms/step - loss: 0.2620 - mse:
0.2658 - rmse: 0.5156 - mae: 0.2620 - mape: 8.3198 - val_loss: 0.2617 - val_mse:
0.2657 - val_rmse: 0.5155 - val_mae: 0.2617 - val_mape: 8.2936 - lr: 1.0000e-05
Epoch 435/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2614 - mse: 0.2638
- rmse: 0.5136 - mae: 0.2614 - mape: 8.3109
Epoch 435: val_loss did not improve from 0.26158
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2652 - rmse: 0.5150 - mae: 0.2618 - mape: 8.2988 - val_loss: 0.2631 - val_mse:
0.2688 - val_rmse: 0.5185 - val_mae: 0.2631 - val_mape: 8.3978 - lr: 1.0000e-05
Epoch 436/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2626 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2626 - mape: 8.3313
Epoch 436: val_loss improved from 0.26158 to 0.26149, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:

0.2667 - rmse: 0.5164 - mae: 0.2623 - mape: 8.3206 - val_loss: 0.2615 - val_mse:
0.2652 - val_rmse: 0.5150 - val_mae: 0.2615 - val_mape: 8.3096 - lr: 1.0000e-05
Epoch 437/1000
307/318 [=====>...] - ETA: 0s - loss: 0.2634 - mse: 0.2695
- rmse: 0.5191 - mae: 0.2634 - mape: 8.3826
Epoch 437: val_loss did not improve from 0.26149
318/318 [=====] - 0s 2ms/step - loss: 0.2621 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2621 - mape: 8.3331 - val_loss: 0.2619 - val_mse:
0.2631 - val_rmse: 0.5130 - val_mae: 0.2619 - val_mape: 8.2781 - lr: 1.0000e-05
Epoch 438/1000
298/318 [=====>...] - ETA: 0s - loss: 0.2630 - mse: 0.2680
- rmse: 0.5177 - mae: 0.2630 - mape: 8.3512
Epoch 438: val_loss did not improve from 0.26149
318/318 [=====] - 0s 1ms/step - loss: 0.2626 - mse:
0.2664 - rmse: 0.5161 - mae: 0.2626 - mape: 8.3267 - val_loss: 0.2622 - val_mse:
0.2641 - val_rmse: 0.5139 - val_mae: 0.2622 - val_mape: 8.3459 - lr: 1.0000e-05
Epoch 439/1000
272/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2659
- rmse: 0.5156 - mae: 0.2617 - mape: 8.3076
Epoch 439: val_loss did not improve from 0.26149
318/318 [=====] - 0s 1ms/step - loss: 0.2620 - mse:
0.2661 - rmse: 0.5159 - mae: 0.2620 - mape: 8.3166 - val_loss: 0.2618 - val_mse:
0.2641 - val_rmse: 0.5139 - val_mae: 0.2618 - val_mape: 8.3290 - lr: 1.0000e-05
Epoch 440/1000
273/318 [=====>...] - ETA: 0s - loss: 0.2623 - mse: 0.2664
- rmse: 0.5162 - mae: 0.2623 - mape: 8.3308
Epoch 440: val_loss did not improve from 0.26149
318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:
0.2660 - rmse: 0.5157 - mae: 0.2623 - mape: 8.3280 - val_loss: 0.2618 - val_mse:
0.2643 - val_rmse: 0.5141 - val_mae: 0.2618 - val_mape: 8.2731 - lr: 1.0000e-05
Epoch 441/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2620 - mse: 0.2664
- rmse: 0.5161 - mae: 0.2620 - mape: 8.3205
Epoch 441: val_loss did not improve from 0.26149
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2656 - rmse: 0.5153 - mae: 0.2621 - mape: 8.3236 - val_loss: 0.2618 - val_mse:
0.2662 - val_rmse: 0.5160 - val_mae: 0.2618 - val_mape: 8.2910 - lr: 1.0000e-05
Epoch 442/1000
300/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2614
- rmse: 0.5113 - mae: 0.2613 - mape: 8.2819
Epoch 442: val_loss did not improve from 0.26149
318/318 [=====] - 0s 1ms/step - loss: 0.2619 - mse:
0.2639 - rmse: 0.5138 - mae: 0.2619 - mape: 8.3068 - val_loss: 0.2620 - val_mse:
0.2672 - val_rmse: 0.5169 - val_mae: 0.2620 - val_mape: 8.3121 - lr: 1.0000e-05
Epoch 443/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2625 - mse: 0.2667
- rmse: 0.5164 - mae: 0.2625 - mape: 8.3249
Epoch 443: val_loss did not improve from 0.26149

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318/318 [=====] - 0s 1ms/step - loss: 0.2623 - mse:
0.2668 - rmse: 0.5165 - mae: 0.2623 - mape: 8.3293 - val_loss: 0.2619 - val_mse:
0.2633 - val_rmse: 0.5131 - val_mae: 0.2619 - val_mape: 8.3181 - lr: 1.0000e-05
Epoch 444/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2628 - mse: 0.2662
- rmse: 0.5159 - mae: 0.2628 - mape: 8.3452
Epoch 444: val_loss did not improve from 0.26149
318/318 [=====] - 0s 2ms/step - loss: 0.2625 - mse:
0.2652 - rmse: 0.5149 - mae: 0.2625 - mape: 8.3269 - val_loss: 0.2617 - val_mse:
0.2632 - val_rmse: 0.5131 - val_mae: 0.2617 - val_mape: 8.3039 - lr: 1.0000e-05
Epoch 445/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2620 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2620 - mape: 8.2909
Epoch 445: val_loss did not improve from 0.26149
318/318 [=====] - 0s 1ms/step - loss: 0.2620 - mse:
0.2645 - rmse: 0.5143 - mae: 0.2620 - mape: 8.3217 - val_loss: 0.2620 - val_mse:
0.2671 - val_rmse: 0.5169 - val_mae: 0.2620 - val_mape: 8.2911 - lr: 1.0000e-05
Epoch 446/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2632 - mse: 0.2692
- rmse: 0.5189 - mae: 0.2632 - mape: 8.3634
Epoch 446: val_loss improved from 0.26149 to 0.26137, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2658 - rmse: 0.5156 - mae: 0.2621 - mape: 8.3209 - val_loss: 0.2614 - val_mse:
0.2641 - val_rmse: 0.5139 - val_mae: 0.2614 - val_mape: 8.2856 - lr: 1.0000e-05
Epoch 447/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2622 - mse: 0.2653
- rmse: 0.5151 - mae: 0.2622 - mape: 8.3342
Epoch 447: val_loss did not improve from 0.26137
318/318 [=====] - 0s 1ms/step - loss: 0.2620 - mse:
0.2647 - rmse: 0.5145 - mae: 0.2620 - mape: 8.3176 - val_loss: 0.2618 - val_mse:
0.2638 - val_rmse: 0.5136 - val_mae: 0.2618 - val_mape: 8.2693 - lr: 1.0000e-05
Epoch 448/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2609 - mse: 0.2627
- rmse: 0.5126 - mae: 0.2609 - mape: 8.2922
Epoch 448: val_loss did not improve from 0.26137
318/318 [=====] - 0s 1ms/step - loss: 0.2620 - mse:
0.2649 - rmse: 0.5147 - mae: 0.2620 - mape: 8.3110 - val_loss: 0.2617 - val_mse:
0.2648 - val_rmse: 0.5145 - val_mae: 0.2617 - val_mape: 8.2896 - lr: 1.0000e-05
Epoch 449/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2627 - mse: 0.2676
- rmse: 0.5173 - mae: 0.2627 - mape: 8.3534
Epoch 449: val_loss did not improve from 0.26137
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2656 - rmse: 0.5154 - mae: 0.2621 - mape: 8.3146 - val_loss: 0.2625 - val_mse:
0.2660 - val_rmse: 0.5158 - val_mae: 0.2625 - val_mape: 8.3618 - lr: 1.0000e-05
Epoch 450/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2631

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- rmse: 0.5130 - mae: 0.2610 - mape: 8.3149
Epoch 450: val_loss improved from 0.26137 to 0.26137, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2660 - rmse: 0.5157 - mae: 0.2621 - mape: 8.3238 - val_loss: 0.2614 - val_mse:
0.2636 - val_rmse: 0.5134 - val_mae: 0.2614 - val_mape: 8.2980 - lr: 1.0000e-05
Epoch 451/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2632 - mse: 0.2672
- rmse: 0.5169 - mae: 0.2632 - mape: 8.3591
Epoch 451: val_loss did not improve from 0.26137
318/318 [=====] - 0s 2ms/step - loss: 0.2621 - mse:
0.2651 - rmse: 0.5149 - mae: 0.2621 - mape: 8.3223 - val_loss: 0.2617 - val_mse:
0.2652 - val_rmse: 0.5149 - val_mae: 0.2617 - val_mape: 8.3290 - lr: 1.0000e-05
Epoch 452/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2618 - mse: 0.2661
- rmse: 0.5159 - mae: 0.2618 - mape: 8.3202
Epoch 452: val_loss did not improve from 0.26137
318/318 [=====] - 0s 1ms/step - loss: 0.2619 - mse:
0.2662 - rmse: 0.5159 - mae: 0.2619 - mape: 8.3172 - val_loss: 0.2614 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2614 - val_mape: 8.3160 - lr: 1.0000e-05
Epoch 453/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2624 - mse: 0.2654
- rmse: 0.5151 - mae: 0.2624 - mape: 8.3248
Epoch 453: val_loss improved from 0.26137 to 0.26134, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2619 - mse:
0.2647 - rmse: 0.5145 - mae: 0.2619 - mape: 8.3138 - val_loss: 0.2613 - val_mse:
0.2643 - val_rmse: 0.5141 - val_mae: 0.2613 - val_mape: 8.2928 - lr: 1.0000e-05
Epoch 454/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2630
- rmse: 0.5128 - mae: 0.2612 - mape: 8.3006
Epoch 454: val_loss did not improve from 0.26134
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2645 - rmse: 0.5143 - mae: 0.2618 - mape: 8.3117 - val_loss: 0.2615 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2615 - val_mape: 8.2864 - lr: 1.0000e-05
Epoch 455/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2667
- rmse: 0.5164 - mae: 0.2617 - mape: 8.3186
Epoch 455: val_loss did not improve from 0.26134
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2660 - rmse: 0.5157 - mae: 0.2621 - mape: 8.3134 - val_loss: 0.2618 - val_mse:
0.2631 - val_rmse: 0.5129 - val_mae: 0.2618 - val_mape: 8.3184 - lr: 1.0000e-05
Epoch 456/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2639
- rmse: 0.5137 - mae: 0.2612 - mape: 8.3008
Epoch 456: val_loss did not improve from 0.26134
318/318 [=====] - 0s 1ms/step - loss: 0.2619 - mse:
0.2651 - rmse: 0.5149 - mae: 0.2619 - mape: 8.3172 - val_loss: 0.2617 - val_mse:

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0.2633 - val_rmse: 0.5132 - val_mae: 0.2617 - val_mape: 8.3125 - lr: 1.0000e-05
Epoch 457/1000
273/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2662
- rmse: 0.5159 - mae: 0.2619 - mape: 8.3118
Epoch 457: val_loss did not improve from 0.26134
318/318 [=====] - 0s 2ms/step - loss: 0.2618 - mse:
0.2654 - rmse: 0.5152 - mae: 0.2618 - mape: 8.3103 - val_loss: 0.2629 - val_mse:
0.2649 - val_rmse: 0.5147 - val_mae: 0.2629 - val_mape: 8.3813 - lr: 1.0000e-05
Epoch 458/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2623 - mse: 0.2658
- rmse: 0.5155 - mae: 0.2623 - mape: 8.3448
Epoch 458: val_loss did not improve from 0.26134
318/318 [=====] - 0s 1ms/step - loss: 0.2621 - mse:
0.2646 - rmse: 0.5144 - mae: 0.2621 - mape: 8.3175 - val_loss: 0.2625 - val_mse:
0.2686 - val_rmse: 0.5182 - val_mae: 0.2625 - val_mape: 8.3933 - lr: 1.0000e-05
Epoch 459/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2618 - mse: 0.2650
- rmse: 0.5148 - mae: 0.2618 - mape: 8.2990
Epoch 459: val_loss did not improve from 0.26134
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2644 - rmse: 0.5142 - mae: 0.2616 - mape: 8.3123 - val_loss: 0.2621 - val_mse:
0.2669 - val_rmse: 0.5166 - val_mae: 0.2621 - val_mape: 8.2949 - lr: 1.0000e-05
Epoch 460/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2615 - mse: 0.2649
- rmse: 0.5146 - mae: 0.2615 - mape: 8.2953
Epoch 460: val_loss improved from 0.26134 to 0.26126, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2618 - mse:
0.2652 - rmse: 0.5150 - mae: 0.2618 - mape: 8.3081 - val_loss: 0.2613 - val_mse:
0.2630 - val_rmse: 0.5129 - val_mae: 0.2613 - val_mape: 8.2876 - lr: 1.0000e-05
Epoch 461/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2630
- rmse: 0.5128 - mae: 0.2616 - mape: 8.3205
Epoch 461: val_loss improved from 0.26126 to 0.26121, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2619 - mse:
0.2648 - rmse: 0.5145 - mae: 0.2619 - mape: 8.3140 - val_loss: 0.2612 - val_mse:
0.2640 - val_rmse: 0.5138 - val_mae: 0.2612 - val_mape: 8.2762 - lr: 1.0000e-05
Epoch 462/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2613 - mse: 0.2635
- rmse: 0.5133 - mae: 0.2613 - mape: 8.2937
Epoch 462: val_loss did not improve from 0.26121
318/318 [=====] - 0s 2ms/step - loss: 0.2617 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2617 - mape: 8.3124 - val_loss: 0.2612 - val_mse:
0.2653 - val_rmse: 0.5151 - val_mae: 0.2612 - val_mape: 8.3076 - lr: 1.0000e-05
Epoch 463/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2633 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2633 - mape: 8.3606

Epoch 463: val_loss did not improve from 0.26121
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2649 - rmse: 0.5147 - mae: 0.2618 - mape: 8.3086 - val_loss: 0.2616 - val_mse:
0.2647 - val_rmse: 0.5145 - val_mae: 0.2616 - val_mape: 8.3316 - lr: 1.0000e-05
Epoch 464/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2601
- rmse: 0.5100 - mae: 0.2600 - mape: 8.2564
Epoch 464: val_loss did not improve from 0.26121
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2654 - rmse: 0.5151 - mae: 0.2618 - mape: 8.3132 - val_loss: 0.2613 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2613 - val_mape: 8.3084 - lr: 1.0000e-05
Epoch 465/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2628 - mse: 0.2675
- rmse: 0.5172 - mae: 0.2628 - mape: 8.3610
Epoch 465: val_loss did not improve from 0.26121
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2648 - rmse: 0.5146 - mae: 0.2615 - mape: 8.3129 - val_loss: 0.2624 - val_mse:
0.2636 - val_rmse: 0.5134 - val_mae: 0.2624 - val_mape: 8.3651 - lr: 1.0000e-05
Epoch 466/1000
318/318 [=====] - ETA: 0s - loss: 0.2617 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2617 - mape: 8.3065
Epoch 466: val_loss improved from 0.26121 to 0.26113, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2617 - mse:
0.2646 - rmse: 0.5144 - mae: 0.2617 - mape: 8.3065 - val_loss: 0.2611 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2611 - val_mape: 8.2955 - lr: 1.0000e-05
Epoch 467/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2611 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2611 - mape: 8.3017
Epoch 467: val_loss did not improve from 0.26113
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2634 - rmse: 0.5132 - mae: 0.2618 - mape: 8.3099 - val_loss: 0.2615 - val_mse:
0.2638 - val_rmse: 0.5136 - val_mae: 0.2615 - val_mape: 8.2896 - lr: 1.0000e-05
Epoch 468/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2651
- rmse: 0.5149 - mae: 0.2618 - mape: 8.3225
Epoch 468: val_loss did not improve from 0.26113
318/318 [=====] - 0s 1ms/step - loss: 0.2617 - mse:
0.2645 - rmse: 0.5143 - mae: 0.2617 - mape: 8.3020 - val_loss: 0.2614 - val_mse:
0.2662 - val_rmse: 0.5159 - val_mae: 0.2614 - val_mape: 8.3357 - lr: 1.0000e-05
Epoch 469/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2620 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2620 - mape: 8.3216
Epoch 469: val_loss did not improve from 0.26113
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2650 - rmse: 0.5148 - mae: 0.2618 - mape: 8.3182 - val_loss: 0.2615 - val_mse:
0.2652 - val_rmse: 0.5149 - val_mae: 0.2615 - val_mape: 8.2656 - lr: 1.0000e-05
Epoch 470/1000

293/318 [=====>...] - ETA: 0s - loss: 0.2632 - mse: 0.2681
- rmse: 0.5178 - mae: 0.2632 - mape: 8.3539
Epoch 470: val_loss did not improve from 0.26113
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2657 - rmse: 0.5154 - mae: 0.2618 - mape: 8.3152 - val_loss: 0.2619 - val_mse:
0.2664 - val_rmse: 0.5162 - val_mae: 0.2619 - val_mape: 8.2818 - lr: 1.0000e-05
Epoch 471/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2623 - mse: 0.2647
- rmse: 0.5145 - mae: 0.2623 - mape: 8.3253
Epoch 471: val_loss did not improve from 0.26113
318/318 [=====] - 0s 1ms/step - loss: 0.2617 - mse:
0.2648 - rmse: 0.5146 - mae: 0.2617 - mape: 8.3088 - val_loss: 0.2615 - val_mse:
0.2638 - val_rmse: 0.5136 - val_mae: 0.2615 - val_mape: 8.3293 - lr: 1.0000e-05
Epoch 472/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2623 - mse: 0.2644
- rmse: 0.5142 - mae: 0.2623 - mape: 8.3132
Epoch 472: val_loss improved from 0.26113 to 0.26102, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2617 - mse:
0.2649 - rmse: 0.5147 - mae: 0.2617 - mape: 8.3071 - val_loss: 0.2610 - val_mse:
0.2637 - val_rmse: 0.5135 - val_mae: 0.2610 - val_mape: 8.2947 - lr: 1.0000e-05
Epoch 473/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2615 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2615 - mape: 8.3108
Epoch 473: val_loss improved from 0.26102 to 0.26101, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2616 - mse:
0.2648 - rmse: 0.5146 - mae: 0.2616 - mape: 8.3134 - val_loss: 0.2610 - val_mse:
0.2626 - val_rmse: 0.5124 - val_mae: 0.2610 - val_mape: 8.2764 - lr: 1.0000e-05
Epoch 474/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2600
- rmse: 0.5099 - mae: 0.2596 - mape: 8.2402
Epoch 474: val_loss did not improve from 0.26101
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:
0.2646 - rmse: 0.5144 - mae: 0.2618 - mape: 8.3059 - val_loss: 0.2613 - val_mse:
0.2637 - val_rmse: 0.5136 - val_mae: 0.2613 - val_mape: 8.2909 - lr: 1.0000e-05
Epoch 475/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2627 - mse: 0.2678
- rmse: 0.5175 - mae: 0.2627 - mape: 8.3303
Epoch 475: val_loss did not improve from 0.26101
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2648 - rmse: 0.5146 - mae: 0.2616 - mape: 8.3034 - val_loss: 0.2629 - val_mse:
0.2647 - val_rmse: 0.5145 - val_mae: 0.2629 - val_mape: 8.3970 - lr: 1.0000e-05
Epoch 476/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2625 - mse: 0.2656
- rmse: 0.5154 - mae: 0.2625 - mape: 8.3232
Epoch 476: val_loss did not improve from 0.26101
318/318 [=====] - 0s 1ms/step - loss: 0.2618 - mse:

0.2634 - rmse: 0.5132 - mae: 0.2618 - mape: 8.3075 - val_loss: 0.2611 - val_mse:
0.2630 - val_rmse: 0.5128 - val_mae: 0.2611 - val_mape: 8.2836 - lr: 1.0000e-05
Epoch 477/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2619 - mse: 0.2648
- rmse: 0.5146 - mae: 0.2619 - mape: 8.3142
Epoch 477: val_loss did not improve from 0.26101
318/318 [=====] - 0s 2ms/step - loss: 0.2619 - mse:
0.2650 - rmse: 0.5148 - mae: 0.2619 - mape: 8.3197 - val_loss: 0.2621 - val_mse:
0.2655 - val_rmse: 0.5152 - val_mae: 0.2621 - val_mape: 8.2566 - lr: 1.0000e-05
Epoch 478/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2667
- rmse: 0.5164 - mae: 0.2615 - mape: 8.3150
Epoch 478: val_loss did not improve from 0.26101
318/318 [=====] - 0s 1ms/step - loss: 0.2619 - mse:
0.2651 - rmse: 0.5149 - mae: 0.2619 - mape: 8.3105 - val_loss: 0.2611 - val_mse:
0.2628 - val_rmse: 0.5127 - val_mae: 0.2611 - val_mape: 8.2562 - lr: 1.0000e-05
Epoch 479/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2625 - mse: 0.2655
- rmse: 0.5153 - mae: 0.2625 - mape: 8.3452
Epoch 479: val_loss improved from 0.26101 to 0.26100, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2616 - mse:
0.2639 - rmse: 0.5137 - mae: 0.2616 - mape: 8.3055 - val_loss: 0.2610 - val_mse:
0.2630 - val_rmse: 0.5128 - val_mae: 0.2610 - val_mape: 8.2734 - lr: 1.0000e-05
Epoch 480/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2606 - mse: 0.2629
- rmse: 0.5127 - mae: 0.2606 - mape: 8.2663
Epoch 480: val_loss did not improve from 0.26100
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2615 - mape: 8.2895 - val_loss: 0.2615 - val_mse:
0.2656 - val_rmse: 0.5153 - val_mae: 0.2615 - val_mape: 8.3339 - lr: 1.0000e-05
Epoch 481/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2626
- rmse: 0.5125 - mae: 0.2612 - mape: 8.2846
Epoch 481: val_loss did not improve from 0.26100
318/318 [=====] - 0s 1ms/step - loss: 0.2617 - mse:
0.2650 - rmse: 0.5148 - mae: 0.2617 - mape: 8.3067 - val_loss: 0.2612 - val_mse:
0.2645 - val_rmse: 0.5143 - val_mae: 0.2612 - val_mape: 8.2999 - lr: 1.0000e-05
Epoch 482/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2624 - mse: 0.2660
- rmse: 0.5158 - mae: 0.2624 - mape: 8.3261
Epoch 482: val_loss improved from 0.26100 to 0.26098, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2651 - rmse: 0.5149 - mae: 0.2616 - mape: 8.3070 - val_loss: 0.2610 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2610 - val_mape: 8.2661 - lr: 1.0000e-05
Epoch 483/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2611

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- rmse: 0.5110 - mae: 0.2616 - mape: 8.3033
Epoch 483: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2620 - mse:
0.2648 - rmse: 0.5146 - mae: 0.2620 - mape: 8.3213 - val_loss: 0.2613 - val_mse:
0.2631 - val_rmse: 0.5129 - val_mae: 0.2613 - val_mape: 8.3061 - lr: 1.0000e-05
Epoch 484/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2655 - mse: 0.2740
- rmse: 0.5234 - mae: 0.2655 - mape: 8.4217
Epoch 484: val_loss did not improve from 0.26098
318/318 [=====] - 0s 2ms/step - loss: 0.2619 - mse:
0.2654 - rmse: 0.5152 - mae: 0.2619 - mape: 8.3024 - val_loss: 0.2611 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2611 - val_mape: 8.2920 - lr: 1.0000e-05
Epoch 485/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2639
- rmse: 0.5137 - mae: 0.2610 - mape: 8.3067
Epoch 485: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2645 - rmse: 0.5143 - mae: 0.2616 - mape: 8.3133 - val_loss: 0.2615 - val_mse:
0.2623 - val_rmse: 0.5122 - val_mae: 0.2615 - val_mape: 8.2764 - lr: 1.0000e-05
Epoch 486/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2615 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2615 - mape: 8.3076
Epoch 486: val_loss did not improve from 0.26098
318/318 [=====] - 0s 2ms/step - loss: 0.2617 - mse:
0.2641 - rmse: 0.5139 - mae: 0.2617 - mape: 8.3029 - val_loss: 0.2611 - val_mse:
0.2658 - val_rmse: 0.5156 - val_mae: 0.2611 - val_mape: 8.3285 - lr: 1.0000e-05
Epoch 487/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2628 - mse: 0.2684
- rmse: 0.5180 - mae: 0.2628 - mape: 8.3415
Epoch 487: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2653 - rmse: 0.5151 - mae: 0.2614 - mape: 8.3176 - val_loss: 0.2611 - val_mse:
0.2627 - val_rmse: 0.5126 - val_mae: 0.2611 - val_mape: 8.2736 - lr: 1.0000e-05
Epoch 488/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2611 - mse: 0.2619
- rmse: 0.5117 - mae: 0.2611 - mape: 8.2766
Epoch 488: val_loss did not improve from 0.26098
318/318 [=====] - 0s 2ms/step - loss: 0.2617 - mse:
0.2636 - rmse: 0.5134 - mae: 0.2617 - mape: 8.2937 - val_loss: 0.2611 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2611 - val_mape: 8.3160 - lr: 1.0000e-05
Epoch 489/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2616 - mape: 8.3062
Epoch 489: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2639 - rmse: 0.5137 - mae: 0.2615 - mape: 8.3051 - val_loss: 0.2627 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2627 - val_mape: 8.3198 - lr: 1.0000e-05
Epoch 490/1000

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308/318 [=====>.] - ETA: 0s - loss: 0.2617 - mse: 0.2629
- rmse: 0.5128 - mae: 0.2617 - mape: 8.3105
Epoch 490: val_loss did not improve from 0.26098
318/318 [=====] - 0s 2ms/step - loss: 0.2618 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2618 - mape: 8.3002 - val_loss: 0.2611 - val_mse:
0.2641 - val_rmse: 0.5139 - val_mae: 0.2611 - val_mape: 8.2700 - lr: 1.0000e-05
Epoch 491/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2598 - mse: 0.2598
- rmse: 0.5097 - mae: 0.2598 - mape: 8.2468
Epoch 491: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2617 - mse:
0.2646 - rmse: 0.5144 - mae: 0.2617 - mape: 8.3131 - val_loss: 0.2615 - val_mse:
0.2644 - val_rmse: 0.5142 - val_mae: 0.2615 - val_mape: 8.3200 - lr: 1.0000e-05
Epoch 492/1000
261/318 [=====>...] - ETA: 0s - loss: 0.2606 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2606 - mape: 8.2769
Epoch 492: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2614 - mape: 8.2925 - val_loss: 0.2611 - val_mse:
0.2613 - val_rmse: 0.5112 - val_mae: 0.2611 - val_mape: 8.2692 - lr: 1.0000e-05
Epoch 493/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2614 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2614 - mape: 8.3060
Epoch 493: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2651 - rmse: 0.5149 - mae: 0.2616 - mape: 8.3025 - val_loss: 0.2614 - val_mse:
0.2628 - val_rmse: 0.5127 - val_mae: 0.2614 - val_mape: 8.2911 - lr: 1.0000e-05
Epoch 494/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2611 - mse: 0.2623
- rmse: 0.5121 - mae: 0.2611 - mape: 8.2829
Epoch 494: val_loss did not improve from 0.26098
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2612 - mape: 8.2837 - val_loss: 0.2630 - val_mse:
0.2687 - val_rmse: 0.5184 - val_mae: 0.2630 - val_mape: 8.4317 - lr: 1.0000e-05
Epoch 495/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2604 - mse: 0.2632
- rmse: 0.5131 - mae: 0.2604 - mape: 8.2851
Epoch 495: val_loss improved from 0.26098 to 0.26090, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2620 - mse:
0.2662 - rmse: 0.5159 - mae: 0.2620 - mape: 8.3217 - val_loss: 0.2609 - val_mse:
0.2654 - val_rmse: 0.5152 - val_mae: 0.2609 - val_mape: 8.3052 - lr: 1.0000e-05
Epoch 496/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2598 - mse: 0.2612
- rmse: 0.5111 - mae: 0.2598 - mape: 8.2690
Epoch 496: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2613 - mape: 8.3079 - val_loss: 0.2610 - val_mse:

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0.2640 - val_rmse: 0.5138 - val_mae: 0.2610 - val_mape: 8.2540 - lr: 1.0000e-05
Epoch 497/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2604 - mse: 0.2599
- rmse: 0.5098 - mae: 0.2604 - mape: 8.2516
Epoch 497: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2642 - rmse: 0.5140 - mae: 0.2614 - mape: 8.2958 - val_loss: 0.2618 - val_mse:
0.2645 - val_rmse: 0.5143 - val_mae: 0.2618 - val_mape: 8.3594 - lr: 1.0000e-05
Epoch 498/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2632
- rmse: 0.5130 - mae: 0.2605 - mape: 8.2418
Epoch 498: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2645 - rmse: 0.5143 - mae: 0.2613 - mape: 8.2973 - val_loss: 0.2612 - val_mse:
0.2631 - val_rmse: 0.5130 - val_mae: 0.2612 - val_mape: 8.2854 - lr: 1.0000e-05
Epoch 499/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2622 - mse: 0.2673
- rmse: 0.5170 - mae: 0.2622 - mape: 8.3377
Epoch 499: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2644 - rmse: 0.5142 - mae: 0.2615 - mape: 8.3038 - val_loss: 0.2609 - val_mse:
0.2623 - val_rmse: 0.5122 - val_mae: 0.2609 - val_mape: 8.2547 - lr: 1.0000e-05
Epoch 500/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2632
- rmse: 0.5130 - mae: 0.2613 - mape: 8.2919
Epoch 500: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2642 - rmse: 0.5140 - mae: 0.2615 - mape: 8.2896 - val_loss: 0.2614 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2614 - val_mape: 8.2997 - lr: 1.0000e-05
Epoch 501/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2619 - mse: 0.2653
- rmse: 0.5150 - mae: 0.2619 - mape: 8.3155
Epoch 501: val_loss did not improve from 0.26090
318/318 [=====] - 0s 2ms/step - loss: 0.2617 - mse:
0.2649 - rmse: 0.5147 - mae: 0.2617 - mape: 8.3092 - val_loss: 0.2617 - val_mse:
0.2617 - val_rmse: 0.5115 - val_mae: 0.2617 - val_mape: 8.3161 - lr: 1.0000e-05
Epoch 502/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2610 - mse: 0.2621
- rmse: 0.5119 - mae: 0.2610 - mape: 8.2808
Epoch 502: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2629 - rmse: 0.5128 - mae: 0.2613 - mape: 8.3019 - val_loss: 0.2620 - val_mse:
0.2670 - val_rmse: 0.5167 - val_mae: 0.2620 - val_mape: 8.3874 - lr: 1.0000e-05
Epoch 503/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2612 - mape: 8.3002
Epoch 503: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:

0.2645 - rmse: 0.5143 - mae: 0.2615 - mape: 8.3084 - val_loss: 0.2609 - val_mse:
0.2647 - val_rmse: 0.5145 - val_mae: 0.2609 - val_mape: 8.2906 - lr: 1.0000e-05
Epoch 504/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2617 - mse: 0.2639
- rmse: 0.5137 - mae: 0.2617 - mape: 8.3124
Epoch 504: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2636 - rmse: 0.5134 - mae: 0.2614 - mape: 8.2917 - val_loss: 0.2625 - val_mse:
0.2669 - val_rmse: 0.5166 - val_mae: 0.2625 - val_mape: 8.2570 - lr: 1.0000e-05
Epoch 505/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2643 - mse: 0.2719
- rmse: 0.5214 - mae: 0.2643 - mape: 8.3594
Epoch 505: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2617 - mse:
0.2647 - rmse: 0.5145 - mae: 0.2617 - mape: 8.3022 - val_loss: 0.2610 - val_mse:
0.2623 - val_rmse: 0.5121 - val_mae: 0.2610 - val_mape: 8.2378 - lr: 1.0000e-05
Epoch 506/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2608 - mse: 0.2633
- rmse: 0.5132 - mae: 0.2608 - mape: 8.2745
Epoch 506: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2650 - rmse: 0.5148 - mae: 0.2614 - mape: 8.2918 - val_loss: 0.2611 - val_mse:
0.2627 - val_rmse: 0.5126 - val_mae: 0.2611 - val_mape: 8.2451 - lr: 1.0000e-05
Epoch 507/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2629
- rmse: 0.5128 - mae: 0.2599 - mape: 8.2363
Epoch 507: val_loss did not improve from 0.26090
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2652 - rmse: 0.5150 - mae: 0.2616 - mape: 8.2892 - val_loss: 0.2610 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2610 - val_mape: 8.2821 - lr: 1.0000e-05
Epoch 508/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2616 - mse: 0.2660
- rmse: 0.5157 - mae: 0.2616 - mape: 8.3094
Epoch 508: val_loss improved from 0.26090 to 0.26067, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2614 - mape: 8.2955 - val_loss: 0.2607 - val_mse:
0.2637 - val_rmse: 0.5135 - val_mae: 0.2607 - val_mape: 8.2856 - lr: 1.0000e-05
Epoch 509/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2614 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2614 - mape: 8.3030
Epoch 509: val_loss did not improve from 0.26067
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2613 - mape: 8.2908 - val_loss: 0.2623 - val_mse:
0.2671 - val_rmse: 0.5168 - val_mae: 0.2623 - val_mape: 8.2586 - lr: 1.0000e-05
Epoch 510/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2649
- rmse: 0.5146 - mae: 0.2619 - mape: 8.3025

Epoch 510: val_loss did not improve from 0.26067
318/318 [=====] - 0s 1ms/step - loss: 0.2616 - mse:
0.2641 - rmse: 0.5139 - mae: 0.2616 - mape: 8.2907 - val_loss: 0.2609 - val_mse:
0.2639 - val_rmse: 0.5137 - val_mae: 0.2609 - val_mape: 8.2960 - lr: 1.0000e-05
Epoch 511/1000
256/318 [=====>...] - ETA: 0s - loss: 0.2614 - mse: 0.2628
- rmse: 0.5126 - mae: 0.2614 - mape: 8.2882
Epoch 511: val_loss improved from 0.26067 to 0.26064, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2615 - mse:
0.2642 - rmse: 0.5140 - mae: 0.2615 - mape: 8.2988 - val_loss: 0.2606 - val_mse:
0.2629 - val_rmse: 0.5127 - val_mae: 0.2606 - val_mape: 8.2715 - lr: 1.0000e-05
Epoch 512/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2612 - mape: 8.2720
Epoch 512: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2613 - mape: 8.2962 - val_loss: 0.2610 - val_mse:
0.2623 - val_rmse: 0.5121 - val_mae: 0.2610 - val_mape: 8.3017 - lr: 1.0000e-05
Epoch 513/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2599
- rmse: 0.5098 - mae: 0.2607 - mape: 8.2255
Epoch 513: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2615 - mape: 8.2884 - val_loss: 0.2609 - val_mse:
0.2644 - val_rmse: 0.5142 - val_mae: 0.2609 - val_mape: 8.2586 - lr: 1.0000e-05
Epoch 514/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2594 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2594 - mape: 8.2345
Epoch 514: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2612 - mape: 8.2884 - val_loss: 0.2610 - val_mse:
0.2639 - val_rmse: 0.5137 - val_mae: 0.2610 - val_mape: 8.2396 - lr: 1.0000e-05
Epoch 515/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2606 - mse: 0.2614
- rmse: 0.5112 - mae: 0.2606 - mape: 8.2880
Epoch 515: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2636 - rmse: 0.5134 - mae: 0.2614 - mape: 8.2917 - val_loss: 0.2610 - val_mse:
0.2650 - val_rmse: 0.5147 - val_mae: 0.2610 - val_mape: 8.3233 - lr: 1.0000e-05
Epoch 516/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2599
- rmse: 0.5098 - mae: 0.2600 - mape: 8.2760
Epoch 516: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2614 - mape: 8.3062 - val_loss: 0.2609 - val_mse:
0.2642 - val_rmse: 0.5140 - val_mae: 0.2609 - val_mape: 8.3027 - lr: 1.0000e-05
Epoch 517/1000

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296/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2623
- rmse: 0.5121 - mae: 0.2607 - mape: 8.2968
Epoch 517: val_loss did not improve from 0.26064
318/318 [=====] - 0s 2ms/step - loss: 0.2611 - mse:
0.2636 - rmse: 0.5134 - mae: 0.2611 - mape: 8.2912 - val_loss: 0.2608 - val_mse:
0.2620 - val_rmse: 0.5118 - val_mae: 0.2608 - val_mape: 8.2686 - lr: 1.0000e-05
Epoch 518/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2606 - mse: 0.2619
- rmse: 0.5118 - mae: 0.2606 - mape: 8.2666
Epoch 518: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2612 - mape: 8.2886 - val_loss: 0.2626 - val_mse:
0.2655 - val_rmse: 0.5153 - val_mae: 0.2626 - val_mape: 8.2380 - lr: 1.0000e-05
Epoch 519/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2648 - mse: 0.2695
- rmse: 0.5191 - mae: 0.2648 - mape: 8.4071
Epoch 519: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2632 - rmse: 0.5131 - mae: 0.2614 - mape: 8.2765 - val_loss: 0.2607 - val_mse:
0.2653 - val_rmse: 0.5151 - val_mae: 0.2607 - val_mape: 8.3020 - lr: 1.0000e-05
Epoch 520/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2618 - mape: 8.2970
Epoch 520: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2646 - rmse: 0.5144 - mae: 0.2615 - mape: 8.2962 - val_loss: 0.2608 - val_mse:
0.2653 - val_rmse: 0.5151 - val_mae: 0.2608 - val_mape: 8.2979 - lr: 1.0000e-05
Epoch 521/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2591 - mse: 0.2588
- rmse: 0.5087 - mae: 0.2591 - mape: 8.2275
Epoch 521: val_loss did not improve from 0.26064
318/318 [=====] - 0s 1ms/step - loss: 0.2615 - mse:
0.2642 - rmse: 0.5140 - mae: 0.2615 - mape: 8.2978 - val_loss: 0.2608 - val_mse:
0.2633 - val_rmse: 0.5131 - val_mae: 0.2608 - val_mape: 8.3021 - lr: 1.0000e-05
Epoch 522/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2640
- rmse: 0.5138 - mae: 0.2613 - mape: 8.2853
Epoch 522: val_loss improved from 0.26064 to 0.26058, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2640 - rmse: 0.5138 - mae: 0.2614 - mape: 8.3010 - val_loss: 0.2606 - val_mse:
0.2629 - val_rmse: 0.5127 - val_mae: 0.2606 - val_mape: 8.2652 - lr: 1.0000e-05
Epoch 523/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2623 - mse: 0.2657
- rmse: 0.5155 - mae: 0.2623 - mape: 8.3159
Epoch 523: val_loss did not improve from 0.26058
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2614 - mape: 8.2946 - val_loss: 0.2613 - val_mse:

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0.2642 - val_rmse: 0.5140 - val_mae: 0.2613 - val_mape: 8.3258 - lr: 1.0000e-05
Epoch 524/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2598 - mse: 0.2619
- rmse: 0.5117 - mae: 0.2598 - mape: 8.2432
Epoch 524: val_loss did not improve from 0.26058
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2642 - rmse: 0.5140 - mae: 0.2612 - mape: 8.2969 - val_loss: 0.2613 - val_mse:
0.2625 - val_rmse: 0.5124 - val_mae: 0.2613 - val_mape: 8.3182 - lr: 1.0000e-05
Epoch 525/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2628 - mse: 0.2651
- rmse: 0.5149 - mae: 0.2628 - mape: 8.3005
Epoch 525: val_loss did not improve from 0.26058
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2630 - rmse: 0.5129 - mae: 0.2613 - mape: 8.2881 - val_loss: 0.2616 - val_mse:
0.2664 - val_rmse: 0.5161 - val_mae: 0.2616 - val_mape: 8.2722 - lr: 1.0000e-05
Epoch 526/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2628 - mse: 0.2677
- rmse: 0.5174 - mae: 0.2628 - mape: 8.3337
Epoch 526: val_loss did not improve from 0.26058
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2646 - rmse: 0.5144 - mae: 0.2613 - mape: 8.2900 - val_loss: 0.2606 - val_mse:
0.2638 - val_rmse: 0.5136 - val_mae: 0.2606 - val_mape: 8.2821 - lr: 1.0000e-05
Epoch 527/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2585
- rmse: 0.5085 - mae: 0.2596 - mape: 8.2399
Epoch 527: val_loss did not improve from 0.26058
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2644 - rmse: 0.5142 - mae: 0.2613 - mape: 8.3013 - val_loss: 0.2607 - val_mse:
0.2613 - val_rmse: 0.5112 - val_mae: 0.2607 - val_mape: 8.2386 - lr: 1.0000e-05
Epoch 528/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2604 - mse: 0.2628
- rmse: 0.5126 - mae: 0.2604 - mape: 8.2557
Epoch 528: val_loss did not improve from 0.26058
318/318 [=====] - 0s 1ms/step - loss: 0.2611 - mse:
0.2633 - rmse: 0.5131 - mae: 0.2611 - mape: 8.2854 - val_loss: 0.2608 - val_mse:
0.2619 - val_rmse: 0.5117 - val_mae: 0.2608 - val_mape: 8.2830 - lr: 1.0000e-05
Epoch 529/1000
317/318 [=====>.] - ETA: 0s - loss: 0.2615 - mse: 0.2652
- rmse: 0.5149 - mae: 0.2615 - mape: 8.3099
Epoch 529: val_loss improved from 0.26058 to 0.26057, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2614 - mse:
0.2651 - rmse: 0.5149 - mae: 0.2614 - mape: 8.3074 - val_loss: 0.2606 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2606 - val_mape: 8.2634 - lr: 1.0000e-05
Epoch 530/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2611 - mse: 0.2608
- rmse: 0.5107 - mae: 0.2611 - mape: 8.3019
Epoch 530: val_loss did not improve from 0.26057

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318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2636 - rmse: 0.5134 - mae: 0.2614 - mape: 8.3017 - val_loss: 0.2610 - val_mse:
0.2652 - val_rmse: 0.5150 - val_mae: 0.2610 - val_mape: 8.2757 - lr: 1.0000e-05
Epoch 531/1000
261/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2623
- rmse: 0.5121 - mae: 0.2596 - mape: 8.2405
Epoch 531: val_loss did not improve from 0.26057
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2633 - rmse: 0.5131 - mae: 0.2613 - mape: 8.2747 - val_loss: 0.2620 - val_mse:
0.2646 - val_rmse: 0.5144 - val_mae: 0.2620 - val_mape: 8.3743 - lr: 1.0000e-05
Epoch 532/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2619
- rmse: 0.5118 - mae: 0.2600 - mape: 8.2459
Epoch 532: val_loss did not improve from 0.26057
318/318 [=====] - 0s 1ms/step - loss: 0.2614 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2614 - mape: 8.2917 - val_loss: 0.2607 - val_mse:
0.2608 - val_rmse: 0.5107 - val_mae: 0.2607 - val_mape: 8.2747 - lr: 1.0000e-05
Epoch 533/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2609 - mse: 0.2626
- rmse: 0.5125 - mae: 0.2609 - mape: 8.2707
Epoch 533: val_loss did not improve from 0.26057
318/318 [=====] - 0s 2ms/step - loss: 0.2610 - mse:
0.2628 - rmse: 0.5127 - mae: 0.2610 - mape: 8.2886 - val_loss: 0.2615 - val_mse:
0.2674 - val_rmse: 0.5171 - val_mae: 0.2615 - val_mape: 8.3020 - lr: 1.0000e-05
Epoch 534/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2617 - mse: 0.2652
- rmse: 0.5150 - mae: 0.2617 - mape: 8.2987
Epoch 534: val_loss did not improve from 0.26057
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2645 - rmse: 0.5143 - mae: 0.2613 - mape: 8.3041 - val_loss: 0.2607 - val_mse:
0.2637 - val_rmse: 0.5135 - val_mae: 0.2607 - val_mape: 8.2531 - lr: 1.0000e-05
Epoch 535/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2603 - mse: 0.2616
- rmse: 0.5115 - mae: 0.2603 - mape: 8.2534
Epoch 535: val_loss improved from 0.26057 to 0.26043, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2613 - mse:
0.2640 - rmse: 0.5138 - mae: 0.2613 - mape: 8.2917 - val_loss: 0.2604 - val_mse:
0.2629 - val_rmse: 0.5127 - val_mae: 0.2604 - val_mape: 8.2802 - lr: 1.0000e-05
Epoch 536/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2603 - mse: 0.2627
- rmse: 0.5126 - mae: 0.2603 - mape: 8.2907
Epoch 536: val_loss improved from 0.26043 to 0.26042, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2644 - rmse: 0.5142 - mae: 0.2612 - mape: 8.2883 - val_loss: 0.2604 - val_mse:
0.2627 - val_rmse: 0.5126 - val_mae: 0.2604 - val_mape: 8.2593 - lr: 1.0000e-05
Epoch 537/1000

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308/318 [=====>.] - ETA: 0s - loss: 0.2613 - mse: 0.2644
- rmse: 0.5142 - mae: 0.2613 - mape: 8.3067
Epoch 537: val_loss did not improve from 0.26042
318/318 [=====] - 0s 2ms/step - loss: 0.2615 - mse:
0.2641 - rmse: 0.5139 - mae: 0.2615 - mape: 8.2991 - val_loss: 0.2605 - val_mse:
0.2624 - val_rmse: 0.5122 - val_mae: 0.2605 - val_mape: 8.2442 - lr: 1.0000e-05
Epoch 538/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2606 - mse: 0.2643
- rmse: 0.5141 - mae: 0.2606 - mape: 8.2771
Epoch 538: val_loss did not improve from 0.26042
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2643 - rmse: 0.5141 - mae: 0.2610 - mape: 8.2920 - val_loss: 0.2613 - val_mse:
0.2618 - val_rmse: 0.5117 - val_mae: 0.2613 - val_mape: 8.3080 - lr: 1.0000e-05
Epoch 539/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2620 - mse: 0.2644
- rmse: 0.5142 - mae: 0.2620 - mape: 8.3223
Epoch 539: val_loss did not improve from 0.26042
318/318 [=====] - 0s 2ms/step - loss: 0.2615 - mse:
0.2641 - rmse: 0.5139 - mae: 0.2615 - mape: 8.3015 - val_loss: 0.2611 - val_mse:
0.2631 - val_rmse: 0.5129 - val_mae: 0.2611 - val_mape: 8.3193 - lr: 1.0000e-05
Epoch 540/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2662
- rmse: 0.5160 - mae: 0.2616 - mape: 8.3048
Epoch 540: val_loss did not improve from 0.26042
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2636 - rmse: 0.5135 - mae: 0.2610 - mape: 8.2878 - val_loss: 0.2604 - val_mse:
0.2627 - val_rmse: 0.5125 - val_mae: 0.2604 - val_mape: 8.2631 - lr: 1.0000e-05
Epoch 541/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2609 - mse: 0.2624
- rmse: 0.5122 - mae: 0.2609 - mape: 8.2804
Epoch 541: val_loss improved from 0.26042 to 0.26041, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2611 - mse:
0.2631 - rmse: 0.5130 - mae: 0.2611 - mape: 8.2841 - val_loss: 0.2604 - val_mse:
0.2623 - val_rmse: 0.5121 - val_mae: 0.2604 - val_mape: 8.2517 - lr: 1.0000e-05
Epoch 542/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2610 - mape: 8.2953
Epoch 542: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2648 - rmse: 0.5145 - mae: 0.2612 - mape: 8.2877 - val_loss: 0.2607 - val_mse:
0.2619 - val_rmse: 0.5118 - val_mae: 0.2607 - val_mape: 8.2920 - lr: 1.0000e-05
Epoch 543/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2611 - mse: 0.2630
- rmse: 0.5129 - mae: 0.2611 - mape: 8.2840
Epoch 543: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2631 - rmse: 0.5129 - mae: 0.2610 - mape: 8.2873 - val_loss: 0.2605 - val_mse:

0.2623 - val_rmse: 0.5122 - val_mae: 0.2605 - val_mape: 8.2515 - lr: 1.0000e-05
Epoch 544/1000
298/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2603
- rmse: 0.5102 - mae: 0.2595 - mape: 8.2297
Epoch 544: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2611 - mse:
0.2644 - rmse: 0.5142 - mae: 0.2611 - mape: 8.2922 - val_loss: 0.2605 - val_mse:
0.2645 - val_rmse: 0.5143 - val_mae: 0.2605 - val_mape: 8.2685 - lr: 1.0000e-05
Epoch 545/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2646
- rmse: 0.5144 - mae: 0.2612 - mape: 8.2858
Epoch 545: val_loss did not improve from 0.26041
318/318 [=====] - 0s 2ms/step - loss: 0.2611 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2611 - mape: 8.2881 - val_loss: 0.2614 - val_mse:
0.2658 - val_rmse: 0.5155 - val_mae: 0.2614 - val_mape: 8.2737 - lr: 1.0000e-05
Epoch 546/1000
308/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2651
- rmse: 0.5149 - mae: 0.2616 - mape: 8.2987
Epoch 546: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2641 - rmse: 0.5139 - mae: 0.2613 - mape: 8.2938 - val_loss: 0.2607 - val_mse:
0.2632 - val_rmse: 0.5131 - val_mae: 0.2607 - val_mape: 8.2792 - lr: 1.0000e-05
Epoch 547/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2628
- rmse: 0.5126 - mae: 0.2610 - mape: 8.2908
Epoch 547: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2644 - rmse: 0.5142 - mae: 0.2613 - mape: 8.2987 - val_loss: 0.2607 - val_mse:
0.2637 - val_rmse: 0.5135 - val_mae: 0.2607 - val_mape: 8.2725 - lr: 1.0000e-05
Epoch 548/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2657
- rmse: 0.5155 - mae: 0.2616 - mape: 8.3046
Epoch 548: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2639 - rmse: 0.5137 - mae: 0.2612 - mape: 8.2936 - val_loss: 0.2608 - val_mse:
0.2647 - val_rmse: 0.5145 - val_mae: 0.2608 - val_mape: 8.2698 - lr: 1.0000e-05
Epoch 549/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2625
- rmse: 0.5124 - mae: 0.2613 - mape: 8.2643
Epoch 549: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2613 - mse:
0.2632 - rmse: 0.5130 - mae: 0.2613 - mape: 8.2713 - val_loss: 0.2614 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2614 - val_mape: 8.3016 - lr: 1.0000e-05
Epoch 550/1000
309/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2658
- rmse: 0.5155 - mae: 0.2618 - mape: 8.3194
Epoch 550: val_loss did not improve from 0.26041
318/318 [=====] - 0s 2ms/step - loss: 0.2613 - mse:

0.2645 - rmse: 0.5143 - mae: 0.2613 - mape: 8.2939 - val_loss: 0.2604 - val_mse:
0.2644 - val_rmse: 0.5142 - val_mae: 0.2604 - val_mape: 8.2737 - lr: 1.0000e-05
Epoch 551/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2640
- rmse: 0.5138 - mae: 0.2613 - mape: 8.2976
Epoch 551: val_loss did not improve from 0.26041
318/318 [=====] - 0s 1ms/step - loss: 0.2611 - mse:
0.2632 - rmse: 0.5130 - mae: 0.2611 - mape: 8.2931 - val_loss: 0.2609 - val_mse:
0.2615 - val_rmse: 0.5114 - val_mae: 0.2609 - val_mape: 8.2459 - lr: 1.0000e-05
Epoch 552/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2607 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2607 - mape: 8.2806
Epoch 552: val_loss did not improve from 0.26041
318/318 [=====] - 0s 2ms/step - loss: 0.2610 - mse:
0.2641 - rmse: 0.5139 - mae: 0.2610 - mape: 8.2813 - val_loss: 0.2604 - val_mse:
0.2613 - val_rmse: 0.5112 - val_mae: 0.2604 - val_mape: 8.2447 - lr: 1.0000e-05
Epoch 553/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2614 - mse: 0.2635
- rmse: 0.5134 - mae: 0.2614 - mape: 8.3027
Epoch 553: val_loss improved from 0.26041 to 0.26034, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2611 - mse:
0.2626 - rmse: 0.5125 - mae: 0.2611 - mape: 8.2907 - val_loss: 0.2603 - val_mse:
0.2624 - val_rmse: 0.5123 - val_mae: 0.2603 - val_mape: 8.2544 - lr: 1.0000e-05
Epoch 554/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2617 - mse: 0.2643
- rmse: 0.5141 - mae: 0.2617 - mape: 8.3022
Epoch 554: val_loss did not improve from 0.26034
318/318 [=====] - 0s 2ms/step - loss: 0.2608 - mse:
0.2629 - rmse: 0.5127 - mae: 0.2608 - mape: 8.2766 - val_loss: 0.2608 - val_mse:
0.2631 - val_rmse: 0.5129 - val_mae: 0.2608 - val_mape: 8.2314 - lr: 1.0000e-05
Epoch 555/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2604 - mse: 0.2625
- rmse: 0.5124 - mae: 0.2604 - mape: 8.2575
Epoch 555: val_loss did not improve from 0.26034
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2637 - rmse: 0.5135 - mae: 0.2612 - mape: 8.2937 - val_loss: 0.2605 - val_mse:
0.2611 - val_rmse: 0.5110 - val_mae: 0.2605 - val_mape: 8.2695 - lr: 1.0000e-05
Epoch 556/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2613 - mse: 0.2632
- rmse: 0.5131 - mae: 0.2613 - mape: 8.2900
Epoch 556: val_loss did not improve from 0.26034
318/318 [=====] - 0s 2ms/step - loss: 0.2611 - mse:
0.2627 - rmse: 0.5126 - mae: 0.2611 - mape: 8.2856 - val_loss: 0.2621 - val_mse:
0.2626 - val_rmse: 0.5124 - val_mae: 0.2621 - val_mape: 8.3539 - lr: 1.0000e-05
Epoch 557/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2644 - mse: 0.2694
- rmse: 0.5190 - mae: 0.2644 - mape: 8.3783

Epoch 557: val_loss did not improve from 0.26034
318/318 [=====] - 0s 1ms/step - loss: 0.2611 - mse:
0.2627 - rmse: 0.5125 - mae: 0.2611 - mape: 8.2737 - val_loss: 0.2624 - val_mse:
0.2666 - val_rmse: 0.5164 - val_mae: 0.2624 - val_mape: 8.4005 - lr: 1.0000e-05
Epoch 558/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2607 - mse: 0.2624
- rmse: 0.5123 - mae: 0.2607 - mape: 8.2660
Epoch 558: val_loss improved from 0.26034 to 0.26022, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2608 - mse:
0.2622 - rmse: 0.5120 - mae: 0.2608 - mape: 8.2769 - val_loss: 0.2602 - val_mse:
0.2621 - val_rmse: 0.5120 - val_mae: 0.2602 - val_mape: 8.2664 - lr: 1.0000e-05
Epoch 559/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2653
- rmse: 0.5151 - mae: 0.2619 - mape: 8.2974
Epoch 559: val_loss did not improve from 0.26022
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2627 - rmse: 0.5126 - mae: 0.2609 - mape: 8.2763 - val_loss: 0.2607 - val_mse:
0.2632 - val_rmse: 0.5130 - val_mae: 0.2607 - val_mape: 8.2748 - lr: 1.0000e-05
Epoch 560/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2642
- rmse: 0.5140 - mae: 0.2618 - mape: 8.3086
Epoch 560: val_loss improved from 0.26022 to 0.26020, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2634 - rmse: 0.5133 - mae: 0.2612 - mape: 8.2931 - val_loss: 0.2602 - val_mse:
0.2628 - val_rmse: 0.5127 - val_mae: 0.2602 - val_mape: 8.2784 - lr: 1.0000e-05
Epoch 561/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2615 - mape: 8.2963
Epoch 561: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2629 - rmse: 0.5127 - mae: 0.2608 - mape: 8.2904 - val_loss: 0.2614 - val_mse:
0.2657 - val_rmse: 0.5154 - val_mae: 0.2614 - val_mape: 8.2487 - lr: 1.0000e-05
Epoch 562/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2608 - mse: 0.2624
- rmse: 0.5123 - mae: 0.2608 - mape: 8.2646
Epoch 562: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2634 - rmse: 0.5132 - mae: 0.2609 - mape: 8.2747 - val_loss: 0.2606 - val_mse:
0.2632 - val_rmse: 0.5130 - val_mae: 0.2606 - val_mape: 8.2991 - lr: 1.0000e-05
Epoch 563/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2618
- rmse: 0.5116 - mae: 0.2605 - mape: 8.2666
Epoch 563: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2637 - rmse: 0.5135 - mae: 0.2612 - mape: 8.2855 - val_loss: 0.2604 - val_mse:
0.2626 - val_rmse: 0.5124 - val_mae: 0.2604 - val_mape: 8.2943 - lr: 1.0000e-05

Epoch 564/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2612
- rmse: 0.5110 - mae: 0.2601 - mape: 8.2529
Epoch 564: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2608 - mape: 8.2850 - val_loss: 0.2603 - val_mse:
0.2641 - val_rmse: 0.5139 - val_mae: 0.2603 - val_mape: 8.2743 - lr: 1.0000e-05
Epoch 565/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2597
- rmse: 0.5096 - mae: 0.2601 - mape: 8.2421
Epoch 565: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2632 - rmse: 0.5131 - mae: 0.2609 - mape: 8.2779 - val_loss: 0.2611 - val_mse:
0.2670 - val_rmse: 0.5167 - val_mae: 0.2611 - val_mape: 8.2928 - lr: 1.0000e-05
Epoch 566/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2630 - mse: 0.2674
- rmse: 0.5171 - mae: 0.2630 - mape: 8.3459
Epoch 566: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2634 - rmse: 0.5133 - mae: 0.2610 - mape: 8.2876 - val_loss: 0.2606 - val_mse:
0.2645 - val_rmse: 0.5143 - val_mae: 0.2606 - val_mape: 8.3013 - lr: 1.0000e-05
Epoch 567/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2607 - mse: 0.2621
- rmse: 0.5120 - mae: 0.2607 - mape: 8.2858
Epoch 567: val_loss did not improve from 0.26020
318/318 [=====] - 0s 2ms/step - loss: 0.2609 - mse:
0.2630 - rmse: 0.5128 - mae: 0.2609 - mape: 8.2855 - val_loss: 0.2605 - val_mse:
0.2629 - val_rmse: 0.5128 - val_mae: 0.2605 - val_mape: 8.2912 - lr: 1.0000e-05
Epoch 568/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2616 - mse: 0.2651
- rmse: 0.5149 - mae: 0.2616 - mape: 8.3061
Epoch 568: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2633 - rmse: 0.5132 - mae: 0.2610 - mape: 8.2845 - val_loss: 0.2604 - val_mse:
0.2607 - val_rmse: 0.5106 - val_mae: 0.2604 - val_mape: 8.2544 - lr: 1.0000e-05
Epoch 569/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2602 - mape: 8.2465
Epoch 569: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse:
0.2623 - rmse: 0.5122 - mae: 0.2607 - mape: 8.2760 - val_loss: 0.2609 - val_mse:
0.2609 - val_rmse: 0.5108 - val_mae: 0.2609 - val_mape: 8.2474 - lr: 1.0000e-05
Epoch 570/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2600 - mse: 0.2608
- rmse: 0.5107 - mae: 0.2600 - mape: 8.2519
Epoch 570: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2632 - rmse: 0.5131 - mae: 0.2609 - mape: 8.2762 - val_loss: 0.2604 - val_mse:

0.2610 - val_rmse: 0.5109 - val_mae: 0.2604 - val_mape: 8.2194 - lr: 1.0000e-05
Epoch 571/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2607 - mse: 0.2632
- rmse: 0.5130 - mae: 0.2607 - mape: 8.2624
Epoch 571: val_loss did not improve from 0.26020
318/318 [=====] - 0s 2ms/step - loss: 0.2609 - mse:
0.2633 - rmse: 0.5131 - mae: 0.2609 - mape: 8.2673 - val_loss: 0.2621 - val_mse:
0.2626 - val_rmse: 0.5124 - val_mae: 0.2621 - val_mape: 8.3519 - lr: 1.0000e-05
Epoch 572/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2602 - mse: 0.2613
- rmse: 0.5111 - mae: 0.2602 - mape: 8.2516
Epoch 572: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2612 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2612 - mape: 8.2969 - val_loss: 0.2608 - val_mse:
0.2646 - val_rmse: 0.5144 - val_mae: 0.2608 - val_mape: 8.2770 - lr: 1.0000e-05
Epoch 573/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2624 - mse: 0.2671
- rmse: 0.5168 - mae: 0.2624 - mape: 8.3260
Epoch 573: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2632 - rmse: 0.5130 - mae: 0.2610 - mape: 8.2797 - val_loss: 0.2623 - val_mse:
0.2668 - val_rmse: 0.5165 - val_mae: 0.2623 - val_mape: 8.4024 - lr: 1.0000e-05
Epoch 574/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2616 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2616 - mape: 8.3061
Epoch 574: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2632 - rmse: 0.5131 - mae: 0.2609 - mape: 8.2855 - val_loss: 0.2607 - val_mse:
0.2649 - val_rmse: 0.5147 - val_mae: 0.2607 - val_mape: 8.2783 - lr: 1.0000e-05
Epoch 575/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2624 - mse: 0.2664
- rmse: 0.5162 - mae: 0.2624 - mape: 8.3051
Epoch 575: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2638 - rmse: 0.5136 - mae: 0.2610 - mape: 8.2836 - val_loss: 0.2603 - val_mse:
0.2633 - val_rmse: 0.5131 - val_mae: 0.2603 - val_mape: 8.2671 - lr: 1.0000e-05
Epoch 576/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2607
- rmse: 0.5106 - mae: 0.2595 - mape: 8.2641
Epoch 576: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2631 - rmse: 0.5129 - mae: 0.2608 - mape: 8.2667 - val_loss: 0.2611 - val_mse:
0.2626 - val_rmse: 0.5124 - val_mae: 0.2611 - val_mape: 8.2340 - lr: 1.0000e-05
Epoch 577/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2620
- rmse: 0.5119 - mae: 0.2602 - mape: 8.2397
Epoch 577: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:

0.2621 - rmse: 0.5120 - mae: 0.2606 - mape: 8.2651 - val_loss: 0.2608 - val_mse:
0.2616 - val_rmse: 0.5115 - val_mae: 0.2608 - val_mape: 8.3024 - lr: 1.0000e-05
Epoch 578/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2617 - mse: 0.2644
- rmse: 0.5142 - mae: 0.2617 - mape: 8.3293
Epoch 578: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2632 - rmse: 0.5131 - mae: 0.2608 - mape: 8.2741 - val_loss: 0.2609 - val_mse:
0.2635 - val_rmse: 0.5134 - val_mae: 0.2609 - val_mape: 8.3372 - lr: 1.0000e-05
Epoch 579/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2656
- rmse: 0.5154 - mae: 0.2618 - mape: 8.3173
Epoch 579: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2636 - rmse: 0.5135 - mae: 0.2609 - mape: 8.2868 - val_loss: 0.2611 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2611 - val_mape: 8.2843 - lr: 1.0000e-05
Epoch 580/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2612 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2612 - mape: 8.2955
Epoch 580: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2632 - rmse: 0.5130 - mae: 0.2610 - mape: 8.2798 - val_loss: 0.2604 - val_mse:
0.2624 - val_rmse: 0.5122 - val_mae: 0.2604 - val_mape: 8.2370 - lr: 1.0000e-05
Epoch 581/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2634
- rmse: 0.5132 - mae: 0.2607 - mape: 8.2555
Epoch 581: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2637 - rmse: 0.5135 - mae: 0.2608 - mape: 8.2733 - val_loss: 0.2603 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2603 - val_mape: 8.2906 - lr: 1.0000e-05
Epoch 582/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2602 - mse: 0.2623
- rmse: 0.5121 - mae: 0.2602 - mape: 8.2486
Epoch 582: val_loss did not improve from 0.26020
318/318 [=====] - 0s 2ms/step - loss: 0.2607 - mse:
0.2639 - rmse: 0.5137 - mae: 0.2607 - mape: 8.2773 - val_loss: 0.2606 - val_mse:
0.2630 - val_rmse: 0.5129 - val_mae: 0.2606 - val_mape: 8.2727 - lr: 1.0000e-05
Epoch 583/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2614 - mse: 0.2648
- rmse: 0.5146 - mae: 0.2614 - mape: 8.3064
Epoch 583: val_loss did not improve from 0.26020
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2634 - rmse: 0.5132 - mae: 0.2608 - mape: 8.2794 - val_loss: 0.2608 - val_mse:
0.2614 - val_rmse: 0.5113 - val_mae: 0.2608 - val_mape: 8.2114 - lr: 1.0000e-05
Epoch 584/1000
255/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2627
- rmse: 0.5126 - mae: 0.2615 - mape: 8.2905
Epoch 584: val_loss improved from 0.26020 to 0.26000, saving model to

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model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2608 - mse:
0.2631 - rmse: 0.5130 - mae: 0.2608 - mape: 8.2645 - val_loss: 0.2600 - val_mse:
0.2614 - val_rmse: 0.5112 - val_mae: 0.2600 - val_mape: 8.2405 - lr: 1.0000e-05
Epoch 585/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2615
- rmse: 0.5113 - mae: 0.2600 - mape: 8.2426
Epoch 585: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse:
0.2623 - rmse: 0.5121 - mae: 0.2607 - mape: 8.2595 - val_loss: 0.2602 - val_mse:
0.2611 - val_rmse: 0.5110 - val_mae: 0.2602 - val_mape: 8.2369 - lr: 1.0000e-05
Epoch 586/1000
259/318 [=====>...] - ETA: 0s - loss: 0.2590 - mse: 0.2583
- rmse: 0.5083 - mae: 0.2590 - mape: 8.2163
Epoch 586: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2610 - mape: 8.2750 - val_loss: 0.2608 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2608 - val_mape: 8.3320 - lr: 1.0000e-05
Epoch 587/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2620
- rmse: 0.5118 - mae: 0.2605 - mape: 8.2805
Epoch 587: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2609 - mse:
0.2624 - rmse: 0.5122 - mae: 0.2609 - mape: 8.2800 - val_loss: 0.2605 - val_mse:
0.2623 - val_rmse: 0.5121 - val_mae: 0.2605 - val_mape: 8.3097 - lr: 1.0000e-05
Epoch 588/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2618 - mse: 0.2657
- rmse: 0.5155 - mae: 0.2618 - mape: 8.3091
Epoch 588: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2642 - rmse: 0.5140 - mae: 0.2609 - mape: 8.2818 - val_loss: 0.2606 - val_mse:
0.2644 - val_rmse: 0.5142 - val_mae: 0.2606 - val_mape: 8.2529 - lr: 1.0000e-05
Epoch 589/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2604 - mse: 0.2621
- rmse: 0.5120 - mae: 0.2604 - mape: 8.2492
Epoch 589: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2633 - rmse: 0.5131 - mae: 0.2609 - mape: 8.2864 - val_loss: 0.2601 - val_mse:
0.2610 - val_rmse: 0.5108 - val_mae: 0.2601 - val_mape: 8.2267 - lr: 1.0000e-05
Epoch 590/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2618 - mse: 0.2628
- rmse: 0.5126 - mae: 0.2618 - mape: 8.2963
Epoch 590: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:
0.2625 - rmse: 0.5123 - mae: 0.2609 - mape: 8.2722 - val_loss: 0.2603 - val_mse:
0.2601 - val_rmse: 0.5100 - val_mae: 0.2603 - val_mape: 8.2783 - lr: 1.0000e-05
Epoch 591/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2607 - mse: 0.2625

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- rmse: 0.5124 - mae: 0.2607 - mape: 8.2579
Epoch 591: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2605 - mse:
0.2622 - rmse: 0.5120 - mae: 0.2605 - mape: 8.2608 - val_loss: 0.2603 - val_mse:
0.2626 - val_rmse: 0.5124 - val_mae: 0.2603 - val_mape: 8.2679 - lr: 1.0000e-05
Epoch 592/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2631
- rmse: 0.5129 - mae: 0.2615 - mape: 8.2910
Epoch 592: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2611 - mse:
0.2628 - rmse: 0.5127 - mae: 0.2611 - mape: 8.2847 - val_loss: 0.2602 - val_mse:
0.2635 - val_rmse: 0.5134 - val_mae: 0.2602 - val_mape: 8.2475 - lr: 1.0000e-05
Epoch 593/1000
318/318 [=====] - ETA: 0s - loss: 0.2607 - mse: 0.2625
- rmse: 0.5124 - mae: 0.2607 - mape: 8.2739
Epoch 593: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse:
0.2625 - rmse: 0.5124 - mae: 0.2607 - mape: 8.2739 - val_loss: 0.2604 - val_mse:
0.2628 - val_rmse: 0.5126 - val_mae: 0.2604 - val_mape: 8.2376 - lr: 1.0000e-05
Epoch 594/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2615 - mse: 0.2644
- rmse: 0.5142 - mae: 0.2615 - mape: 8.2978
Epoch 594: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2622 - rmse: 0.5121 - mae: 0.2606 - mape: 8.2650 - val_loss: 0.2602 - val_mse:
0.2630 - val_rmse: 0.5128 - val_mae: 0.2602 - val_mape: 8.2317 - lr: 1.0000e-05
Epoch 595/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2621 - mse: 0.2614
- rmse: 0.5113 - mae: 0.2621 - mape: 8.2936
Epoch 595: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2605 - mse:
0.2614 - rmse: 0.5113 - mae: 0.2605 - mape: 8.2570 - val_loss: 0.2614 - val_mse:
0.2682 - val_rmse: 0.5178 - val_mae: 0.2614 - val_mape: 8.3532 - lr: 1.0000e-05
Epoch 596/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2620 - mse: 0.2649
- rmse: 0.5147 - mae: 0.2620 - mape: 8.3357
Epoch 596: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2610 - mape: 8.2929 - val_loss: 0.2608 - val_mse:
0.2604 - val_rmse: 0.5103 - val_mae: 0.2608 - val_mape: 8.2971 - lr: 1.0000e-05
Epoch 597/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2622
- rmse: 0.5120 - mae: 0.2605 - mape: 8.3015
Epoch 597: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2625 - rmse: 0.5124 - mae: 0.2606 - mape: 8.2661 - val_loss: 0.2602 - val_mse:
0.2628 - val_rmse: 0.5126 - val_mae: 0.2602 - val_mape: 8.2638 - lr: 1.0000e-05
Epoch 598/1000

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288/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2602
- rmse: 0.5101 - mae: 0.2596 - mape: 8.2386
Epoch 598: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2606 - mse:
0.2629 - rmse: 0.5127 - mae: 0.2606 - mape: 8.2563 - val_loss: 0.2606 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2606 - val_mape: 8.2797 - lr: 1.0000e-05
Epoch 599/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2629
- rmse: 0.5127 - mae: 0.2602 - mape: 8.2829
Epoch 599: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse:
0.2628 - rmse: 0.5126 - mae: 0.2607 - mape: 8.2737 - val_loss: 0.2601 - val_mse:
0.2629 - val_rmse: 0.5127 - val_mae: 0.2601 - val_mape: 8.2547 - lr: 1.0000e-05
Epoch 600/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2596 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2596 - mape: 8.2445
Epoch 600: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2607 - mse:
0.2621 - rmse: 0.5120 - mae: 0.2607 - mape: 8.2763 - val_loss: 0.2608 - val_mse:
0.2612 - val_rmse: 0.5111 - val_mae: 0.2608 - val_mape: 8.2978 - lr: 1.0000e-05
Epoch 601/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2590 - mse: 0.2594
- rmse: 0.5093 - mae: 0.2590 - mape: 8.1980
Epoch 601: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse:
0.2625 - rmse: 0.5123 - mae: 0.2607 - mape: 8.2757 - val_loss: 0.2600 - val_mse:
0.2610 - val_rmse: 0.5109 - val_mae: 0.2600 - val_mape: 8.2252 - lr: 1.0000e-05
Epoch 602/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2626 - mse: 0.2645
- rmse: 0.5143 - mae: 0.2626 - mape: 8.3003
Epoch 602: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2612 - rmse: 0.5111 - mae: 0.2605 - mape: 8.2433 - val_loss: 0.2625 - val_mse:
0.2676 - val_rmse: 0.5173 - val_mae: 0.2625 - val_mape: 8.4338 - lr: 1.0000e-05
Epoch 603/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2603 - mse: 0.2626
- rmse: 0.5125 - mae: 0.2603 - mape: 8.2698
Epoch 603: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2608 - mse:
0.2635 - rmse: 0.5133 - mae: 0.2608 - mape: 8.2840 - val_loss: 0.2603 - val_mse:
0.2649 - val_rmse: 0.5147 - val_mae: 0.2603 - val_mape: 8.2549 - lr: 1.0000e-05
Epoch 604/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2589 - mse: 0.2617
- rmse: 0.5116 - mae: 0.2589 - mape: 8.2332
Epoch 604: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2626 - rmse: 0.5125 - mae: 0.2604 - mape: 8.2671 - val_loss: 0.2601 - val_mse:
0.2596 - val_rmse: 0.5095 - val_mae: 0.2601 - val_mape: 8.2380 - lr: 1.0000e-05

Epoch 605/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2612 - mse: 0.2630
- rmse: 0.5129 - mae: 0.2612 - mape: 8.2820
Epoch 605: val_loss did not improve from 0.26000
318/318 [=====] - 0s 2ms/step - loss: 0.2604 - mse:
0.2612 - rmse: 0.5111 - mae: 0.2604 - mape: 8.2511 - val_loss: 0.2622 - val_mse:
0.2672 - val_rmse: 0.5169 - val_mae: 0.2622 - val_mape: 8.3301 - lr: 1.0000e-05
Epoch 606/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2602 - mse: 0.2618
- rmse: 0.5117 - mae: 0.2602 - mape: 8.2735
Epoch 606: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2627 - rmse: 0.5126 - mae: 0.2606 - mape: 8.2732 - val_loss: 0.2601 - val_mse:
0.2618 - val_rmse: 0.5117 - val_mae: 0.2601 - val_mape: 8.2468 - lr: 1.0000e-05
Epoch 607/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2595 - mape: 8.2154
Epoch 607: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2623 - rmse: 0.5122 - mae: 0.2604 - mape: 8.2618 - val_loss: 0.2600 - val_mse:
0.2618 - val_rmse: 0.5117 - val_mae: 0.2600 - val_mape: 8.2233 - lr: 1.0000e-05
Epoch 608/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2601 - mse: 0.2613
- rmse: 0.5112 - mae: 0.2601 - mape: 8.2402
Epoch 608: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2621 - rmse: 0.5120 - mae: 0.2605 - mape: 8.2616 - val_loss: 0.2603 - val_mse:
0.2617 - val_rmse: 0.5116 - val_mae: 0.2603 - val_mape: 8.2754 - lr: 1.0000e-05
Epoch 609/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2606 - mse: 0.2619
- rmse: 0.5118 - mae: 0.2606 - mape: 8.2605
Epoch 609: val_loss did not improve from 0.26000
318/318 [=====] - 0s 1ms/step - loss: 0.2608 - mse:
0.2623 - rmse: 0.5121 - mae: 0.2608 - mape: 8.2682 - val_loss: 0.2603 - val_mse:
0.2607 - val_rmse: 0.5106 - val_mae: 0.2603 - val_mape: 8.2166 - lr: 1.0000e-05
Epoch 610/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2602 - mse: 0.2610
- rmse: 0.5109 - mae: 0.2602 - mape: 8.2573
Epoch 610: val_loss improved from 0.26000 to 0.25988, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2622 - rmse: 0.5121 - mae: 0.2604 - mape: 8.2615 - val_loss: 0.2599 - val_mse:
0.2606 - val_rmse: 0.5105 - val_mae: 0.2599 - val_mape: 8.2552 - lr: 1.0000e-05
Epoch 611/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2647
- rmse: 0.5145 - mae: 0.2619 - mape: 8.2902
Epoch 611: val_loss did not improve from 0.25988
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse:

0.2634 - rmse: 0.5132 - mae: 0.2609 - mape: 8.2696 - val_loss: 0.2602 - val_mse: 0.2620 - val_rmse: 0.5118 - val_mae: 0.2602 - val_mape: 8.2333 - lr: 1.0000e-05
Epoch 612/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2644
- rmse: 0.5142 - mae: 0.2601 - mape: 8.2593
Epoch 612: val_loss did not improve from 0.25988
318/318 [=====] - 0s 1ms/step - loss: 0.2609 - mse: 0.2627 - rmse: 0.5125 - mae: 0.2609 - mape: 8.2691 - val_loss: 0.2599 - val_mse: 0.2627 - val_rmse: 0.5125 - val_mae: 0.2599 - val_mape: 8.2592 - lr: 1.0000e-05
Epoch 613/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2592 - mse: 0.2607
- rmse: 0.5106 - mae: 0.2592 - mape: 8.2317
Epoch 613: val_loss did not improve from 0.25988
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse: 0.2626 - rmse: 0.5124 - mae: 0.2604 - mape: 8.2637 - val_loss: 0.2614 - val_mse: 0.2607 - val_rmse: 0.5106 - val_mae: 0.2614 - val_mape: 8.2186 - lr: 1.0000e-05
Epoch 614/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2606 - mse: 0.2622
- rmse: 0.5120 - mae: 0.2606 - mape: 8.2501
Epoch 614: val_loss did not improve from 0.25988
318/318 [=====] - 0s 1ms/step - loss: 0.2610 - mse: 0.2628 - rmse: 0.5126 - mae: 0.2610 - mape: 8.2594 - val_loss: 0.2599 - val_mse: 0.2598 - val_rmse: 0.5097 - val_mae: 0.2599 - val_mape: 8.2402 - lr: 1.0000e-05
Epoch 615/1000
259/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2615
- rmse: 0.5114 - mae: 0.2605 - mape: 8.2688
Epoch 615: val_loss did not improve from 0.25988
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse: 0.2622 - rmse: 0.5120 - mae: 0.2605 - mape: 8.2601 - val_loss: 0.2599 - val_mse: 0.2635 - val_rmse: 0.5134 - val_mae: 0.2599 - val_mape: 8.2645 - lr: 1.0000e-05
Epoch 616/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2604 - mse: 0.2627
- rmse: 0.5125 - mae: 0.2604 - mape: 8.2531
Epoch 616: val_loss did not improve from 0.25988
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse: 0.2628 - rmse: 0.5127 - mae: 0.2606 - mape: 8.2731 - val_loss: 0.2599 - val_mse: 0.2631 - val_rmse: 0.5129 - val_mae: 0.2599 - val_mape: 8.2654 - lr: 1.0000e-05
Epoch 617/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2612 - mse: 0.2632
- rmse: 0.5131 - mae: 0.2612 - mape: 8.2671
Epoch 617: val_loss improved from 0.25988 to 0.25985, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse: 0.2628 - rmse: 0.5126 - mae: 0.2607 - mape: 8.2625 - val_loss: 0.2598 - val_mse: 0.2613 - val_rmse: 0.5112 - val_mae: 0.2598 - val_mape: 8.2214 - lr: 1.0000e-05
Epoch 618/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2612 - mse: 0.2635
- rmse: 0.5133 - mae: 0.2612 - mape: 8.2651

Epoch 618: val_loss did not improve from 0.25985
318/318 [=====] - 0s 2ms/step - loss: 0.2607 - mse:
0.2626 - rmse: 0.5124 - mae: 0.2607 - mape: 8.2578 - val_loss: 0.2602 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2602 - val_mape: 8.2587 - lr: 1.0000e-05
Epoch 619/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2604 - mse: 0.2628
- rmse: 0.5126 - mae: 0.2604 - mape: 8.2615
Epoch 619: val_loss improved from 0.25985 to 0.25973, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2618 - rmse: 0.5117 - mae: 0.2605 - mape: 8.2686 - val_loss: 0.2597 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2597 - val_mape: 8.2397 - lr: 1.0000e-05
Epoch 620/1000
272/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2600
- rmse: 0.5099 - mae: 0.2601 - mape: 8.2412
Epoch 620: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2624 - rmse: 0.5122 - mae: 0.2605 - mape: 8.2671 - val_loss: 0.2599 - val_mse:
0.2634 - val_rmse: 0.5133 - val_mae: 0.2599 - val_mape: 8.2592 - lr: 1.0000e-05
Epoch 621/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2638
- rmse: 0.5136 - mae: 0.2619 - mape: 8.3117
Epoch 621: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2624 - rmse: 0.5123 - mae: 0.2606 - mape: 8.2681 - val_loss: 0.2604 - val_mse:
0.2656 - val_rmse: 0.5153 - val_mae: 0.2604 - val_mape: 8.3054 - lr: 1.0000e-05
Epoch 622/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2604 - mse: 0.2625
- rmse: 0.5123 - mae: 0.2604 - mape: 8.2416
Epoch 622: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2628 - rmse: 0.5126 - mae: 0.2606 - mape: 8.2499 - val_loss: 0.2605 - val_mse:
0.2610 - val_rmse: 0.5109 - val_mae: 0.2605 - val_mape: 8.2980 - lr: 1.0000e-05
Epoch 623/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2621
- rmse: 0.5119 - mae: 0.2607 - mape: 8.2693
Epoch 623: val_loss did not improve from 0.25973
318/318 [=====] - 0s 2ms/step - loss: 0.2606 - mse:
0.2621 - rmse: 0.5120 - mae: 0.2606 - mape: 8.2616 - val_loss: 0.2612 - val_mse:
0.2587 - val_rmse: 0.5086 - val_mae: 0.2612 - val_mape: 8.2482 - lr: 1.0000e-05
Epoch 624/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2609
- rmse: 0.5107 - mae: 0.2600 - mape: 8.2670
Epoch 624: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2607 - mse:
0.2624 - rmse: 0.5123 - mae: 0.2607 - mape: 8.2699 - val_loss: 0.2610 - val_mse:
0.2638 - val_rmse: 0.5136 - val_mae: 0.2610 - val_mape: 8.2765 - lr: 1.0000e-05
Epoch 625/1000

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310/318 [=====>.] - ETA: 0s - loss: 0.2604 - mse: 0.2620
- rmse: 0.5118 - mae: 0.2604 - mape: 8.2416
Epoch 625: val_loss did not improve from 0.25973
318/318 [=====] - 0s 2ms/step - loss: 0.2605 - mse:
0.2623 - rmse: 0.5121 - mae: 0.2605 - mape: 8.2613 - val_loss: 0.2603 - val_mse:
0.2648 - val_rmse: 0.5146 - val_mae: 0.2603 - val_mape: 8.2711 - lr: 1.0000e-05
Epoch 626/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2597 - mse: 0.2610
- rmse: 0.5109 - mae: 0.2597 - mape: 8.2167
Epoch 626: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2623 - rmse: 0.5121 - mae: 0.2605 - mape: 8.2616 - val_loss: 0.2610 - val_mse:
0.2602 - val_rmse: 0.5101 - val_mae: 0.2610 - val_mape: 8.2881 - lr: 1.0000e-05
Epoch 627/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2601 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2601 - mape: 8.2463
Epoch 627: val_loss did not improve from 0.25973
318/318 [=====] - 0s 2ms/step - loss: 0.2602 - mse:
0.2612 - rmse: 0.5110 - mae: 0.2602 - mape: 8.2583 - val_loss: 0.2602 - val_mse:
0.2592 - val_rmse: 0.5091 - val_mae: 0.2602 - val_mape: 8.2223 - lr: 1.0000e-05
Epoch 628/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2583 - mse: 0.2563
- rmse: 0.5062 - mae: 0.2583 - mape: 8.2059
Epoch 628: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2602 - mse:
0.2617 - rmse: 0.5115 - mae: 0.2602 - mape: 8.2460 - val_loss: 0.2607 - val_mse:
0.2643 - val_rmse: 0.5141 - val_mae: 0.2607 - val_mape: 8.2450 - lr: 1.0000e-05
Epoch 629/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2560
- rmse: 0.5060 - mae: 0.2587 - mape: 8.1893
Epoch 629: val_loss did not improve from 0.25973
318/318 [=====] - 0s 1ms/step - loss: 0.2601 - mse:
0.2618 - rmse: 0.5117 - mae: 0.2601 - mape: 8.2522 - val_loss: 0.2601 - val_mse:
0.2618 - val_rmse: 0.5117 - val_mae: 0.2601 - val_mape: 8.2961 - lr: 1.0000e-05
Epoch 630/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2578 - mse: 0.2550
- rmse: 0.5050 - mae: 0.2578 - mape: 8.2228
Epoch 630: val_loss improved from 0.25973 to 0.25968, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2610 - rmse: 0.5109 - mae: 0.2604 - mape: 8.2581 - val_loss: 0.2597 - val_mse:
0.2601 - val_rmse: 0.5100 - val_mae: 0.2597 - val_mape: 8.2261 - lr: 1.0000e-05
Epoch 631/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2616
- rmse: 0.5115 - mae: 0.2595 - mape: 8.2486
Epoch 631: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2623 - rmse: 0.5122 - mae: 0.2605 - mape: 8.2580 - val_loss: 0.2604 - val_mse:

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0.2651 - val_rmse: 0.5149 - val_mae: 0.2604 - val_mape: 8.3267 - lr: 1.0000e-05
Epoch 632/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2599 - mse: 0.2608
- rmse: 0.5107 - mae: 0.2599 - mape: 8.2429
Epoch 632: val_loss did not improve from 0.25968
318/318 [=====] - 0s 2ms/step - loss: 0.2600 - mse:
0.2613 - rmse: 0.5111 - mae: 0.2600 - mape: 8.2628 - val_loss: 0.2615 - val_mse:
0.2651 - val_rmse: 0.5149 - val_mae: 0.2615 - val_mape: 8.2228 - lr: 1.0000e-05
Epoch 633/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2624
- rmse: 0.5123 - mae: 0.2595 - mape: 8.2695
Epoch 633: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2624 - rmse: 0.5123 - mae: 0.2604 - mape: 8.2645 - val_loss: 0.2600 - val_mse:
0.2602 - val_rmse: 0.5101 - val_mae: 0.2600 - val_mape: 8.2489 - lr: 1.0000e-05
Epoch 634/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2603 - mse: 0.2614
- rmse: 0.5113 - mae: 0.2603 - mape: 8.2510
Epoch 634: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2628 - rmse: 0.5127 - mae: 0.2606 - mape: 8.2682 - val_loss: 0.2600 - val_mse:
0.2590 - val_rmse: 0.5089 - val_mae: 0.2600 - val_mape: 8.2049 - lr: 1.0000e-05
Epoch 635/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2615 - mse: 0.2636
- rmse: 0.5134 - mae: 0.2615 - mape: 8.2962
Epoch 635: val_loss did not improve from 0.25968
318/318 [=====] - 1s 2ms/step - loss: 0.2602 - mse:
0.2611 - rmse: 0.5110 - mae: 0.2602 - mape: 8.2454 - val_loss: 0.2603 - val_mse:
0.2624 - val_rmse: 0.5123 - val_mae: 0.2603 - val_mape: 8.1997 - lr: 1.0000e-05
Epoch 636/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2593 - mse: 0.2602
- rmse: 0.5101 - mae: 0.2593 - mape: 8.2100
Epoch 636: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2626 - rmse: 0.5125 - mae: 0.2604 - mape: 8.2499 - val_loss: 0.2602 - val_mse:
0.2595 - val_rmse: 0.5094 - val_mae: 0.2602 - val_mape: 8.2533 - lr: 1.0000e-05
Epoch 637/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2592 - mse: 0.2610
- rmse: 0.5109 - mae: 0.2592 - mape: 8.2387
Epoch 637: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2605 - mse:
0.2627 - rmse: 0.5125 - mae: 0.2605 - mape: 8.2629 - val_loss: 0.2606 - val_mse:
0.2627 - val_rmse: 0.5125 - val_mae: 0.2606 - val_mape: 8.2388 - lr: 1.0000e-05
Epoch 638/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2610 - mse: 0.2641
- rmse: 0.5139 - mae: 0.2610 - mape: 8.2760
Epoch 638: val_loss did not improve from 0.25968
318/318 [=====] - 0s 2ms/step - loss: 0.2604 - mse:

0.2623 - rmse: 0.5121 - mae: 0.2604 - mape: 8.2536 - val_loss: 0.2600 - val_mse:
0.2619 - val_rmse: 0.5118 - val_mae: 0.2600 - val_mape: 8.2626 - lr: 1.0000e-05
Epoch 639/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2621
- rmse: 0.5120 - mae: 0.2601 - mape: 8.2786
Epoch 639: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2606 - mse:
0.2621 - rmse: 0.5120 - mae: 0.2606 - mape: 8.2746 - val_loss: 0.2600 - val_mse:
0.2622 - val_rmse: 0.5120 - val_mae: 0.2600 - val_mape: 8.2751 - lr: 1.0000e-05
Epoch 640/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2615
- rmse: 0.5114 - mae: 0.2607 - mape: 8.2691
Epoch 640: val_loss did not improve from 0.25968
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2622 - rmse: 0.5121 - mae: 0.2604 - mape: 8.2665 - val_loss: 0.2598 - val_mse:
0.2600 - val_rmse: 0.5099 - val_mae: 0.2598 - val_mape: 8.2263 - lr: 1.0000e-05
Epoch 641/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2604 - mse: 0.2616
- rmse: 0.5115 - mae: 0.2604 - mape: 8.2572
Epoch 641: val_loss improved from 0.25968 to 0.25949, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2603 - mse:
0.2617 - rmse: 0.5115 - mae: 0.2603 - mape: 8.2530 - val_loss: 0.2595 - val_mse:
0.2623 - val_rmse: 0.5122 - val_mae: 0.2595 - val_mape: 8.2453 - lr: 1.0000e-05
Epoch 642/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2606 - mse: 0.2634
- rmse: 0.5133 - mae: 0.2606 - mape: 8.2684
Epoch 642: val_loss did not improve from 0.25949
318/318 [=====] - 0s 2ms/step - loss: 0.2602 - mse:
0.2626 - rmse: 0.5125 - mae: 0.2602 - mape: 8.2547 - val_loss: 0.2604 - val_mse:
0.2581 - val_rmse: 0.5080 - val_mae: 0.2604 - val_mape: 8.2079 - lr: 1.0000e-05
Epoch 643/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2609 - mse: 0.2623
- rmse: 0.5121 - mae: 0.2609 - mape: 8.2772
Epoch 643: val_loss did not improve from 0.25949
318/318 [=====] - 0s 1ms/step - loss: 0.2602 - mse:
0.2609 - rmse: 0.5108 - mae: 0.2602 - mape: 8.2471 - val_loss: 0.2601 - val_mse:
0.2592 - val_rmse: 0.5091 - val_mae: 0.2601 - val_mape: 8.2671 - lr: 1.0000e-05
Epoch 644/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2611 - mse: 0.2617
- rmse: 0.5115 - mae: 0.2611 - mape: 8.2653
Epoch 644: val_loss did not improve from 0.25949
318/318 [=====] - 0s 1ms/step - loss: 0.2604 - mse:
0.2618 - rmse: 0.5117 - mae: 0.2604 - mape: 8.2550 - val_loss: 0.2597 - val_mse:
0.2593 - val_rmse: 0.5092 - val_mae: 0.2597 - val_mape: 8.2187 - lr: 1.0000e-05
Epoch 645/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2613 - mape: 8.2785

Epoch 645: val_loss did not improve from 0.25949
 318/318 [=====] - 1s 2ms/step - loss: 0.2604 - mse: 0.2613 - rmse: 0.5112 - mae: 0.2604 - mape: 8.2586 - val_loss: 0.2599 - val_mse: 0.2590 - val_rmse: 0.5090 - val_mae: 0.2599 - val_mape: 8.2394 - lr: 1.0000e-05
 Epoch 646/1000
 279/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2604 - rmse: 0.5103 - mae: 0.2602 - mape: 8.2732
 Epoch 646: val_loss did not improve from 0.25949
 318/318 [=====] - 0s 1ms/step - loss: 0.2603 - mse: 0.2615 - rmse: 0.5114 - mae: 0.2603 - mape: 8.2526 - val_loss: 0.2605 - val_mse: 0.2668 - val_rmse: 0.5165 - val_mae: 0.2605 - val_mape: 8.3225 - lr: 1.0000e-05
 Epoch 647/1000
 299/318 [=====>..] - ETA: 0s - loss: 0.2599 - mse: 0.2604 - rmse: 0.5103 - mae: 0.2599 - mape: 8.2563
 Epoch 647: val_loss did not improve from 0.25949
 318/318 [=====] - 0s 1ms/step - loss: 0.2602 - mse: 0.2619 - rmse: 0.5117 - mae: 0.2602 - mape: 8.2578 - val_loss: 0.2596 - val_mse: 0.2613 - val_rmse: 0.5112 - val_mae: 0.2596 - val_mape: 8.2606 - lr: 1.0000e-05
 Epoch 648/1000
 281/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2619 - rmse: 0.5118 - mae: 0.2601 - mape: 8.2538
 Epoch 648: val_loss did not improve from 0.25949
 318/318 [=====] - 1s 2ms/step - loss: 0.2602 - mse: 0.2621 - rmse: 0.5120 - mae: 0.2602 - mape: 8.2571 - val_loss: 0.2604 - val_mse: 0.2642 - val_rmse: 0.5140 - val_mae: 0.2604 - val_mape: 8.2711 - lr: 1.0000e-05
 Epoch 649/1000
 291/318 [=====>...] - ETA: 0s - loss: 0.2633 - mse: 0.2671 - rmse: 0.5168 - mae: 0.2633 - mape: 8.3536
 Epoch 649: val_loss did not improve from 0.25949
 318/318 [=====] - 0s 1ms/step - loss: 0.2601 - mse: 0.2620 - rmse: 0.5118 - mae: 0.2601 - mape: 8.2540 - val_loss: 0.2596 - val_mse: 0.2599 - val_rmse: 0.5098 - val_mae: 0.2596 - val_mape: 8.1989 - lr: 1.0000e-05
 Epoch 650/1000
 313/318 [=====>..] - ETA: 0s - loss: 0.2605 - mse: 0.2622 - rmse: 0.5120 - mae: 0.2605 - mape: 8.2540
 Epoch 650: val_loss did not improve from 0.25949
 318/318 [=====] - 0s 2ms/step - loss: 0.2603 - mse: 0.2618 - rmse: 0.5116 - mae: 0.2603 - mape: 8.2519 - val_loss: 0.2596 - val_mse: 0.2615 - val_rmse: 0.5114 - val_mae: 0.2596 - val_mape: 8.2459 - lr: 1.0000e-05
 Epoch 651/1000
 276/318 [=====>...] - ETA: 0s - loss: 0.2622 - mse: 0.2647 - rmse: 0.5145 - mae: 0.2622 - mape: 8.3261
 Epoch 651: val_loss did not improve from 0.25949
 318/318 [=====] - 0s 1ms/step - loss: 0.2603 - mse: 0.2630 - rmse: 0.5129 - mae: 0.2603 - mape: 8.2653 - val_loss: 0.2602 - val_mse: 0.2578 - val_rmse: 0.5078 - val_mae: 0.2602 - val_mape: 8.2156 - lr: 1.0000e-05
 Epoch 652/1000
 298/318 [=====>..] - ETA: 0s - loss: 0.2605 - mse: 0.2616

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- rmse: 0.5115 - mae: 0.2605 - mape: 8.2373
Epoch 652: val_loss did not improve from 0.25949
318/318 [=====] - 0s 1ms/step - loss: 0.2603 - mse:
0.2615 - rmse: 0.5113 - mae: 0.2603 - mape: 8.2518 - val_loss: 0.2599 - val_mse:
0.2628 - val_rmse: 0.5127 - val_mae: 0.2599 - val_mape: 8.2833 - lr: 1.0000e-05
Epoch 653/1000
258/318 [=====>...] - ETA: 0s - loss: 0.2589 - mse: 0.2607
- rmse: 0.5106 - mae: 0.2589 - mape: 8.2688
Epoch 653: val_loss did not improve from 0.25949
318/318 [=====] - 0s 1ms/step - loss: 0.2601 - mse:
0.2617 - rmse: 0.5116 - mae: 0.2601 - mape: 8.2588 - val_loss: 0.2601 - val_mse:
0.2590 - val_rmse: 0.5089 - val_mae: 0.2601 - val_mape: 8.2563 - lr: 1.0000e-05
Epoch 654/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2598 - mse: 0.2616
- rmse: 0.5115 - mae: 0.2598 - mape: 8.2551
Epoch 654: val_loss did not improve from 0.25949
318/318 [=====] - 0s 1ms/step - loss: 0.2600 - mse:
0.2612 - rmse: 0.5111 - mae: 0.2600 - mape: 8.2568 - val_loss: 0.2599 - val_mse:
0.2583 - val_rmse: 0.5082 - val_mae: 0.2599 - val_mape: 8.2141 - lr: 1.0000e-05
Epoch 655/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2599 - mse: 0.2601
- rmse: 0.5100 - mae: 0.2599 - mape: 8.2372
Epoch 655: val_loss improved from 0.25949 to 0.25941, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2602 - mse:
0.2616 - rmse: 0.5115 - mae: 0.2602 - mape: 8.2521 - val_loss: 0.2594 - val_mse:
0.2612 - val_rmse: 0.5110 - val_mae: 0.2594 - val_mape: 8.2385 - lr: 1.0000e-05
Epoch 656/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2603 - mse: 0.2616
- rmse: 0.5115 - mae: 0.2603 - mape: 8.2549
Epoch 656: val_loss did not improve from 0.25941
318/318 [=====] - 0s 2ms/step - loss: 0.2601 - mse:
0.2610 - rmse: 0.5109 - mae: 0.2601 - mape: 8.2467 - val_loss: 0.2605 - val_mse:
0.2644 - val_rmse: 0.5142 - val_mae: 0.2605 - val_mape: 8.2348 - lr: 1.0000e-05
Epoch 657/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2610 - mse: 0.2635
- rmse: 0.5133 - mae: 0.2610 - mape: 8.2551
Epoch 657: val_loss did not improve from 0.25941
318/318 [=====] - 1s 2ms/step - loss: 0.2600 - mse:
0.2615 - rmse: 0.5114 - mae: 0.2600 - mape: 8.2299 - val_loss: 0.2604 - val_mse:
0.2625 - val_rmse: 0.5123 - val_mae: 0.2604 - val_mape: 8.3169 - lr: 1.0000e-05
Epoch 658/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2591 - mse: 0.2616
- rmse: 0.5114 - mae: 0.2591 - mape: 8.2311
Epoch 658: val_loss did not improve from 0.25941
318/318 [=====] - 0s 1ms/step - loss: 0.2602 - mse:
0.2634 - rmse: 0.5132 - mae: 0.2602 - mape: 8.2515 - val_loss: 0.2610 - val_mse:
0.2624 - val_rmse: 0.5122 - val_mae: 0.2610 - val_mape: 8.3002 - lr: 1.0000e-05

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Epoch 659/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2608 - mse: 0.2624
- rmse: 0.5123 - mae: 0.2608 - mape: 8.2845
Epoch 659: val_loss did not improve from 0.25941
318/318 [=====] - 0s 2ms/step - loss: 0.2609 - mse:
0.2630 - rmse: 0.5128 - mae: 0.2609 - mape: 8.2699 - val_loss: 0.2600 - val_mse:
0.2590 - val_rmse: 0.5089 - val_mae: 0.2600 - val_mape: 8.2445 - lr: 1.0000e-05
Epoch 660/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2609
- rmse: 0.5108 - mae: 0.2600 - mape: 8.2143
Epoch 660: val_loss improved from 0.25941 to 0.25934, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 1ms/step - loss: 0.2603 - mse:
0.2616 - rmse: 0.5115 - mae: 0.2603 - mape: 8.2468 - val_loss: 0.2593 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2593 - val_mape: 8.2155 - lr: 1.0000e-05
Epoch 661/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2600 - mse: 0.2621
- rmse: 0.5119 - mae: 0.2600 - mape: 8.2366
Epoch 661: val_loss did not improve from 0.25934
318/318 [=====] - 0s 2ms/step - loss: 0.2599 - mse:
0.2614 - rmse: 0.5113 - mae: 0.2599 - mape: 8.2384 - val_loss: 0.2594 - val_mse:
0.2616 - val_rmse: 0.5115 - val_mae: 0.2594 - val_mape: 8.2287 - lr: 1.0000e-05
Epoch 662/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2603 - mse: 0.2621
- rmse: 0.5119 - mae: 0.2603 - mape: 8.2649
Epoch 662: val_loss did not improve from 0.25934
318/318 [=====] - 0s 1ms/step - loss: 0.2599 - mse:
0.2606 - rmse: 0.5105 - mae: 0.2599 - mape: 8.2374 - val_loss: 0.2601 - val_mse:
0.2614 - val_rmse: 0.5113 - val_mae: 0.2601 - val_mape: 8.2041 - lr: 1.0000e-05
Epoch 663/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2598 - mse: 0.2605
- rmse: 0.5104 - mae: 0.2598 - mape: 8.2345
Epoch 663: val_loss did not improve from 0.25934
318/318 [=====] - 1s 2ms/step - loss: 0.2601 - mse:
0.2615 - rmse: 0.5114 - mae: 0.2601 - mape: 8.2466 - val_loss: 0.2599 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2599 - val_mape: 8.2312 - lr: 1.0000e-05
Epoch 664/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2588 - mse: 0.2589
- rmse: 0.5088 - mae: 0.2588 - mape: 8.2249
Epoch 664: val_loss did not improve from 0.25934
318/318 [=====] - 0s 2ms/step - loss: 0.2604 - mse:
0.2619 - rmse: 0.5117 - mae: 0.2604 - mape: 8.2591 - val_loss: 0.2595 - val_mse:
0.2608 - val_rmse: 0.5106 - val_mae: 0.2595 - val_mape: 8.2052 - lr: 1.0000e-05
Epoch 665/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2600 - mse: 0.2612
- rmse: 0.5111 - mae: 0.2600 - mape: 8.2380
Epoch 665: val_loss did not improve from 0.25934
318/318 [=====] - 1s 2ms/step - loss: 0.2601 - mse:

0.2613 - rmse: 0.5111 - mae: 0.2601 - mape: 8.2404 - val_loss: 0.2599 - val_mse:
0.2616 - val_rmse: 0.5115 - val_mae: 0.2599 - val_mape: 8.2693 - lr: 1.0000e-05
Epoch 666/1000
261/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2598
- rmse: 0.5097 - mae: 0.2599 - mape: 8.2273
Epoch 666: val_loss did not improve from 0.25934
318/318 [=====] - 0s 2ms/step - loss: 0.2601 - mse:
0.2610 - rmse: 0.5109 - mae: 0.2601 - mape: 8.2507 - val_loss: 0.2601 - val_mse:
0.2587 - val_rmse: 0.5086 - val_mae: 0.2601 - val_mape: 8.1813 - lr: 1.0000e-05
Epoch 667/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2611 - mse: 0.2626
- rmse: 0.5125 - mae: 0.2611 - mape: 8.2267
Epoch 667: val_loss did not improve from 0.25934
318/318 [=====] - 1s 2ms/step - loss: 0.2602 - mse:
0.2608 - rmse: 0.5107 - mae: 0.2602 - mape: 8.2499 - val_loss: 0.2599 - val_mse:
0.2608 - val_rmse: 0.5107 - val_mae: 0.2599 - val_mape: 8.2224 - lr: 1.0000e-05
Epoch 668/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2601 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2601 - mape: 8.2295
Epoch 668: val_loss did not improve from 0.25934
318/318 [=====] - 0s 2ms/step - loss: 0.2600 - mse:
0.2608 - rmse: 0.5107 - mae: 0.2600 - mape: 8.2376 - val_loss: 0.2595 - val_mse:
0.2600 - val_rmse: 0.5099 - val_mae: 0.2595 - val_mape: 8.1935 - lr: 1.0000e-05
Epoch 669/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2602 - mse: 0.2603
- rmse: 0.5102 - mae: 0.2602 - mape: 8.2431
Epoch 669: val_loss did not improve from 0.25934
318/318 [=====] - 0s 2ms/step - loss: 0.2604 - mse:
0.2607 - rmse: 0.5106 - mae: 0.2604 - mape: 8.2494 - val_loss: 0.2594 - val_mse:
0.2597 - val_rmse: 0.5096 - val_mae: 0.2594 - val_mape: 8.2193 - lr: 1.0000e-05
Epoch 670/1000
285/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2598
- rmse: 0.5097 - mae: 0.2596 - mape: 8.2055
Epoch 670: val_loss improved from 0.25934 to 0.25921, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2600 - mse:
0.2608 - rmse: 0.5107 - mae: 0.2600 - mape: 8.2335 - val_loss: 0.2592 - val_mse:
0.2600 - val_rmse: 0.5099 - val_mae: 0.2592 - val_mape: 8.2346 - lr: 1.0000e-05
Epoch 671/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2620
- rmse: 0.5119 - mae: 0.2599 - mape: 8.2073
Epoch 671: val_loss did not improve from 0.25921
318/318 [=====] - 1s 2ms/step - loss: 0.2600 - mse:
0.2596 - rmse: 0.5095 - mae: 0.2600 - mape: 8.2288 - val_loss: 0.2595 - val_mse:
0.2597 - val_rmse: 0.5096 - val_mae: 0.2595 - val_mape: 8.2493 - lr: 1.0000e-05
Epoch 672/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2600 - mape: 8.2479

Epoch 672: val_loss did not improve from 0.25921
318/318 [=====] - 0s 1ms/step - loss: 0.2600 - mse:
0.2605 - rmse: 0.5104 - mae: 0.2600 - mape: 8.2337 - val_loss: 0.2599 - val_mse:
0.2631 - val_rmse: 0.5130 - val_mae: 0.2599 - val_mape: 8.2630 - lr: 1.0000e-05
Epoch 673/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2585 - mape: 8.2165
Epoch 673: val_loss did not improve from 0.25921
318/318 [=====] - 1s 2ms/step - loss: 0.2600 - mse:
0.2622 - rmse: 0.5120 - mae: 0.2600 - mape: 8.2491 - val_loss: 0.2594 - val_mse:
0.2594 - val_rmse: 0.5094 - val_mae: 0.2594 - val_mape: 8.2392 - lr: 1.0000e-05
Epoch 674/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2609 - mse: 0.2601
- rmse: 0.5100 - mae: 0.2609 - mape: 8.2298
Epoch 674: val_loss did not improve from 0.25921
318/318 [=====] - 0s 1ms/step - loss: 0.2599 - mse:
0.2608 - rmse: 0.5107 - mae: 0.2599 - mape: 8.2376 - val_loss: 0.2592 - val_mse:
0.2584 - val_rmse: 0.5083 - val_mae: 0.2592 - val_mape: 8.2063 - lr: 1.0000e-05
Epoch 675/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2597 - mape: 8.2488
Epoch 675: val_loss did not improve from 0.25921
318/318 [=====] - 1s 2ms/step - loss: 0.2598 - mse:
0.2601 - rmse: 0.5100 - mae: 0.2598 - mape: 8.2350 - val_loss: 0.2599 - val_mse:
0.2588 - val_rmse: 0.5087 - val_mae: 0.2599 - val_mape: 8.1901 - lr: 1.0000e-05
Epoch 676/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2621 - mse: 0.2647
- rmse: 0.5145 - mae: 0.2621 - mape: 8.3274
Epoch 676: val_loss did not improve from 0.25921
318/318 [=====] - 0s 1ms/step - loss: 0.2600 - mse:
0.2614 - rmse: 0.5113 - mae: 0.2600 - mape: 8.2383 - val_loss: 0.2595 - val_mse:
0.2609 - val_rmse: 0.5108 - val_mae: 0.2595 - val_mape: 8.1962 - lr: 1.0000e-05
Epoch 677/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2607
- rmse: 0.5106 - mae: 0.2602 - mape: 8.2328
Epoch 677: val_loss did not improve from 0.25921
318/318 [=====] - 1s 2ms/step - loss: 0.2602 - mse:
0.2617 - rmse: 0.5115 - mae: 0.2602 - mape: 8.2512 - val_loss: 0.2593 - val_mse:
0.2587 - val_rmse: 0.5086 - val_mae: 0.2593 - val_mape: 8.2070 - lr: 1.0000e-05
Epoch 678/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2638
- rmse: 0.5136 - mae: 0.2610 - mape: 8.2483
Epoch 678: val_loss did not improve from 0.25921
318/318 [=====] - 0s 2ms/step - loss: 0.2602 - mse:
0.2622 - rmse: 0.5120 - mae: 0.2602 - mape: 8.2458 - val_loss: 0.2593 - val_mse:
0.2594 - val_rmse: 0.5093 - val_mae: 0.2593 - val_mape: 8.1916 - lr: 1.0000e-05
Epoch 679/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2609

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- rmse: 0.5108 - mae: 0.2596 - mape: 8.2356
Epoch 679: val_loss did not improve from 0.25921
318/318 [=====] - 0s 1ms/step - loss: 0.2601 - mse:
0.2616 - rmse: 0.5114 - mae: 0.2601 - mape: 8.2526 - val_loss: 0.2599 - val_mse:
0.2569 - val_rmse: 0.5069 - val_mae: 0.2599 - val_mape: 8.2113 - lr: 1.0000e-05
Epoch 680/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2583
- rmse: 0.5082 - mae: 0.2587 - mape: 8.1813
Epoch 680: val_loss improved from 0.25921 to 0.25918, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2598 - mse:
0.2603 - rmse: 0.5102 - mae: 0.2598 - mape: 8.2341 - val_loss: 0.2592 - val_mse:
0.2590 - val_rmse: 0.5089 - val_mae: 0.2592 - val_mape: 8.2094 - lr: 1.0000e-05
Epoch 681/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2603 - mse: 0.2610
- rmse: 0.5109 - mae: 0.2603 - mape: 8.2465
Epoch 681: val_loss did not improve from 0.25918
318/318 [=====] - 1s 2ms/step - loss: 0.2602 - mse:
0.2606 - rmse: 0.5105 - mae: 0.2602 - mape: 8.2368 - val_loss: 0.2598 - val_mse:
0.2609 - val_rmse: 0.5108 - val_mae: 0.2598 - val_mape: 8.2626 - lr: 1.0000e-05
Epoch 682/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2606 - mse: 0.2625
- rmse: 0.5124 - mae: 0.2606 - mape: 8.2618
Epoch 682: val_loss did not improve from 0.25918
318/318 [=====] - 0s 1ms/step - loss: 0.2598 - mse:
0.2607 - rmse: 0.5105 - mae: 0.2598 - mape: 8.2432 - val_loss: 0.2600 - val_mse:
0.2608 - val_rmse: 0.5107 - val_mae: 0.2600 - val_mape: 8.2384 - lr: 1.0000e-05
Epoch 683/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2603 - mse: 0.2621
- rmse: 0.5119 - mae: 0.2603 - mape: 8.2422
Epoch 683: val_loss did not improve from 0.25918
318/318 [=====] - 1s 2ms/step - loss: 0.2599 - mse:
0.2607 - rmse: 0.5106 - mae: 0.2599 - mape: 8.2280 - val_loss: 0.2594 - val_mse:
0.2596 - val_rmse: 0.5095 - val_mae: 0.2594 - val_mape: 8.2562 - lr: 1.0000e-05
Epoch 684/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2601 - mse: 0.2612
- rmse: 0.5111 - mae: 0.2601 - mape: 8.2433
Epoch 684: val_loss did not improve from 0.25918
318/318 [=====] - 1s 2ms/step - loss: 0.2598 - mse:
0.2602 - rmse: 0.5101 - mae: 0.2598 - mape: 8.2403 - val_loss: 0.2618 - val_mse:
0.2679 - val_rmse: 0.5176 - val_mae: 0.2618 - val_mape: 8.2862 - lr: 1.0000e-05
Epoch 685/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2627
- rmse: 0.5125 - mae: 0.2601 - mape: 8.2102
Epoch 685: val_loss did not improve from 0.25918
318/318 [=====] - 0s 1ms/step - loss: 0.2598 - mse:
0.2605 - rmse: 0.5104 - mae: 0.2598 - mape: 8.2330 - val_loss: 0.2597 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2597 - val_mape: 8.2566 - lr: 1.0000e-05

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Epoch 686/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2608 - mse: 0.2623
- rmse: 0.5122 - mae: 0.2608 - mape: 8.2677
Epoch 686: val_loss did not improve from 0.25918
318/318 [=====] - 1s 2ms/step - loss: 0.2595 - mse:
0.2597 - rmse: 0.5096 - mae: 0.2595 - mape: 8.2337 - val_loss: 0.2595 - val_mse:
0.2612 - val_rmse: 0.5111 - val_mae: 0.2595 - val_mape: 8.2671 - lr: 1.0000e-05
Epoch 687/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2613
- rmse: 0.5112 - mae: 0.2600 - mape: 8.2641
Epoch 687: val_loss did not improve from 0.25918
318/318 [=====] - 0s 2ms/step - loss: 0.2597 - mse:
0.2612 - rmse: 0.5111 - mae: 0.2597 - mape: 8.2458 - val_loss: 0.2594 - val_mse:
0.2614 - val_rmse: 0.5113 - val_mae: 0.2594 - val_mape: 8.2705 - lr: 1.0000e-05
Epoch 688/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2606 - mse: 0.2617
- rmse: 0.5116 - mae: 0.2606 - mape: 8.2524
Epoch 688: val_loss did not improve from 0.25918
318/318 [=====] - 0s 1ms/step - loss: 0.2598 - mse:
0.2606 - rmse: 0.5105 - mae: 0.2598 - mape: 8.2397 - val_loss: 0.2598 - val_mse:
0.2637 - val_rmse: 0.5135 - val_mae: 0.2598 - val_mape: 8.3053 - lr: 1.0000e-05
Epoch 689/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2600 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2600 - mape: 8.2423
Epoch 689: val_loss improved from 0.25918 to 0.25904, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2600 - mse:
0.2608 - rmse: 0.5106 - mae: 0.2600 - mape: 8.2467 - val_loss: 0.2590 - val_mse:
0.2597 - val_rmse: 0.5096 - val_mae: 0.2590 - val_mape: 8.2125 - lr: 1.0000e-05
Epoch 690/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2597 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2597 - mape: 8.2354
Epoch 690: val_loss improved from 0.25904 to 0.25897, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse:
0.2611 - rmse: 0.5109 - mae: 0.2597 - mape: 8.2274 - val_loss: 0.2590 - val_mse:
0.2607 - val_rmse: 0.5106 - val_mae: 0.2590 - val_mape: 8.2251 - lr: 1.0000e-05
Epoch 691/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2595 - mse: 0.2612
- rmse: 0.5110 - mae: 0.2595 - mape: 8.2441
Epoch 691: val_loss did not improve from 0.25897
318/318 [=====] - 0s 2ms/step - loss: 0.2597 - mse:
0.2618 - rmse: 0.5116 - mae: 0.2597 - mape: 8.2456 - val_loss: 0.2591 - val_mse:
0.2586 - val_rmse: 0.5086 - val_mae: 0.2591 - val_mape: 8.2078 - lr: 1.0000e-05
Epoch 692/1000
285/318 [=====>...] - ETA: 0s - loss: 0.2603 - mse: 0.2622
- rmse: 0.5121 - mae: 0.2603 - mape: 8.2276
Epoch 692: val_loss did not improve from 0.25897

318/318 [=====] - 1s 2ms/step - loss: 0.2595 - mse: 0.2603 - rmse: 0.5102 - mae: 0.2595 - mape: 8.2323 - val_loss: 0.2596 - val_mse: 0.2590 - val_rmse: 0.5089 - val_mae: 0.2596 - val_mape: 8.1733 - lr: 1.0000e-05
Epoch 693/1000

313/318 [=====>.] - ETA: 0s - loss: 0.2592 - mse: 0.2600 - rmse: 0.5099 - mae: 0.2592 - mape: 8.2272
Epoch 693: val_loss did not improve from 0.25897

318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse: 0.2607 - rmse: 0.5106 - mae: 0.2597 - mape: 8.2323 - val_loss: 0.2603 - val_mse: 0.2616 - val_rmse: 0.5115 - val_mae: 0.2603 - val_mape: 8.1936 - lr: 1.0000e-05
Epoch 694/1000

275/318 [=====>...] - ETA: 0s - loss: 0.2598 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2598 - mape: 8.2248
Epoch 694: val_loss did not improve from 0.25897

318/318 [=====] - 0s 1ms/step - loss: 0.2599 - mse: 0.2606 - rmse: 0.5105 - mae: 0.2599 - mape: 8.2340 - val_loss: 0.2593 - val_mse: 0.2583 - val_rmse: 0.5082 - val_mae: 0.2593 - val_mape: 8.2398 - lr: 1.0000e-05
Epoch 695/1000

287/318 [=====>...] - ETA: 0s - loss: 0.2594 - mse: 0.2616 - rmse: 0.5115 - mae: 0.2594 - mape: 8.2241
Epoch 695: val_loss did not improve from 0.25897

318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse: 0.2608 - rmse: 0.5107 - mae: 0.2597 - mape: 8.2373 - val_loss: 0.2595 - val_mse: 0.2575 - val_rmse: 0.5074 - val_mae: 0.2595 - val_mape: 8.1826 - lr: 1.0000e-05
Epoch 696/1000

285/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2611 - rmse: 0.5110 - mae: 0.2595 - mape: 8.2354
Epoch 696: val_loss did not improve from 0.25897

318/318 [=====] - 0s 1ms/step - loss: 0.2599 - mse: 0.2611 - rmse: 0.5110 - mae: 0.2599 - mape: 8.2369 - val_loss: 0.2600 - val_mse: 0.2569 - val_rmse: 0.5068 - val_mae: 0.2600 - val_mape: 8.2360 - lr: 1.0000e-05
Epoch 697/1000

289/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2584 - rmse: 0.5084 - mae: 0.2577 - mape: 8.1961
Epoch 697: val_loss did not improve from 0.25897

318/318 [=====] - 0s 1ms/step - loss: 0.2598 - mse: 0.2610 - rmse: 0.5108 - mae: 0.2598 - mape: 8.2418 - val_loss: 0.2599 - val_mse: 0.2558 - val_rmse: 0.5057 - val_mae: 0.2599 - val_mape: 8.1994 - lr: 1.0000e-05
Epoch 698/1000

291/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2588 - rmse: 0.5087 - mae: 0.2602 - mape: 8.2181
Epoch 698: val_loss improved from 0.25897 to 0.25896, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse: 0.2587 - rmse: 0.5086 - mae: 0.2597 - mape: 8.2174 - val_loss: 0.2590 - val_mse: 0.2603 - val_rmse: 0.5101 - val_mae: 0.2590 - val_mape: 8.2146 - lr: 1.0000e-05
Epoch 699/1000

281/318 [=====>...] - ETA: 0s - loss: 0.2619 - mse: 0.2660

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- rmse: 0.5157 - mae: 0.2619 - mape: 8.3011
Epoch 699: val_loss did not improve from 0.25896
318/318 [=====] - 0s 2ms/step - loss: 0.2597 - mse:
0.2606 - rmse: 0.5105 - mae: 0.2597 - mape: 8.2433 - val_loss: 0.2594 - val_mse:
0.2579 - val_rmse: 0.5078 - val_mae: 0.2594 - val_mape: 8.2034 - lr: 1.0000e-05
Epoch 700/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2613 - mse: 0.2655
- rmse: 0.5153 - mae: 0.2613 - mape: 8.2857
Epoch 700: val_loss did not improve from 0.25896
318/318 [=====] - 0s 2ms/step - loss: 0.2600 - mse:
0.2611 - rmse: 0.5110 - mae: 0.2600 - mape: 8.2460 - val_loss: 0.2593 - val_mse:
0.2574 - val_rmse: 0.5074 - val_mae: 0.2593 - val_mape: 8.1765 - lr: 1.0000e-05
Epoch 701/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2608 - mse: 0.2628
- rmse: 0.5126 - mae: 0.2608 - mape: 8.2530
Epoch 701: val_loss improved from 0.25896 to 0.25895, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2596 - mse:
0.2608 - rmse: 0.5107 - mae: 0.2596 - mape: 8.2323 - val_loss: 0.2589 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2589 - val_mape: 8.2349 - lr: 1.0000e-05
Epoch 702/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2596 - mse: 0.2603
- rmse: 0.5102 - mae: 0.2596 - mape: 8.2452
Epoch 702: val_loss improved from 0.25895 to 0.25893, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse:
0.2609 - rmse: 0.5108 - mae: 0.2597 - mape: 8.2436 - val_loss: 0.2589 - val_mse:
0.2581 - val_rmse: 0.5081 - val_mae: 0.2589 - val_mape: 8.2058 - lr: 1.0000e-05
Epoch 703/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2574 - mse: 0.2567
- rmse: 0.5067 - mae: 0.2574 - mape: 8.1573
Epoch 703: val_loss did not improve from 0.25893
318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse:
0.2605 - rmse: 0.5104 - mae: 0.2597 - mape: 8.2141 - val_loss: 0.2602 - val_mse:
0.2622 - val_rmse: 0.5120 - val_mae: 0.2602 - val_mape: 8.1990 - lr: 1.0000e-05
Epoch 704/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2596 - mape: 8.2370
Epoch 704: val_loss improved from 0.25893 to 0.25889, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2598 - mse:
0.2604 - rmse: 0.5103 - mae: 0.2598 - mape: 8.2324 - val_loss: 0.2589 - val_mse:
0.2579 - val_rmse: 0.5078 - val_mae: 0.2589 - val_mape: 8.2099 - lr: 1.0000e-05
Epoch 705/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2594 - mse: 0.2600
- rmse: 0.5099 - mae: 0.2594 - mape: 8.2054
Epoch 705: val_loss did not improve from 0.25889
318/318 [=====] - 1s 2ms/step - loss: 0.2596 - mse:

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0.2598 - rmse: 0.5097 - mae: 0.2596 - mape: 8.2228 - val_loss: 0.2605 - val_mse:
0.2612 - val_rmse: 0.5111 - val_mae: 0.2605 - val_mape: 8.3086 - lr: 1.0000e-05
Epoch 706/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2586 - mse: 0.2575
- rmse: 0.5075 - mae: 0.2586 - mape: 8.2068
Epoch 706: val_loss did not improve from 0.25889
318/318 [=====] - 0s 1ms/step - loss: 0.2597 - mse:
0.2607 - rmse: 0.5106 - mae: 0.2597 - mape: 8.2393 - val_loss: 0.2594 - val_mse:
0.2617 - val_rmse: 0.5116 - val_mae: 0.2594 - val_mape: 8.1976 - lr: 1.0000e-05
Epoch 707/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2586
- rmse: 0.5086 - mae: 0.2593 - mape: 8.2359
Epoch 707: val_loss did not improve from 0.25889
318/318 [=====] - 1s 2ms/step - loss: 0.2596 - mse:
0.2597 - rmse: 0.5096 - mae: 0.2596 - mape: 8.2222 - val_loss: 0.2592 - val_mse:
0.2606 - val_rmse: 0.5105 - val_mae: 0.2592 - val_mape: 8.2020 - lr: 1.0000e-05
Epoch 708/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2602 - mse: 0.2619
- rmse: 0.5118 - mae: 0.2602 - mape: 8.2302
Epoch 708: val_loss did not improve from 0.25889
318/318 [=====] - 1s 2ms/step - loss: 0.2598 - mse:
0.2601 - rmse: 0.5100 - mae: 0.2598 - mape: 8.2323 - val_loss: 0.2594 - val_mse:
0.2619 - val_rmse: 0.5118 - val_mae: 0.2594 - val_mape: 8.2569 - lr: 1.0000e-05
Epoch 709/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2591
- rmse: 0.5090 - mae: 0.2585 - mape: 8.1680
Epoch 709: val_loss did not improve from 0.25889
318/318 [=====] - 0s 2ms/step - loss: 0.2594 - mse:
0.2601 - rmse: 0.5100 - mae: 0.2594 - mape: 8.2288 - val_loss: 0.2600 - val_mse:
0.2560 - val_rmse: 0.5060 - val_mae: 0.2600 - val_mape: 8.1565 - lr: 1.0000e-05
Epoch 710/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2590
- rmse: 0.5089 - mae: 0.2595 - mape: 8.2360
Epoch 710: val_loss improved from 0.25889 to 0.25886, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2598 - mse:
0.2595 - rmse: 0.5095 - mae: 0.2598 - mape: 8.2284 - val_loss: 0.2589 - val_mse:
0.2604 - val_rmse: 0.5103 - val_mae: 0.2589 - val_mape: 8.2162 - lr: 1.0000e-05
Epoch 711/1000
318/318 [=====] - ETA: 0s - loss: 0.2594 - mse: 0.2600
- rmse: 0.5099 - mae: 0.2594 - mape: 8.2250
Epoch 711: val_loss did not improve from 0.25886
318/318 [=====] - 1s 2ms/step - loss: 0.2594 - mse:
0.2600 - rmse: 0.5099 - mae: 0.2594 - mape: 8.2250 - val_loss: 0.2605 - val_mse:
0.2601 - val_rmse: 0.5100 - val_mae: 0.2605 - val_mape: 8.2989 - lr: 1.0000e-05
Epoch 712/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2604 - mse: 0.2605
- rmse: 0.5104 - mae: 0.2604 - mape: 8.2505

Epoch 712: val_loss did not improve from 0.25886
318/318 [=====] - 1s 2ms/step - loss: 0.2601 - mse: 0.2604 - rmse: 0.5103 - mae: 0.2601 - mape: 8.2408 - val_loss: 0.2589 - val_mse: 0.2587 - val_rmse: 0.5086 - val_mae: 0.2589 - val_mape: 8.2282 - lr: 1.0000e-05
Epoch 713/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2582 - mse: 0.2584 - rmse: 0.5084 - mae: 0.2582 - mape: 8.2073
Epoch 713: val_loss did not improve from 0.25886
318/318 [=====] - 0s 2ms/step - loss: 0.2598 - mse: 0.2613 - rmse: 0.5111 - mae: 0.2598 - mape: 8.2373 - val_loss: 0.2590 - val_mse: 0.2588 - val_rmse: 0.5088 - val_mae: 0.2590 - val_mape: 8.1837 - lr: 1.0000e-05
Epoch 714/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2589 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2589 - mape: 8.2164
Epoch 714: val_loss did not improve from 0.25886
318/318 [=====] - 1s 2ms/step - loss: 0.2597 - mse: 0.2607 - rmse: 0.5106 - mae: 0.2597 - mape: 8.2252 - val_loss: 0.2592 - val_mse: 0.2564 - val_rmse: 0.5064 - val_mae: 0.2592 - val_mape: 8.1737 - lr: 1.0000e-05
Epoch 715/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2592 - mse: 0.2588 - rmse: 0.5088 - mae: 0.2592 - mape: 8.2041
Epoch 715: val_loss did not improve from 0.25886
318/318 [=====] - 0s 2ms/step - loss: 0.2595 - mse: 0.2593 - rmse: 0.5092 - mae: 0.2595 - mape: 8.2169 - val_loss: 0.2604 - val_mse: 0.2598 - val_rmse: 0.5097 - val_mae: 0.2604 - val_mape: 8.2906 - lr: 1.0000e-05
Epoch 716/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2583 - mse: 0.2573 - rmse: 0.5072 - mae: 0.2583 - mape: 8.1834
Epoch 716: val_loss did not improve from 0.25886
318/318 [=====] - 0s 1ms/step - loss: 0.2595 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2595 - mape: 8.2330 - val_loss: 0.2608 - val_mse: 0.2595 - val_rmse: 0.5094 - val_mae: 0.2608 - val_mape: 8.1502 - lr: 1.0000e-05
Epoch 717/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2596 - rmse: 0.5095 - mae: 0.2600 - mape: 8.2309
Epoch 717: val_loss improved from 0.25886 to 0.25867, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2599 - mse: 0.2597 - rmse: 0.5096 - mae: 0.2599 - mape: 8.2267 - val_loss: 0.2587 - val_mse: 0.2581 - val_rmse: 0.5081 - val_mae: 0.2587 - val_mape: 8.1957 - lr: 1.0000e-05
Epoch 718/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2593 - mse: 0.2605 - rmse: 0.5104 - mae: 0.2593 - mape: 8.2203
Epoch 718: val_loss did not improve from 0.25867
318/318 [=====] - 0s 2ms/step - loss: 0.2593 - mse: 0.2599 - rmse: 0.5098 - mae: 0.2593 - mape: 8.2243 - val_loss: 0.2592 - val_mse: 0.2579 - val_rmse: 0.5078 - val_mae: 0.2592 - val_mape: 8.2183 - lr: 1.0000e-05
Epoch 719/1000

292/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2612
- rmse: 0.5111 - mae: 0.2593 - mape: 8.2208
Epoch 719: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2596 - mse:
0.2604 - rmse: 0.5103 - mae: 0.2596 - mape: 8.2250 - val_loss: 0.2587 - val_mse:
0.2596 - val_rmse: 0.5095 - val_mae: 0.2587 - val_mape: 8.2042 - lr: 1.0000e-05
Epoch 720/1000
318/318 [=====] - ETA: 0s - loss: 0.2595 - mse: 0.2605
- rmse: 0.5104 - mae: 0.2595 - mape: 8.2284
Epoch 720: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2595 - mse:
0.2605 - rmse: 0.5104 - mae: 0.2595 - mape: 8.2284 - val_loss: 0.2599 - val_mse:
0.2652 - val_rmse: 0.5150 - val_mae: 0.2599 - val_mape: 8.3084 - lr: 1.0000e-05
Epoch 721/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2588 - mse: 0.2594
- rmse: 0.5093 - mae: 0.2588 - mape: 8.1855
Epoch 721: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2596 - mse:
0.2603 - rmse: 0.5102 - mae: 0.2596 - mape: 8.2152 - val_loss: 0.2589 - val_mse:
0.2614 - val_rmse: 0.5113 - val_mae: 0.2589 - val_mape: 8.2133 - lr: 1.0000e-05
Epoch 722/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2608
- rmse: 0.5107 - mae: 0.2600 - mape: 8.2367
Epoch 722: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2593 - mse:
0.2597 - rmse: 0.5096 - mae: 0.2593 - mape: 8.2093 - val_loss: 0.2590 - val_mse:
0.2604 - val_rmse: 0.5103 - val_mae: 0.2590 - val_mape: 8.2405 - lr: 1.0000e-05
Epoch 723/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2591 - mse: 0.2583
- rmse: 0.5083 - mae: 0.2591 - mape: 8.2119
Epoch 723: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2594 - mse:
0.2592 - rmse: 0.5092 - mae: 0.2594 - mape: 8.2294 - val_loss: 0.2589 - val_mse:
0.2577 - val_rmse: 0.5077 - val_mae: 0.2589 - val_mape: 8.1917 - lr: 1.0000e-05
Epoch 724/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2607 - mse: 0.2615
- rmse: 0.5114 - mae: 0.2607 - mape: 8.2573
Epoch 724: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2593 - mse:
0.2592 - rmse: 0.5091 - mae: 0.2593 - mape: 8.2087 - val_loss: 0.2589 - val_mse:
0.2621 - val_rmse: 0.5119 - val_mae: 0.2589 - val_mape: 8.2439 - lr: 1.0000e-05
Epoch 725/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2580 - mse: 0.2593
- rmse: 0.5092 - mae: 0.2580 - mape: 8.2154
Epoch 725: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2595 - mse:
0.2608 - rmse: 0.5107 - mae: 0.2595 - mape: 8.2240 - val_loss: 0.2588 - val_mse:
0.2610 - val_rmse: 0.5109 - val_mae: 0.2588 - val_mape: 8.2448 - lr: 1.0000e-05

Epoch 726/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2569 - mse: 0.2545
- rmse: 0.5044 - mae: 0.2569 - mape: 8.1743
Epoch 726: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2596 - mse:
0.2610 - rmse: 0.5109 - mae: 0.2596 - mape: 8.2325 - val_loss: 0.2591 - val_mse:
0.2569 - val_rmse: 0.5069 - val_mae: 0.2591 - val_mape: 8.2257 - lr: 1.0000e-05
Epoch 727/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2609
- rmse: 0.5108 - mae: 0.2593 - mape: 8.2152
Epoch 727: val_loss did not improve from 0.25867
318/318 [=====] - 0s 2ms/step - loss: 0.2594 - mse:
0.2599 - rmse: 0.5098 - mae: 0.2594 - mape: 8.2238 - val_loss: 0.2590 - val_mse:
0.2582 - val_rmse: 0.5082 - val_mae: 0.2590 - val_mape: 8.1587 - lr: 1.0000e-05
Epoch 728/1000
273/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2593
- rmse: 0.5093 - mae: 0.2593 - mape: 8.2419
Epoch 728: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2595 - mse:
0.2596 - rmse: 0.5095 - mae: 0.2595 - mape: 8.2251 - val_loss: 0.2591 - val_mse:
0.2603 - val_rmse: 0.5102 - val_mae: 0.2591 - val_mape: 8.2400 - lr: 1.0000e-05
Epoch 729/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2610 - mse: 0.2637
- rmse: 0.5135 - mae: 0.2610 - mape: 8.2556
Epoch 729: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2593 - mse:
0.2594 - rmse: 0.5093 - mae: 0.2593 - mape: 8.2236 - val_loss: 0.2588 - val_mse:
0.2580 - val_rmse: 0.5080 - val_mae: 0.2588 - val_mape: 8.2012 - lr: 1.0000e-05
Epoch 730/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2590 - mse: 0.2581
- rmse: 0.5081 - mae: 0.2590 - mape: 8.2201
Epoch 730: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2598 - mse:
0.2605 - rmse: 0.5104 - mae: 0.2598 - mape: 8.2317 - val_loss: 0.2588 - val_mse:
0.2591 - val_rmse: 0.5090 - val_mae: 0.2588 - val_mape: 8.2377 - lr: 1.0000e-05
Epoch 731/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2582 - mse: 0.2560
- rmse: 0.5060 - mae: 0.2582 - mape: 8.1629
Epoch 731: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse:
0.2580 - rmse: 0.5080 - mae: 0.2589 - mape: 8.1996 - val_loss: 0.2597 - val_mse:
0.2635 - val_rmse: 0.5133 - val_mae: 0.2597 - val_mape: 8.2997 - lr: 1.0000e-05
Epoch 732/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2581 - mse: 0.2576
- rmse: 0.5076 - mae: 0.2581 - mape: 8.1966
Epoch 732: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2596 - mse:
0.2602 - rmse: 0.5101 - mae: 0.2596 - mape: 8.2247 - val_loss: 0.2595 - val_mse:

0.2581 - val_rmse: 0.5080 - val_mae: 0.2595 - val_mape: 8.2337 - lr: 1.0000e-05
Epoch 733/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2591 - mse: 0.2597
- rmse: 0.5096 - mae: 0.2591 - mape: 8.2329
Epoch 733: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2597 - mse:
0.2603 - rmse: 0.5102 - mae: 0.2597 - mape: 8.2349 - val_loss: 0.2590 - val_mse:
0.2593 - val_rmse: 0.5092 - val_mae: 0.2590 - val_mape: 8.2423 - lr: 1.0000e-05
Epoch 734/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2608
- rmse: 0.5107 - mae: 0.2597 - mape: 8.2002
Epoch 734: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2592 - mse:
0.2595 - rmse: 0.5094 - mae: 0.2592 - mape: 8.2160 - val_loss: 0.2617 - val_mse:
0.2636 - val_rmse: 0.5134 - val_mae: 0.2617 - val_mape: 8.1806 - lr: 1.0000e-05
Epoch 735/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2589 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2589 - mape: 8.1853
Epoch 735: val_loss did not improve from 0.25867
318/318 [=====] - 0s 2ms/step - loss: 0.2587 - mse:
0.2590 - rmse: 0.5089 - mae: 0.2587 - mape: 8.1948 - val_loss: 0.2590 - val_mse:
0.2568 - val_rmse: 0.5068 - val_mae: 0.2590 - val_mape: 8.2023 - lr: 1.0000e-05
Epoch 736/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2591 - mse: 0.2599
- rmse: 0.5098 - mae: 0.2591 - mape: 8.2113
Epoch 736: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2592 - mse:
0.2587 - rmse: 0.5086 - mae: 0.2592 - mape: 8.2038 - val_loss: 0.2587 - val_mse:
0.2581 - val_rmse: 0.5081 - val_mae: 0.2587 - val_mape: 8.2113 - lr: 1.0000e-05
Epoch 737/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2591 - mse: 0.2595
- rmse: 0.5094 - mae: 0.2591 - mape: 8.2107
Epoch 737: val_loss did not improve from 0.25867
318/318 [=====] - 1s 2ms/step - loss: 0.2593 - mse:
0.2599 - rmse: 0.5098 - mae: 0.2593 - mape: 8.2155 - val_loss: 0.2588 - val_mse:
0.2569 - val_rmse: 0.5068 - val_mae: 0.2588 - val_mape: 8.1553 - lr: 1.0000e-05
Epoch 738/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2598 - mse: 0.2609
- rmse: 0.5107 - mae: 0.2598 - mape: 8.2166
Epoch 738: val_loss did not improve from 0.25867
318/318 [=====] - 0s 2ms/step - loss: 0.2596 - mse:
0.2601 - rmse: 0.5100 - mae: 0.2596 - mape: 8.2210 - val_loss: 0.2589 - val_mse:
0.2605 - val_rmse: 0.5104 - val_mae: 0.2589 - val_mape: 8.2351 - lr: 1.0000e-05
Epoch 739/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2582 - mse: 0.2581
- rmse: 0.5080 - mae: 0.2582 - mape: 8.1821
Epoch 739: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2593 - mse:

0.2593 - rmse: 0.5092 - mae: 0.2593 - mape: 8.2138 - val_loss: 0.2594 - val_mse: 0.2586 - val_rmse: 0.5085 - val_mae: 0.2594 - val_mape: 8.2409 - lr: 1.0000e-05
Epoch 740/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2613
- rmse: 0.5111 - mae: 0.2599 - mape: 8.2313
Epoch 740: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2592 - mse: 0.2593 - rmse: 0.5092 - mae: 0.2592 - mape: 8.2166 - val_loss: 0.2587 - val_mse: 0.2560 - val_rmse: 0.5060 - val_mae: 0.2587 - val_mape: 8.1603 - lr: 1.0000e-05
Epoch 741/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2595 - mse: 0.2602
- rmse: 0.5101 - mae: 0.2595 - mape: 8.2319
Epoch 741: val_loss did not improve from 0.25867
318/318 [=====] - 0s 2ms/step - loss: 0.2594 - mse: 0.2595 - rmse: 0.5094 - mae: 0.2594 - mape: 8.2194 - val_loss: 0.2595 - val_mse: 0.2568 - val_rmse: 0.5068 - val_mae: 0.2595 - val_mape: 8.1987 - lr: 1.0000e-05
Epoch 742/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2587 - mse: 0.2575
- rmse: 0.5074 - mae: 0.2587 - mape: 8.1925
Epoch 742: val_loss did not improve from 0.25867
318/318 [=====] - 0s 2ms/step - loss: 0.2594 - mse: 0.2595 - rmse: 0.5094 - mae: 0.2594 - mape: 8.2135 - val_loss: 0.2593 - val_mse: 0.2606 - val_rmse: 0.5105 - val_mae: 0.2593 - val_mape: 8.2618 - lr: 1.0000e-05
Epoch 743/1000
272/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2590
- rmse: 0.5089 - mae: 0.2593 - mape: 8.2246
Epoch 743: val_loss did not improve from 0.25867
318/318 [=====] - 0s 1ms/step - loss: 0.2595 - mse: 0.2598 - rmse: 0.5097 - mae: 0.2595 - mape: 8.2150 - val_loss: 0.2588 - val_mse: 0.2565 - val_rmse: 0.5065 - val_mae: 0.2588 - val_mape: 8.1626 - lr: 1.0000e-05
Epoch 744/1000
262/318 [=====>...] - ETA: 0s - loss: 0.2605 - mse: 0.2601
- rmse: 0.5100 - mae: 0.2605 - mape: 8.2427
Epoch 744: val_loss improved from 0.25867 to 0.25856, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2592 - mse: 0.2584 - rmse: 0.5084 - mae: 0.2592 - mape: 8.2051 - val_loss: 0.2586 - val_mse: 0.2575 - val_rmse: 0.5074 - val_mae: 0.2586 - val_mape: 8.1624 - lr: 1.0000e-05
Epoch 745/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2597 - mape: 8.2162
Epoch 745: val_loss did not improve from 0.25856
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse: 0.2588 - rmse: 0.5087 - mae: 0.2589 - mape: 8.1998 - val_loss: 0.2592 - val_mse: 0.2568 - val_rmse: 0.5068 - val_mae: 0.2592 - val_mape: 8.1976 - lr: 1.0000e-05
Epoch 746/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2594
- rmse: 0.5093 - mae: 0.2599 - mape: 8.2480

Epoch 746: val_loss did not improve from 0.25856
318/318 [=====] - 0s 1ms/step - loss: 0.2592 - mse: 0.2580 - rmse: 0.5079 - mae: 0.2592 - mape: 8.2070 - val_loss: 0.2592 - val_mse: 0.2593 - val_rmse: 0.5092 - val_mae: 0.2592 - val_mape: 8.2201 - lr: 1.0000e-05
Epoch 747/1000
265/318 [=====>...] - ETA: 0s - loss: 0.2590 - mse: 0.2573 - rmse: 0.5073 - mae: 0.2590 - mape: 8.2014
Epoch 747: val_loss did not improve from 0.25856
318/318 [=====] - 1s 2ms/step - loss: 0.2592 - mse: 0.2582 - rmse: 0.5081 - mae: 0.2592 - mape: 8.2009 - val_loss: 0.2603 - val_mse: 0.2598 - val_rmse: 0.5097 - val_mae: 0.2603 - val_mape: 8.2985 - lr: 1.0000e-05
Epoch 748/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2579 - rmse: 0.5078 - mae: 0.2593 - mape: 8.2207
Epoch 748: val_loss did not improve from 0.25856
318/318 [=====] - 1s 2ms/step - loss: 0.2592 - mse: 0.2596 - rmse: 0.5095 - mae: 0.2592 - mape: 8.2284 - val_loss: 0.2591 - val_mse: 0.2593 - val_rmse: 0.5092 - val_mae: 0.2591 - val_mape: 8.1777 - lr: 1.0000e-05
Epoch 749/1000
273/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2592 - rmse: 0.5091 - mae: 0.2597 - mape: 8.1974
Epoch 749: val_loss improved from 0.25856 to 0.25852, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2593 - mse: 0.2587 - rmse: 0.5087 - mae: 0.2593 - mape: 8.2120 - val_loss: 0.2585 - val_mse: 0.2593 - val_rmse: 0.5092 - val_mae: 0.2585 - val_mape: 8.1876 - lr: 1.0000e-05
Epoch 750/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2599 - mse: 0.2598 - rmse: 0.5097 - mae: 0.2599 - mape: 8.2397
Epoch 750: val_loss did not improve from 0.25852
318/318 [=====] - 1s 2ms/step - loss: 0.2594 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2594 - mape: 8.2229 - val_loss: 0.2587 - val_mse: 0.2591 - val_rmse: 0.5090 - val_mae: 0.2587 - val_mape: 8.2168 - lr: 1.0000e-05
Epoch 751/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2589 - mse: 0.2600 - rmse: 0.5099 - mae: 0.2589 - mape: 8.2095
Epoch 751: val_loss did not improve from 0.25852
318/318 [=====] - 1s 2ms/step - loss: 0.2593 - mse: 0.2604 - rmse: 0.5103 - mae: 0.2593 - mape: 8.2326 - val_loss: 0.2589 - val_mse: 0.2565 - val_rmse: 0.5065 - val_mae: 0.2589 - val_mape: 8.1558 - lr: 1.0000e-05
Epoch 752/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2593 - mse: 0.2590 - rmse: 0.5090 - mae: 0.2593 - mape: 8.2271
Epoch 752: val_loss did not improve from 0.25852
318/318 [=====] - 1s 2ms/step - loss: 0.2594 - mse: 0.2592 - rmse: 0.5091 - mae: 0.2594 - mape: 8.2195 - val_loss: 0.2588 - val_mse: 0.2566 - val_rmse: 0.5065 - val_mae: 0.2588 - val_mape: 8.1858 - lr: 1.0000e-05
Epoch 753/1000

298/318 [=====>..] - ETA: 0s - loss: 0.2583 - mse: 0.2572
- rmse: 0.5072 - mae: 0.2583 - mape: 8.1761
Epoch 753: val_loss did not improve from 0.25852
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2586 - rmse: 0.5086 - mae: 0.2591 - mape: 8.2098 - val_loss: 0.2588 - val_mse:
0.2559 - val_rmse: 0.5059 - val_mae: 0.2588 - val_mape: 8.1726 - lr: 1.0000e-05
Epoch 754/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2574
- rmse: 0.5074 - mae: 0.2596 - mape: 8.2069
Epoch 754: val_loss improved from 0.25852 to 0.25851, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse:
0.2570 - rmse: 0.5069 - mae: 0.2589 - mape: 8.1995 - val_loss: 0.2585 - val_mse:
0.2590 - val_rmse: 0.5089 - val_mae: 0.2585 - val_mape: 8.1818 - lr: 1.0000e-05
Epoch 755/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2592 - mse: 0.2590
- rmse: 0.5089 - mae: 0.2592 - mape: 8.2019
Epoch 755: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2588 - rmse: 0.5087 - mae: 0.2591 - mape: 8.2072 - val_loss: 0.2591 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2591 - val_mape: 8.1799 - lr: 1.0000e-05
Epoch 756/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2593 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2593 - mape: 8.2024
Epoch 756: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2583 - rmse: 0.5082 - mae: 0.2591 - mape: 8.2023 - val_loss: 0.2587 - val_mse:
0.2607 - val_rmse: 0.5106 - val_mae: 0.2587 - val_mape: 8.2287 - lr: 1.0000e-05
Epoch 757/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2594 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2594 - mape: 8.2312
Epoch 757: val_loss did not improve from 0.25851
318/318 [=====] - 0s 2ms/step - loss: 0.2593 - mse:
0.2597 - rmse: 0.5096 - mae: 0.2593 - mape: 8.2258 - val_loss: 0.2592 - val_mse:
0.2572 - val_rmse: 0.5071 - val_mae: 0.2592 - val_mape: 8.1331 - lr: 1.0000e-05
Epoch 758/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2589 - mse: 0.2594
- rmse: 0.5093 - mae: 0.2589 - mape: 8.1921
Epoch 758: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2592 - mse:
0.2595 - rmse: 0.5094 - mae: 0.2592 - mape: 8.2071 - val_loss: 0.2586 - val_mse:
0.2591 - val_rmse: 0.5090 - val_mae: 0.2586 - val_mape: 8.1857 - lr: 1.0000e-05
Epoch 759/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2588 - mse: 0.2588
- rmse: 0.5088 - mae: 0.2588 - mape: 8.1672
Epoch 759: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse:
0.2591 - rmse: 0.5090 - mae: 0.2590 - mape: 8.2098 - val_loss: 0.2592 - val_mse:

0.2559 - val_rmse: 0.5059 - val_mae: 0.2592 - val_mape: 8.1494 - lr: 1.0000e-05
Epoch 760/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2579 - mse: 0.2579
- rmse: 0.5079 - mae: 0.2579 - mape: 8.1674
Epoch 760: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2589 - rmse: 0.5088 - mae: 0.2591 - mape: 8.2033 - val_loss: 0.2591 - val_mse:
0.2547 - val_rmse: 0.5047 - val_mae: 0.2591 - val_mape: 8.1464 - lr: 1.0000e-05
Epoch 761/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2563
- rmse: 0.5062 - mae: 0.2577 - mape: 8.1482
Epoch 761: val_loss did not improve from 0.25851
318/318 [=====] - 0s 1ms/step - loss: 0.2592 - mse:
0.2585 - rmse: 0.5085 - mae: 0.2592 - mape: 8.2095 - val_loss: 0.2587 - val_mse:
0.2593 - val_rmse: 0.5092 - val_mae: 0.2587 - val_mape: 8.1877 - lr: 1.0000e-05
Epoch 762/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2590 - mse: 0.2586
- rmse: 0.5086 - mae: 0.2590 - mape: 8.2032
Epoch 762: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2591 - mape: 8.2087 - val_loss: 0.2595 - val_mse:
0.2631 - val_rmse: 0.5129 - val_mae: 0.2595 - val_mape: 8.2338 - lr: 1.0000e-05
Epoch 763/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2578 - mse: 0.2551
- rmse: 0.5051 - mae: 0.2578 - mape: 8.1782
Epoch 763: val_loss did not improve from 0.25851
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2587 - rmse: 0.5086 - mae: 0.2591 - mape: 8.2017 - val_loss: 0.2610 - val_mse:
0.2680 - val_rmse: 0.5177 - val_mae: 0.2610 - val_mape: 8.3315 - lr: 1.0000e-05
Epoch 764/1000
271/318 [=====>...] - ETA: 0s - loss: 0.2574 - mse: 0.2563
- rmse: 0.5062 - mae: 0.2574 - mape: 8.1449
Epoch 764: val_loss improved from 0.25851 to 0.25834, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2593 - mse:
0.2600 - rmse: 0.5099 - mae: 0.2593 - mape: 8.2207 - val_loss: 0.2583 - val_mse:
0.2568 - val_rmse: 0.5068 - val_mae: 0.2583 - val_mape: 8.1785 - lr: 1.0000e-05
Epoch 765/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2572 - mse: 0.2543
- rmse: 0.5043 - mae: 0.2572 - mape: 8.1362
Epoch 765: val_loss did not improve from 0.25834
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse:
0.2578 - rmse: 0.5077 - mae: 0.2588 - mape: 8.1978 - val_loss: 0.2592 - val_mse:
0.2612 - val_rmse: 0.5111 - val_mae: 0.2592 - val_mape: 8.2574 - lr: 1.0000e-05
Epoch 766/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2584 - mse: 0.2575
- rmse: 0.5074 - mae: 0.2584 - mape: 8.1844
Epoch 766: val_loss did not improve from 0.25834

318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse: 0.2584 - rmse: 0.5083 - mae: 0.2588 - mape: 8.2076 - val_loss: 0.2595 - val_mse: 0.2625 - val_rmse: 0.5123 - val_mae: 0.2595 - val_mape: 8.2086 - lr: 1.0000e-05
Epoch 767/1000
285/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2600 - rmse: 0.5099 - mae: 0.2597 - mape: 8.1952
Epoch 767: val_loss did not improve from 0.25834
318/318 [=====] - 0s 1ms/step - loss: 0.2588 - mse: 0.2587 - rmse: 0.5087 - mae: 0.2588 - mape: 8.1964 - val_loss: 0.2584 - val_mse: 0.2579 - val_rmse: 0.5078 - val_mae: 0.2584 - val_mape: 8.2106 - lr: 1.0000e-05
Epoch 768/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2610 - rmse: 0.5109 - mae: 0.2599 - mape: 8.2369
Epoch 768: val_loss did not improve from 0.25834
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2591 - mape: 8.2123 - val_loss: 0.2584 - val_mse: 0.2552 - val_rmse: 0.5051 - val_mae: 0.2584 - val_mape: 8.1646 - lr: 1.0000e-05
Epoch 769/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2589 - mse: 0.2587 - rmse: 0.5086 - mae: 0.2589 - mape: 8.1938
Epoch 769: val_loss did not improve from 0.25834
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse: 0.2585 - rmse: 0.5084 - mae: 0.2590 - mape: 8.2074 - val_loss: 0.2584 - val_mse: 0.2594 - val_rmse: 0.5093 - val_mae: 0.2584 - val_mape: 8.1780 - lr: 1.0000e-05
Epoch 770/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2630 - rmse: 0.5128 - mae: 0.2601 - mape: 8.2596
Epoch 770: val_loss did not improve from 0.25834
318/318 [=====] - 0s 1ms/step - loss: 0.2588 - mse: 0.2586 - rmse: 0.5085 - mae: 0.2588 - mape: 8.2124 - val_loss: 0.2583 - val_mse: 0.2557 - val_rmse: 0.5057 - val_mae: 0.2583 - val_mape: 8.1746 - lr: 1.0000e-05
Epoch 771/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2581 - rmse: 0.5080 - mae: 0.2587 - mape: 8.1784
Epoch 771: val_loss did not improve from 0.25834
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse: 0.2589 - rmse: 0.5088 - mae: 0.2591 - mape: 8.1985 - val_loss: 0.2590 - val_mse: 0.2624 - val_rmse: 0.5123 - val_mae: 0.2590 - val_mape: 8.2353 - lr: 1.0000e-05
Epoch 772/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2580 - mse: 0.2569 - rmse: 0.5068 - mae: 0.2580 - mape: 8.1872
Epoch 772: val_loss did not improve from 0.25834
318/318 [=====] - 0s 2ms/step - loss: 0.2590 - mse: 0.2585 - rmse: 0.5084 - mae: 0.2590 - mape: 8.2140 - val_loss: 0.2605 - val_mse: 0.2651 - val_rmse: 0.5148 - val_mae: 0.2605 - val_mape: 8.2865 - lr: 1.0000e-05
Epoch 773/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2586 - mse: 0.2561 - rmse: 0.5060 - mae: 0.2586 - mape: 8.2104

Epoch 773: val_loss did not improve from 0.25834
318/318 [=====] - 0s 2ms/step - loss: 0.2593 - mse:
0.2590 - rmse: 0.5089 - mae: 0.2593 - mape: 8.2095 - val_loss: 0.2599 - val_mse:
0.2566 - val_rmse: 0.5065 - val_mae: 0.2599 - val_mape: 8.2265 - lr: 1.0000e-05
Epoch 774/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2576 - mse: 0.2578
- rmse: 0.5078 - mae: 0.2576 - mape: 8.1759
Epoch 774: val_loss did not improve from 0.25834
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse:
0.2598 - rmse: 0.5097 - mae: 0.2590 - mape: 8.2076 - val_loss: 0.2599 - val_mse:
0.2549 - val_rmse: 0.5049 - val_mae: 0.2599 - val_mape: 8.1486 - lr: 1.0000e-05
Epoch 775/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2600 - mape: 8.2068
Epoch 775: val_loss improved from 0.25834 to 0.25824, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2592 - mse:
0.2574 - rmse: 0.5074 - mae: 0.2592 - mape: 8.1953 - val_loss: 0.2582 - val_mse:
0.2583 - val_rmse: 0.5082 - val_mae: 0.2582 - val_mape: 8.1891 - lr: 1.0000e-05
Epoch 776/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2578 - mse: 0.2559
- rmse: 0.5059 - mae: 0.2578 - mape: 8.1642
Epoch 776: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2588 - mape: 8.2002 - val_loss: 0.2584 - val_mse:
0.2579 - val_rmse: 0.5078 - val_mae: 0.2584 - val_mape: 8.2092 - lr: 1.0000e-05
Epoch 777/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2581 - mse: 0.2570
- rmse: 0.5069 - mae: 0.2581 - mape: 8.1894
Epoch 777: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2590 - rmse: 0.5090 - mae: 0.2591 - mape: 8.2113 - val_loss: 0.2591 - val_mse:
0.2555 - val_rmse: 0.5055 - val_mae: 0.2591 - val_mape: 8.2155 - lr: 1.0000e-05
Epoch 778/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2617
- rmse: 0.5116 - mae: 0.2597 - mape: 8.2123
Epoch 778: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse:
0.2586 - rmse: 0.5086 - mae: 0.2590 - mape: 8.2024 - val_loss: 0.2587 - val_mse:
0.2610 - val_rmse: 0.5109 - val_mae: 0.2587 - val_mape: 8.2551 - lr: 1.0000e-05
Epoch 779/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2598 - mse: 0.2621
- rmse: 0.5120 - mae: 0.2598 - mape: 8.2326
Epoch 779: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse:
0.2595 - rmse: 0.5094 - mae: 0.2589 - mape: 8.2153 - val_loss: 0.2586 - val_mse:
0.2559 - val_rmse: 0.5059 - val_mae: 0.2586 - val_mape: 8.1513 - lr: 1.0000e-05
Epoch 780/1000

304/318 [=====>..] - ETA: 0s - loss: 0.2584 - mse: 0.2576
- rmse: 0.5075 - mae: 0.2584 - mape: 8.1807
Epoch 780: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse:
0.2590 - rmse: 0.5089 - mae: 0.2589 - mape: 8.2052 - val_loss: 0.2601 - val_mse:
0.2557 - val_rmse: 0.5057 - val_mae: 0.2601 - val_mape: 8.2423 - lr: 1.0000e-05
Epoch 781/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2607
- rmse: 0.5106 - mae: 0.2601 - mape: 8.2315
Epoch 781: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse:
0.2582 - rmse: 0.5081 - mae: 0.2589 - mape: 8.2023 - val_loss: 0.2585 - val_mse:
0.2603 - val_rmse: 0.5102 - val_mae: 0.2585 - val_mape: 8.1873 - lr: 1.0000e-05
Epoch 782/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2578 - mse: 0.2560
- rmse: 0.5059 - mae: 0.2578 - mape: 8.1771
Epoch 782: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2591 - rmse: 0.5090 - mae: 0.2587 - mape: 8.1976 - val_loss: 0.2586 - val_mse:
0.2573 - val_rmse: 0.5072 - val_mae: 0.2586 - val_mape: 8.2035 - lr: 1.0000e-05
Epoch 783/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2587 - mse: 0.2587
- rmse: 0.5086 - mae: 0.2587 - mape: 8.1968
Epoch 783: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2584 - rmse: 0.5083 - mae: 0.2587 - mape: 8.1889 - val_loss: 0.2586 - val_mse:
0.2594 - val_rmse: 0.5094 - val_mae: 0.2586 - val_mape: 8.2461 - lr: 1.0000e-05
Epoch 784/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2600 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2600 - mape: 8.2367
Epoch 784: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2589 - rmse: 0.5089 - mae: 0.2587 - mape: 8.2035 - val_loss: 0.2584 - val_mse:
0.2582 - val_rmse: 0.5082 - val_mae: 0.2584 - val_mape: 8.2014 - lr: 1.0000e-05
Epoch 785/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2597
- rmse: 0.5096 - mae: 0.2597 - mape: 8.2358
Epoch 785: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2599 - rmse: 0.5098 - mae: 0.2591 - mape: 8.2172 - val_loss: 0.2586 - val_mse:
0.2620 - val_rmse: 0.5118 - val_mae: 0.2586 - val_mape: 8.2161 - lr: 1.0000e-05
Epoch 786/1000
315/318 [=====>..] - ETA: 0s - loss: 0.2588 - mse: 0.2588
- rmse: 0.5087 - mae: 0.2588 - mape: 8.2048
Epoch 786: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse:
0.2588 - rmse: 0.5087 - mae: 0.2590 - mape: 8.2081 - val_loss: 0.2585 - val_mse:
0.2572 - val_rmse: 0.5071 - val_mae: 0.2585 - val_mape: 8.2041 - lr: 1.0000e-05

Epoch 787/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2592 - mse: 0.2598
- rmse: 0.5097 - mae: 0.2592 - mape: 8.2068
Epoch 787: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2588 - mape: 8.2045 - val_loss: 0.2585 - val_mse:
0.2568 - val_rmse: 0.5068 - val_mae: 0.2585 - val_mape: 8.2184 - lr: 1.0000e-05
Epoch 788/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2583 - mse: 0.2570
- rmse: 0.5069 - mae: 0.2583 - mape: 8.2002
Epoch 788: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2587 - mape: 8.2091 - val_loss: 0.2591 - val_mse:
0.2622 - val_rmse: 0.5121 - val_mae: 0.2591 - val_mape: 8.2529 - lr: 1.0000e-05
Epoch 789/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2577
- rmse: 0.5077 - mae: 0.2577 - mape: 8.1485
Epoch 789: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2591 - mse:
0.2594 - rmse: 0.5093 - mae: 0.2591 - mape: 8.2126 - val_loss: 0.2599 - val_mse:
0.2544 - val_rmse: 0.5044 - val_mae: 0.2599 - val_mape: 8.1983 - lr: 1.0000e-05
Epoch 790/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2585 - mse: 0.2573
- rmse: 0.5072 - mae: 0.2585 - mape: 8.1750
Epoch 790: val_loss did not improve from 0.25824
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2587 - mape: 8.1860 - val_loss: 0.2591 - val_mse:
0.2633 - val_rmse: 0.5131 - val_mae: 0.2591 - val_mape: 8.2816 - lr: 1.0000e-05
Epoch 791/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2586 - mse: 0.2584
- rmse: 0.5083 - mae: 0.2586 - mape: 8.1949
Epoch 791: val_loss improved from 0.25824 to 0.25807, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse:
0.2590 - rmse: 0.5089 - mae: 0.2590 - mape: 8.2153 - val_loss: 0.2581 - val_mse:
0.2576 - val_rmse: 0.5075 - val_mae: 0.2581 - val_mape: 8.1669 - lr: 1.0000e-05
Epoch 792/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2594 - mse: 0.2587
- rmse: 0.5086 - mae: 0.2594 - mape: 8.2104
Epoch 792: val_loss did not improve from 0.25807
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2589 - mape: 8.1971 - val_loss: 0.2583 - val_mse:
0.2572 - val_rmse: 0.5071 - val_mae: 0.2583 - val_mape: 8.1884 - lr: 1.0000e-05
Epoch 793/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2584 - mse: 0.2575
- rmse: 0.5074 - mae: 0.2584 - mape: 8.1846
Epoch 793: val_loss did not improve from 0.25807
318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse:

0.2583 - rmse: 0.5082 - mae: 0.2586 - mape: 8.1886 - val_loss: 0.2587 - val_mse: 0.2629 - val_rmse: 0.5128 - val_mae: 0.2587 - val_mape: 8.2595 - lr: 1.0000e-05
Epoch 794/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2584 - mse: 0.2587
- rmse: 0.5086 - mae: 0.2584 - mape: 8.1800
Epoch 794: val_loss did not improve from 0.25807
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse: 0.2584 - rmse: 0.5083 - mae: 0.2588 - mape: 8.2096 - val_loss: 0.2594 - val_mse: 0.2548 - val_rmse: 0.5048 - val_mae: 0.2594 - val_mape: 8.1547 - lr: 1.0000e-05
Epoch 795/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2596 - mse: 0.2603
- rmse: 0.5102 - mae: 0.2596 - mape: 8.2227
Epoch 795: val_loss improved from 0.25807 to 0.25804, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse: 0.2597 - rmse: 0.5097 - mae: 0.2589 - mape: 8.2065 - val_loss: 0.2580 - val_mse: 0.2564 - val_rmse: 0.5064 - val_mae: 0.2580 - val_mape: 8.1455 - lr: 1.0000e-05
Epoch 796/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2584 - mse: 0.2587
- rmse: 0.5087 - mae: 0.2584 - mape: 8.1915
Epoch 796: val_loss did not improve from 0.25804
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse: 0.2588 - rmse: 0.5087 - mae: 0.2585 - mape: 8.1907 - val_loss: 0.2581 - val_mse: 0.2573 - val_rmse: 0.5073 - val_mae: 0.2581 - val_mape: 8.1605 - lr: 1.0000e-05
Epoch 797/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2566
- rmse: 0.5065 - mae: 0.2587 - mape: 8.2093
Epoch 797: val_loss did not improve from 0.25804
318/318 [=====] - 1s 2ms/step - loss: 0.2590 - mse: 0.2590 - rmse: 0.5089 - mae: 0.2590 - mape: 8.2030 - val_loss: 0.2583 - val_mse: 0.2562 - val_rmse: 0.5062 - val_mae: 0.2583 - val_mape: 8.1495 - lr: 1.0000e-05
Epoch 798/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2561
- rmse: 0.5061 - mae: 0.2587 - mape: 8.1902
Epoch 798: val_loss did not improve from 0.25804
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse: 0.2576 - rmse: 0.5075 - mae: 0.2587 - mape: 8.1991 - val_loss: 0.2590 - val_mse: 0.2582 - val_rmse: 0.5081 - val_mae: 0.2590 - val_mape: 8.1319 - lr: 1.0000e-05
Epoch 799/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2595 - mape: 8.2170
Epoch 799: val_loss did not improve from 0.25804
318/318 [=====] - 1s 2ms/step - loss: 0.2594 - mse: 0.2586 - rmse: 0.5085 - mae: 0.2594 - mape: 8.2105 - val_loss: 0.2589 - val_mse: 0.2600 - val_rmse: 0.5099 - val_mae: 0.2589 - val_mape: 8.1684 - lr: 1.0000e-05
Epoch 800/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2585 - mse: 0.2576
- rmse: 0.5075 - mae: 0.2585 - mape: 8.1899

Epoch 800: val_loss did not improve from 0.25804
 318/318 [=====] - 1s 2ms/step - loss: 0.2589 - mse: 0.2587 - rmse: 0.5087 - mae: 0.2589 - mape: 8.2025 - val_loss: 0.2598 - val_mse: 0.2632 - val_rmse: 0.5130 - val_mae: 0.2598 - val_mape: 8.2066 - lr: 1.0000e-05
 Epoch 801/1000
 302/318 [=====>..] - ETA: 0s - loss: 0.2592 - mse: 0.2588 - rmse: 0.5088 - mae: 0.2592 - mape: 8.2051
 Epoch 801: val_loss did not improve from 0.25804
 318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse: 0.2585 - rmse: 0.5084 - mae: 0.2586 - mape: 8.1960 - val_loss: 0.2582 - val_mse: 0.2602 - val_rmse: 0.5101 - val_mae: 0.2582 - val_mape: 8.1854 - lr: 1.0000e-05
 Epoch 802/1000
 300/318 [=====>..] - ETA: 0s - loss: 0.2578 - mse: 0.2578 - rmse: 0.5077 - mae: 0.2578 - mape: 8.1578
 Epoch 802: val_loss did not improve from 0.25804
 318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse: 0.2586 - rmse: 0.5085 - mae: 0.2587 - mape: 8.2010 - val_loss: 0.2583 - val_mse: 0.2557 - val_rmse: 0.5057 - val_mae: 0.2583 - val_mape: 8.1520 - lr: 1.0000e-05
 Epoch 803/1000
 292/318 [=====>...] - ETA: 0s - loss: 0.2601 - mse: 0.2600 - rmse: 0.5099 - mae: 0.2601 - mape: 8.2401
 Epoch 803: val_loss did not improve from 0.25804
 318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse: 0.2583 - rmse: 0.5082 - mae: 0.2585 - mape: 8.1838 - val_loss: 0.2581 - val_mse: 0.2582 - val_rmse: 0.5082 - val_mae: 0.2581 - val_mape: 8.2042 - lr: 1.0000e-05
 Epoch 804/1000
 312/318 [=====>..] - ETA: 0s - loss: 0.2584 - mse: 0.2565 - rmse: 0.5065 - mae: 0.2584 - mape: 8.1955
 Epoch 804: val_loss did not improve from 0.25804
 318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse: 0.2572 - rmse: 0.5072 - mae: 0.2584 - mape: 8.1930 - val_loss: 0.2601 - val_mse: 0.2607 - val_rmse: 0.5106 - val_mae: 0.2601 - val_mape: 8.1758 - lr: 1.0000e-05
 Epoch 805/1000
 309/318 [=====>..] - ETA: 0s - loss: 0.2587 - mse: 0.2583 - rmse: 0.5082 - mae: 0.2587 - mape: 8.1900
 Epoch 805: val_loss did not improve from 0.25804
 318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse: 0.2588 - rmse: 0.5087 - mae: 0.2586 - mape: 8.1916 - val_loss: 0.2590 - val_mse: 0.2544 - val_rmse: 0.5043 - val_mae: 0.2590 - val_mape: 8.1600 - lr: 1.0000e-05
 Epoch 806/1000
 303/318 [=====>..] - ETA: 0s - loss: 0.2587 - mse: 0.2586 - rmse: 0.5085 - mae: 0.2587 - mape: 8.1932
 Epoch 806: val_loss improved from 0.25804 to 0.25787, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
 318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2588 - mape: 8.2007 - val_loss: 0.2579 - val_mse: 0.2576 - val_rmse: 0.5076 - val_mae: 0.2579 - val_mape: 8.1803 - lr: 1.0000e-05
 Epoch 807/1000

288/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2595 - mape: 8.2368
Epoch 807: val_loss did not improve from 0.25787
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2585 - mape: 8.1981 - val_loss: 0.2588 - val_mse:
0.2610 - val_rmse: 0.5109 - val_mae: 0.2588 - val_mape: 8.2513 - lr: 1.0000e-05
Epoch 808/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2587 - mse: 0.2584
- rmse: 0.5083 - mae: 0.2587 - mape: 8.2105
Epoch 808: val_loss did not improve from 0.25787
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2585 - mape: 8.2029 - val_loss: 0.2583 - val_mse:
0.2585 - val_rmse: 0.5084 - val_mae: 0.2583 - val_mape: 8.2243 - lr: 1.0000e-05
Epoch 809/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2582 - mse: 0.2571
- rmse: 0.5070 - mae: 0.2582 - mape: 8.1816
Epoch 809: val_loss did not improve from 0.25787
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse:
0.2583 - rmse: 0.5082 - mae: 0.2588 - mape: 8.1985 - val_loss: 0.2582 - val_mse:
0.2556 - val_rmse: 0.5056 - val_mae: 0.2582 - val_mape: 8.1287 - lr: 1.0000e-05
Epoch 810/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2553
- rmse: 0.5053 - mae: 0.2585 - mape: 8.2040
Epoch 810: val_loss improved from 0.25787 to 0.25776, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2574 - rmse: 0.5073 - mae: 0.2587 - mape: 8.1907 - val_loss: 0.2578 - val_mse:
0.2567 - val_rmse: 0.5067 - val_mae: 0.2578 - val_mape: 8.1616 - lr: 1.0000e-05
Epoch 811/1000
309/318 [=====>.] - ETA: 0s - loss: 0.2597 - mse: 0.2598
- rmse: 0.5097 - mae: 0.2597 - mape: 8.2307
Epoch 811: val_loss did not improve from 0.25776
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse:
0.2587 - rmse: 0.5087 - mae: 0.2588 - mape: 8.2020 - val_loss: 0.2580 - val_mse:
0.2556 - val_rmse: 0.5056 - val_mae: 0.2580 - val_mape: 8.1402 - lr: 1.0000e-05
Epoch 812/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2587 - mse: 0.2583
- rmse: 0.5082 - mae: 0.2587 - mape: 8.1968
Epoch 812: val_loss improved from 0.25776 to 0.25774, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2583 - rmse: 0.5083 - mae: 0.2587 - mape: 8.1937 - val_loss: 0.2577 - val_mse:
0.2582 - val_rmse: 0.5081 - val_mae: 0.2577 - val_mape: 8.1726 - lr: 1.0000e-05
Epoch 813/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2588 - mse: 0.2595
- rmse: 0.5094 - mae: 0.2588 - mape: 8.2152
Epoch 813: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse:

0.2590 - rmse: 0.5089 - mae: 0.2586 - mape: 8.2067 - val_loss: 0.2582 - val_mse:
0.2565 - val_rmse: 0.5064 - val_mae: 0.2582 - val_mape: 8.1409 - lr: 1.0000e-05
Epoch 814/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2586 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2586 - mape: 8.2005
Epoch 814: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2586 - mape: 8.1956 - val_loss: 0.2582 - val_mse:
0.2576 - val_rmse: 0.5076 - val_mae: 0.2582 - val_mape: 8.1364 - lr: 1.0000e-05
Epoch 815/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2588 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2588 - mape: 8.1893
Epoch 815: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2582 - rmse: 0.5082 - mae: 0.2587 - mape: 8.1936 - val_loss: 0.2578 - val_mse:
0.2581 - val_rmse: 0.5080 - val_mae: 0.2578 - val_mape: 8.1810 - lr: 1.0000e-05
Epoch 816/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2583 - mse: 0.2590
- rmse: 0.5089 - mae: 0.2583 - mape: 8.1873
Epoch 816: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2592 - rmse: 0.5091 - mae: 0.2587 - mape: 8.1987 - val_loss: 0.2582 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2582 - val_mape: 8.1344 - lr: 1.0000e-05
Epoch 817/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2609
- rmse: 0.5108 - mae: 0.2596 - mape: 8.2016
Epoch 817: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2584 - mape: 8.1892 - val_loss: 0.2592 - val_mse:
0.2638 - val_rmse: 0.5137 - val_mae: 0.2592 - val_mape: 8.2661 - lr: 1.0000e-05
Epoch 818/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2583 - mse: 0.2578
- rmse: 0.5077 - mae: 0.2583 - mape: 8.1693
Epoch 818: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2596 - rmse: 0.5095 - mae: 0.2587 - mape: 8.1932 - val_loss: 0.2583 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2583 - val_mape: 8.1473 - lr: 1.0000e-05
Epoch 819/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2594 - mse: 0.2581
- rmse: 0.5080 - mae: 0.2594 - mape: 8.1986
Epoch 819: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse:
0.2581 - rmse: 0.5081 - mae: 0.2586 - mape: 8.1968 - val_loss: 0.2591 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2591 - val_mape: 8.2415 - lr: 1.0000e-05
Epoch 820/1000
299/318 [=====>...] - ETA: 0s - loss: 0.2576 - mse: 0.2562
- rmse: 0.5062 - mae: 0.2576 - mape: 8.1683
Epoch 820: val_loss did not improve from 0.25774

318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2586 - mape: 8.2019 - val_loss: 0.2589 - val_mse:
0.2589 - val_rmse: 0.5088 - val_mae: 0.2589 - val_mape: 8.1383 - lr: 1.0000e-05
Epoch 821/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2576 - mse: 0.2554
- rmse: 0.5054 - mae: 0.2576 - mape: 8.1467
Epoch 821: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2586 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2586 - mape: 8.1895 - val_loss: 0.2578 - val_mse:
0.2556 - val_rmse: 0.5056 - val_mae: 0.2578 - val_mape: 8.1437 - lr: 1.0000e-05
Epoch 822/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2579 - mse: 0.2569
- rmse: 0.5068 - mae: 0.2579 - mape: 8.1613
Epoch 822: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2583 - mape: 8.1886 - val_loss: 0.2579 - val_mse:
0.2592 - val_rmse: 0.5091 - val_mae: 0.2579 - val_mape: 8.1927 - lr: 1.0000e-05
Epoch 823/1000
316/318 [=====>..] - ETA: 0s - loss: 0.2583 - mse: 0.2576
- rmse: 0.5076 - mae: 0.2583 - mape: 8.1788
Epoch 823: val_loss did not improve from 0.25774
318/318 [=====] - 0s 2ms/step - loss: 0.2582 - mse:
0.2574 - rmse: 0.5073 - mae: 0.2582 - mape: 8.1788 - val_loss: 0.2585 - val_mse:
0.2582 - val_rmse: 0.5082 - val_mae: 0.2585 - val_mape: 8.1471 - lr: 1.0000e-05
Epoch 824/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2555 - mse: 0.2516
- rmse: 0.5016 - mae: 0.2555 - mape: 8.0522
Epoch 824: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2582 - mape: 8.1853 - val_loss: 0.2587 - val_mse:
0.2570 - val_rmse: 0.5069 - val_mae: 0.2587 - val_mape: 8.1196 - lr: 1.0000e-05
Epoch 825/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2591 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2591 - mape: 8.2207
Epoch 825: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2588 - rmse: 0.5087 - mae: 0.2584 - mape: 8.1880 - val_loss: 0.2582 - val_mse:
0.2570 - val_rmse: 0.5070 - val_mae: 0.2582 - val_mape: 8.1847 - lr: 1.0000e-05
Epoch 826/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2584 - mse: 0.2572
- rmse: 0.5071 - mae: 0.2584 - mape: 8.1819
Epoch 826: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2580 - rmse: 0.5079 - mae: 0.2583 - mape: 8.1783 - val_loss: 0.2579 - val_mse:
0.2569 - val_rmse: 0.5068 - val_mae: 0.2579 - val_mape: 8.2003 - lr: 1.0000e-05
Epoch 827/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2582 - mse: 0.2603
- rmse: 0.5102 - mae: 0.2582 - mape: 8.1861

Epoch 827: val_loss did not improve from 0.25774
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2590 - rmse: 0.5090 - mae: 0.2584 - mape: 8.1846 - val_loss: 0.2587 - val_mse:
0.2560 - val_rmse: 0.5059 - val_mae: 0.2587 - val_mape: 8.1875 - lr: 1.0000e-05
Epoch 828/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2572 - mse: 0.2580
- rmse: 0.5080 - mae: 0.2572 - mape: 8.1635
Epoch 828: val_loss improved from 0.25774 to 0.25769, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2582 - rmse: 0.5082 - mae: 0.2583 - mape: 8.1919 - val_loss: 0.2577 - val_mse:
0.2565 - val_rmse: 0.5064 - val_mae: 0.2577 - val_mape: 8.1774 - lr: 1.0000e-05
Epoch 829/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2602
- rmse: 0.5101 - mae: 0.2593 - mape: 8.2260
Epoch 829: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse:
0.2584 - rmse: 0.5083 - mae: 0.2582 - mape: 8.1841 - val_loss: 0.2580 - val_mse:
0.2569 - val_rmse: 0.5069 - val_mae: 0.2580 - val_mape: 8.1363 - lr: 1.0000e-05
Epoch 830/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2587 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2587 - mape: 8.2067
Epoch 830: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2582 - rmse: 0.5081 - mae: 0.2583 - mape: 8.1904 - val_loss: 0.2585 - val_mse:
0.2584 - val_rmse: 0.5083 - val_mae: 0.2585 - val_mape: 8.1434 - lr: 1.0000e-05
Epoch 831/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2584 - mse: 0.2600
- rmse: 0.5099 - mae: 0.2584 - mape: 8.1884
Epoch 831: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2583 - mape: 8.1808 - val_loss: 0.2577 - val_mse:
0.2580 - val_rmse: 0.5079 - val_mae: 0.2577 - val_mape: 8.1891 - lr: 1.0000e-05
Epoch 832/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2588 - mse: 0.2598
- rmse: 0.5098 - mae: 0.2588 - mape: 8.2010
Epoch 832: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2584 - mape: 8.1891 - val_loss: 0.2577 - val_mse:
0.2577 - val_rmse: 0.5077 - val_mae: 0.2577 - val_mape: 8.1761 - lr: 1.0000e-05
Epoch 833/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2586 - mse: 0.2592
- rmse: 0.5091 - mae: 0.2586 - mape: 8.1887
Epoch 833: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2583 - mape: 8.1877 - val_loss: 0.2585 - val_mse:
0.2552 - val_rmse: 0.5052 - val_mae: 0.2585 - val_mape: 8.1578 - lr: 1.0000e-05
Epoch 834/1000

274/318 [=====>...] - ETA: 0s - loss: 0.2586 - mse: 0.2589
- rmse: 0.5089 - mae: 0.2586 - mape: 8.1938
Epoch 834: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse:
0.2575 - rmse: 0.5074 - mae: 0.2582 - mape: 8.1848 - val_loss: 0.2579 - val_mse:
0.2566 - val_rmse: 0.5065 - val_mae: 0.2579 - val_mape: 8.1991 - lr: 1.0000e-05
Epoch 835/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2579 - mse: 0.2568
- rmse: 0.5068 - mae: 0.2579 - mape: 8.1734
Epoch 835: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse:
0.2583 - rmse: 0.5082 - mae: 0.2585 - mape: 8.1819 - val_loss: 0.2583 - val_mse:
0.2614 - val_rmse: 0.5112 - val_mae: 0.2583 - val_mape: 8.2496 - lr: 1.0000e-05
Epoch 836/1000
301/318 [=====>..] - ETA: 0s - loss: 0.2582 - mse: 0.2591
- rmse: 0.5091 - mae: 0.2582 - mape: 8.1834
Epoch 836: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse:
0.2586 - rmse: 0.5086 - mae: 0.2582 - mape: 8.1822 - val_loss: 0.2579 - val_mse:
0.2569 - val_rmse: 0.5069 - val_mae: 0.2579 - val_mape: 8.1569 - lr: 1.0000e-05
Epoch 837/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2571 - mse: 0.2555
- rmse: 0.5054 - mae: 0.2571 - mape: 8.1658
Epoch 837: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse:
0.2581 - rmse: 0.5081 - mae: 0.2585 - mape: 8.1814 - val_loss: 0.2579 - val_mse:
0.2602 - val_rmse: 0.5101 - val_mae: 0.2579 - val_mape: 8.1876 - lr: 1.0000e-05
Epoch 838/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2586 - mse: 0.2571
- rmse: 0.5071 - mae: 0.2586 - mape: 8.1795
Epoch 838: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2566 - rmse: 0.5066 - mae: 0.2579 - mape: 8.1648 - val_loss: 0.2599 - val_mse:
0.2587 - val_rmse: 0.5086 - val_mae: 0.2599 - val_mape: 8.2941 - lr: 1.0000e-05
Epoch 839/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2586 - mse: 0.2581
- rmse: 0.5081 - mae: 0.2586 - mape: 8.1921
Epoch 839: val_loss did not improve from 0.25769
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2574 - rmse: 0.5074 - mae: 0.2580 - mape: 8.1695 - val_loss: 0.2585 - val_mse:
0.2584 - val_rmse: 0.5083 - val_mae: 0.2585 - val_mape: 8.2525 - lr: 1.0000e-05
Epoch 840/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2593
- rmse: 0.5093 - mae: 0.2593 - mape: 8.2053
Epoch 840: val_loss improved from 0.25769 to 0.25757, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2584 - rmse: 0.5083 - mae: 0.2584 - mape: 8.1991 - val_loss: 0.2576 - val_mse:

0.2562 - val_rmse: 0.5062 - val_mae: 0.2576 - val_mape: 8.1790 - lr: 1.0000e-05
Epoch 841/1000
297/318 [=====>..] - ETA: 0s - loss: 0.2587 - mse: 0.2584
- rmse: 0.5083 - mae: 0.2587 - mape: 8.1996
Epoch 841: val_loss did not improve from 0.25757
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2580 - mape: 8.1869 - val_loss: 0.2586 - val_mse:
0.2535 - val_rmse: 0.5034 - val_mae: 0.2586 - val_mape: 8.1579 - lr: 1.0000e-05
Epoch 842/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2582 - mse: 0.2568
- rmse: 0.5068 - mae: 0.2582 - mape: 8.1829
Epoch 842: val_loss did not improve from 0.25757
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse:
0.2577 - rmse: 0.5077 - mae: 0.2585 - mape: 8.1880 - val_loss: 0.2580 - val_mse:
0.2593 - val_rmse: 0.5092 - val_mae: 0.2580 - val_mape: 8.2259 - lr: 1.0000e-05
Epoch 843/1000
274/318 [=====>...] - ETA: 0s - loss: 0.2588 - mse: 0.2590
- rmse: 0.5090 - mae: 0.2588 - mape: 8.2056
Epoch 843: val_loss did not improve from 0.25757
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2583 - mape: 8.1937 - val_loss: 0.2577 - val_mse:
0.2560 - val_rmse: 0.5060 - val_mae: 0.2577 - val_mape: 8.1506 - lr: 1.0000e-05
Epoch 844/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2590 - mse: 0.2587
- rmse: 0.5086 - mae: 0.2590 - mape: 8.2078
Epoch 844: val_loss did not improve from 0.25757
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2578 - rmse: 0.5077 - mae: 0.2584 - mape: 8.1946 - val_loss: 0.2576 - val_mse:
0.2567 - val_rmse: 0.5067 - val_mae: 0.2576 - val_mape: 8.1330 - lr: 1.0000e-05
Epoch 845/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2593 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2593 - mape: 8.2216
Epoch 845: val_loss did not improve from 0.25757
318/318 [=====] - 1s 2ms/step - loss: 0.2588 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2588 - mape: 8.2007 - val_loss: 0.2579 - val_mse:
0.2606 - val_rmse: 0.5105 - val_mae: 0.2579 - val_mape: 8.2066 - lr: 1.0000e-05
Epoch 846/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2593 - mape: 8.2360
Epoch 846: val_loss improved from 0.25757 to 0.25756, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2587 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2587 - mape: 8.1989 - val_loss: 0.2576 - val_mse:
0.2557 - val_rmse: 0.5056 - val_mae: 0.2576 - val_mape: 8.1306 - lr: 1.0000e-05
Epoch 847/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2591 - mse: 0.2595
- rmse: 0.5094 - mae: 0.2591 - mape: 8.2240
Epoch 847: val_loss did not improve from 0.25756

318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2578 - rmse: 0.5078 - mae: 0.2582 - mape: 8.1914 - val_loss: 0.2577 - val_mse: 0.2562 - val_rmse: 0.5062 - val_mae: 0.2577 - val_mape: 8.1592 - lr: 1.0000e-05
Epoch 848/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2580 - rmse: 0.5079 - mae: 0.2596 - mape: 8.2391
Epoch 848: val_loss did not improve from 0.25756
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2572 - rmse: 0.5072 - mae: 0.2582 - mape: 8.1781 - val_loss: 0.2579 - val_mse: 0.2614 - val_rmse: 0.5113 - val_mae: 0.2579 - val_mape: 8.2337 - lr: 1.0000e-05
Epoch 849/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2587 - mse: 0.2599 - rmse: 0.5098 - mae: 0.2587 - mape: 8.2029
Epoch 849: val_loss did not improve from 0.25756
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse: 0.2590 - rmse: 0.5089 - mae: 0.2585 - mape: 8.1979 - val_loss: 0.2578 - val_mse: 0.2565 - val_rmse: 0.5065 - val_mae: 0.2578 - val_mape: 8.1317 - lr: 1.0000e-05
Epoch 850/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2569 - mse: 0.2577 - rmse: 0.5076 - mae: 0.2569 - mape: 8.1579
Epoch 850: val_loss improved from 0.25756 to 0.25743, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2581 - mse: 0.2591 - rmse: 0.5090 - mae: 0.2581 - mape: 8.1912 - val_loss: 0.2574 - val_mse: 0.2565 - val_rmse: 0.5064 - val_mae: 0.2574 - val_mape: 8.1445 - lr: 1.0000e-05
Epoch 851/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2575 - mse: 0.2572 - rmse: 0.5071 - mae: 0.2575 - mape: 8.1601
Epoch 851: val_loss improved from 0.25743 to 0.25739, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2580 - rmse: 0.5080 - mae: 0.2582 - mape: 8.1863 - val_loss: 0.2574 - val_mse: 0.2583 - val_rmse: 0.5082 - val_mae: 0.2574 - val_mape: 8.1594 - lr: 1.0000e-05
Epoch 852/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2579 - mse: 0.2573 - rmse: 0.5073 - mae: 0.2579 - mape: 8.1586
Epoch 852: val_loss did not improve from 0.25739
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2579 - rmse: 0.5079 - mae: 0.2582 - mape: 8.1723 - val_loss: 0.2574 - val_mse: 0.2586 - val_rmse: 0.5085 - val_mae: 0.2574 - val_mape: 8.1609 - lr: 1.0000e-05
Epoch 853/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2600 - mse: 0.2609 - rmse: 0.5108 - mae: 0.2600 - mape: 8.2276
Epoch 853: val_loss did not improve from 0.25739
318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2580 - rmse: 0.5079 - mae: 0.2582 - mape: 8.1822 - val_loss: 0.2575 - val_mse: 0.2583 - val_rmse: 0.5082 - val_mae: 0.2575 - val_mape: 8.1677 - lr: 1.0000e-05
Epoch 854/1000

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295/318 [=====>...] - ETA: 0s - loss: 0.2578 - mse: 0.2580
- rmse: 0.5079 - mae: 0.2578 - mape: 8.1862
Epoch 854: val_loss did not improve from 0.25739
318/318 [=====] - 1s 2ms/step - loss: 0.2581 - mse:
0.2584 - rmse: 0.5083 - mae: 0.2581 - mape: 8.1853 - val_loss: 0.2576 - val_mse:
0.2548 - val_rmse: 0.5048 - val_mae: 0.2576 - val_mape: 8.1665 - lr: 1.0000e-05
Epoch 855/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2611
- rmse: 0.5110 - mae: 0.2599 - mape: 8.2531
Epoch 855: val_loss did not improve from 0.25739
318/318 [=====] - 0s 2ms/step - loss: 0.2582 - mse:
0.2580 - rmse: 0.5080 - mae: 0.2582 - mape: 8.1847 - val_loss: 0.2574 - val_mse:
0.2587 - val_rmse: 0.5086 - val_mae: 0.2574 - val_mape: 8.1819 - lr: 1.0000e-05
Epoch 856/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2577
- rmse: 0.5076 - mae: 0.2577 - mape: 8.1702
Epoch 856: val_loss did not improve from 0.25739
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2576 - rmse: 0.5076 - mae: 0.2577 - mape: 8.1705 - val_loss: 0.2577 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2577 - val_mape: 8.1931 - lr: 1.0000e-05
Epoch 857/1000
317/318 [=====>.] - ETA: 0s - loss: 0.2586 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2586 - mape: 8.1960
Epoch 857: val_loss did not improve from 0.25739
318/318 [=====] - 1s 2ms/step - loss: 0.2585 - mse:
0.2584 - rmse: 0.5084 - mae: 0.2585 - mape: 8.1936 - val_loss: 0.2583 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2583 - val_mape: 8.2032 - lr: 1.0000e-05
Epoch 858/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2599 - mse: 0.2596
- rmse: 0.5095 - mae: 0.2599 - mape: 8.2162
Epoch 858: val_loss did not improve from 0.25739
318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse:
0.2577 - rmse: 0.5077 - mae: 0.2584 - mape: 8.1934 - val_loss: 0.2578 - val_mse:
0.2559 - val_rmse: 0.5059 - val_mae: 0.2578 - val_mape: 8.1911 - lr: 1.0000e-05
Epoch 859/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2581 - mse: 0.2570
- rmse: 0.5070 - mae: 0.2581 - mape: 8.1683
Epoch 859: val_loss improved from 0.25739 to 0.25735, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2568 - rmse: 0.5068 - mae: 0.2580 - mape: 8.1724 - val_loss: 0.2573 - val_mse:
0.2564 - val_rmse: 0.5064 - val_mae: 0.2573 - val_mape: 8.1763 - lr: 1.0000e-05
Epoch 860/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2561 - mse: 0.2562
- rmse: 0.5061 - mae: 0.2561 - mape: 8.0893
Epoch 860: val_loss did not improve from 0.25735
318/318 [=====] - 1s 2ms/step - loss: 0.2583 - mse:
0.2580 - rmse: 0.5080 - mae: 0.2583 - mape: 8.1844 - val_loss: 0.2577 - val_mse:

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0.2597 - val_rmse: 0.5096 - val_mae: 0.2577 - val_mape: 8.1733 - lr: 1.0000e-05
Epoch 861/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2584 - mse: 0.2592
- rmse: 0.5091 - mae: 0.2584 - mape: 8.2028
Epoch 861: val_loss did not improve from 0.25735
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2577 - rmse: 0.5077 - mae: 0.2577 - mape: 8.1787 - val_loss: 0.2579 - val_mse:
0.2599 - val_rmse: 0.5098 - val_mae: 0.2579 - val_mape: 8.1827 - lr: 1.0000e-05
Epoch 862/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2573 - mse: 0.2561
- rmse: 0.5060 - mae: 0.2573 - mape: 8.1652
Epoch 862: val_loss did not improve from 0.25735
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2578 - mape: 8.1781 - val_loss: 0.2577 - val_mse:
0.2584 - val_rmse: 0.5083 - val_mae: 0.2577 - val_mape: 8.1440 - lr: 1.0000e-05
Epoch 863/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2586 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2586 - mape: 8.2049
Epoch 863: val_loss did not improve from 0.25735
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2580 - rmse: 0.5079 - mae: 0.2580 - mape: 8.1916 - val_loss: 0.2581 - val_mse:
0.2564 - val_rmse: 0.5063 - val_mae: 0.2581 - val_mape: 8.1528 - lr: 1.0000e-05
Epoch 864/1000
274/318 [=====>...] - ETA: 0s - loss: 0.2596 - mse: 0.2613
- rmse: 0.5112 - mae: 0.2596 - mape: 8.2261
Epoch 864: val_loss did not improve from 0.25735
318/318 [=====] - 0s 1ms/step - loss: 0.2583 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2583 - mape: 8.1749 - val_loss: 0.2577 - val_mse:
0.2592 - val_rmse: 0.5091 - val_mae: 0.2577 - val_mape: 8.2223 - lr: 1.0000e-05
Epoch 865/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2598 - mse: 0.2615
- rmse: 0.5114 - mae: 0.2598 - mape: 8.2431
Epoch 865: val_loss improved from 0.25735 to 0.25733, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2581 - mse:
0.2584 - rmse: 0.5083 - mae: 0.2581 - mape: 8.1812 - val_loss: 0.2573 - val_mse:
0.2575 - val_rmse: 0.5074 - val_mae: 0.2573 - val_mape: 8.1911 - lr: 1.0000e-05
Epoch 866/1000
292/318 [=====>...] - ETA: 0s - loss: 0.2559 - mse: 0.2543
- rmse: 0.5043 - mae: 0.2559 - mape: 8.1167
Epoch 866: val_loss did not improve from 0.25733
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2573 - rmse: 0.5073 - mae: 0.2579 - mape: 8.1849 - val_loss: 0.2586 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2586 - val_mape: 8.1850 - lr: 1.0000e-05
Epoch 867/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2583 - mse: 0.2580
- rmse: 0.5080 - mae: 0.2583 - mape: 8.1878
Epoch 867: val_loss did not improve from 0.25733

318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2581 - rmse: 0.5080 - mae: 0.2582 - mape: 8.1812 - val_loss: 0.2579 - val_mse: 0.2583 - val_rmse: 0.5082 - val_mae: 0.2579 - val_mape: 8.2029 - lr: 1.0000e-05
Epoch 868/1000

318/318 [=====] - ETA: 0s - loss: 0.2581 - mse: 0.2577 - rmse: 0.5076 - mae: 0.2581 - mape: 8.1766
Epoch 868: val_loss did not improve from 0.25733

318/318 [=====] - 1s 2ms/step - loss: 0.2581 - mse: 0.2577 - rmse: 0.5076 - mae: 0.2581 - mape: 8.1766 - val_loss: 0.2577 - val_mse: 0.2569 - val_rmse: 0.5069 - val_mae: 0.2577 - val_mape: 8.1342 - lr: 1.0000e-05
Epoch 869/1000

314/318 [=====>.] - ETA: 0s - loss: 0.2582 - mse: 0.2579 - rmse: 0.5078 - mae: 0.2582 - mape: 8.1760
Epoch 869: val_loss did not improve from 0.25733

318/318 [=====] - 0s 2ms/step - loss: 0.2582 - mse: 0.2577 - rmse: 0.5077 - mae: 0.2582 - mape: 8.1710 - val_loss: 0.2575 - val_mse: 0.2584 - val_rmse: 0.5083 - val_mae: 0.2575 - val_mape: 8.1524 - lr: 1.0000e-05
Epoch 870/1000

269/318 [=====>...] - ETA: 0s - loss: 0.2574 - mse: 0.2589 - rmse: 0.5088 - mae: 0.2574 - mape: 8.1679
Epoch 870: val_loss improved from 0.25733 to 0.25717, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 1s 2ms/step - loss: 0.2582 - mse: 0.2585 - rmse: 0.5084 - mae: 0.2582 - mape: 8.1914 - val_loss: 0.2572 - val_mse: 0.2565 - val_rmse: 0.5065 - val_mae: 0.2572 - val_mape: 8.1542 - lr: 1.0000e-05
Epoch 871/1000

307/318 [=====>..] - ETA: 0s - loss: 0.2578 - mse: 0.2579 - rmse: 0.5078 - mae: 0.2578 - mape: 8.1483
Epoch 871: val_loss did not improve from 0.25717

318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse: 0.2575 - rmse: 0.5075 - mae: 0.2578 - mape: 8.1676 - val_loss: 0.2578 - val_mse: 0.2576 - val_rmse: 0.5076 - val_mae: 0.2578 - val_mape: 8.1915 - lr: 1.0000e-05
Epoch 872/1000

313/318 [=====>.] - ETA: 0s - loss: 0.2584 - mse: 0.2582 - rmse: 0.5081 - mae: 0.2584 - mape: 8.1825
Epoch 872: val_loss did not improve from 0.25717

318/318 [=====] - 0s 2ms/step - loss: 0.2579 - mse: 0.2577 - rmse: 0.5077 - mae: 0.2579 - mape: 8.1720 - val_loss: 0.2580 - val_mse: 0.2625 - val_rmse: 0.5123 - val_mae: 0.2580 - val_mape: 8.2452 - lr: 1.0000e-05
Epoch 873/1000

317/318 [=====>.] - ETA: 0s - loss: 0.2585 - mse: 0.2587 - rmse: 0.5086 - mae: 0.2585 - mape: 8.1804
Epoch 873: val_loss did not improve from 0.25717

318/318 [=====] - 1s 2ms/step - loss: 0.2584 - mse: 0.2585 - rmse: 0.5085 - mae: 0.2584 - mape: 8.1766 - val_loss: 0.2572 - val_mse: 0.2580 - val_rmse: 0.5079 - val_mae: 0.2572 - val_mape: 8.1720 - lr: 1.0000e-05
Epoch 874/1000

274/318 [=====>...] - ETA: 0s - loss: 0.2589 - mse: 0.2584

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- rmse: 0.5083 - mae: 0.2589 - mape: 8.2117
Epoch 874: val_loss did not improve from 0.25717
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2579 - mape: 8.1691 - val_loss: 0.2574 - val_mse:
0.2566 - val_rmse: 0.5066 - val_mae: 0.2574 - val_mape: 8.1618 - lr: 1.0000e-05
Epoch 875/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2567 - mse: 0.2549
- rmse: 0.5049 - mae: 0.2567 - mape: 8.1296
Epoch 875: val_loss did not improve from 0.25717
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2577 - rmse: 0.5077 - mae: 0.2579 - mape: 8.1759 - val_loss: 0.2583 - val_mse:
0.2598 - val_rmse: 0.5097 - val_mae: 0.2583 - val_mape: 8.1371 - lr: 1.0000e-05
Epoch 876/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2577 - mse: 0.2574
- rmse: 0.5074 - mae: 0.2577 - mape: 8.1824
Epoch 876: val_loss did not improve from 0.25717
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2583 - rmse: 0.5082 - mae: 0.2580 - mape: 8.1796 - val_loss: 0.2580 - val_mse:
0.2538 - val_rmse: 0.5038 - val_mae: 0.2580 - val_mape: 8.1131 - lr: 1.0000e-05
Epoch 877/1000
318/318 [=====] - ETA: 0s - loss: 0.2581 - mse: 0.2572
- rmse: 0.5071 - mae: 0.2581 - mape: 8.1630
Epoch 877: val_loss did not improve from 0.25717
318/318 [=====] - 0s 2ms/step - loss: 0.2581 - mse:
0.2572 - rmse: 0.5071 - mae: 0.2581 - mape: 8.1630 - val_loss: 0.2581 - val_mse:
0.2589 - val_rmse: 0.5089 - val_mae: 0.2581 - val_mape: 8.2446 - lr: 1.0000e-05
Epoch 878/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2581 - mse: 0.2590
- rmse: 0.5090 - mae: 0.2581 - mape: 8.1828
Epoch 878: val_loss did not improve from 0.25717
318/318 [=====] - 0s 2ms/step - loss: 0.2580 - mse:
0.2585 - rmse: 0.5085 - mae: 0.2580 - mape: 8.1794 - val_loss: 0.2575 - val_mse:
0.2565 - val_rmse: 0.5064 - val_mae: 0.2575 - val_mape: 8.1410 - lr: 1.0000e-05
Epoch 879/1000
318/318 [=====] - ETA: 0s - loss: 0.2579 - mse: 0.2578
- rmse: 0.5078 - mae: 0.2579 - mape: 8.1529
Epoch 879: val_loss did not improve from 0.25717
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2578 - rmse: 0.5078 - mae: 0.2579 - mape: 8.1529 - val_loss: 0.2575 - val_mse:
0.2594 - val_rmse: 0.5093 - val_mae: 0.2575 - val_mape: 8.2151 - lr: 1.0000e-05
Epoch 880/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2576 - mse: 0.2581
- rmse: 0.5080 - mae: 0.2576 - mape: 8.1704
Epoch 880: val_loss improved from 0.25717 to 0.25716, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2585 - rmse: 0.5085 - mae: 0.2579 - mape: 8.1754 - val_loss: 0.2572 - val_mse:
0.2582 - val_rmse: 0.5082 - val_mae: 0.2572 - val_mape: 8.1641 - lr: 1.0000e-05

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Epoch 881/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2572 - mse: 0.2583
- rmse: 0.5083 - mae: 0.2572 - mape: 8.1719
Epoch 881: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2592 - rmse: 0.5091 - mae: 0.2580 - mape: 8.1825 - val_loss: 0.2575 - val_mse:
0.2604 - val_rmse: 0.5103 - val_mae: 0.2575 - val_mape: 8.2146 - lr: 1.0000e-05
Epoch 882/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2597 - mse: 0.2615
- rmse: 0.5114 - mae: 0.2597 - mape: 8.2342
Epoch 882: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2576 - rmse: 0.5075 - mae: 0.2579 - mape: 8.1787 - val_loss: 0.2580 - val_mse:
0.2564 - val_rmse: 0.5064 - val_mae: 0.2580 - val_mape: 8.2250 - lr: 1.0000e-05
Epoch 883/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2572 - mse: 0.2569
- rmse: 0.5068 - mae: 0.2572 - mape: 8.1638
Epoch 883: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2576 - rmse: 0.5075 - mae: 0.2580 - mape: 8.1751 - val_loss: 0.2574 - val_mse:
0.2574 - val_rmse: 0.5073 - val_mae: 0.2574 - val_mape: 8.1861 - lr: 1.0000e-05
Epoch 884/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2582 - mse: 0.2594
- rmse: 0.5093 - mae: 0.2582 - mape: 8.1958
Epoch 884: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2572 - rmse: 0.5072 - mae: 0.2577 - mape: 8.1666 - val_loss: 0.2589 - val_mse:
0.2532 - val_rmse: 0.5032 - val_mae: 0.2589 - val_mape: 8.1447 - lr: 1.0000e-05
Epoch 885/1000
312/318 [=====>.] - ETA: 0s - loss: 0.2581 - mse: 0.2584
- rmse: 0.5083 - mae: 0.2581 - mape: 8.1736
Epoch 885: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2579 - rmse: 0.5079 - mae: 0.2578 - mape: 8.1630 - val_loss: 0.2582 - val_mse:
0.2578 - val_rmse: 0.5078 - val_mae: 0.2582 - val_mape: 8.2291 - lr: 1.0000e-05
Epoch 886/1000
304/318 [=====>..] - ETA: 0s - loss: 0.2579 - mse: 0.2574
- rmse: 0.5073 - mae: 0.2579 - mape: 8.1647
Epoch 886: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2579 - mape: 8.1802 - val_loss: 0.2576 - val_mse:
0.2575 - val_rmse: 0.5075 - val_mae: 0.2576 - val_mape: 8.1282 - lr: 1.0000e-05
Epoch 887/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2604
- rmse: 0.5103 - mae: 0.2587 - mape: 8.2047
Epoch 887: val_loss did not improve from 0.25716
318/318 [=====] - 0s 1ms/step - loss: 0.2581 - mse:
0.2593 - rmse: 0.5092 - mae: 0.2581 - mape: 8.1877 - val_loss: 0.2575 - val_mse:

0.2560 - val_rmse: 0.5060 - val_mae: 0.2575 - val_mape: 8.1355 - lr: 1.0000e-05
Epoch 888/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2592 - mse: 0.2597
- rmse: 0.5096 - mae: 0.2592 - mape: 8.2072
Epoch 888: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2588 - rmse: 0.5088 - mae: 0.2579 - mape: 8.1784 - val_loss: 0.2575 - val_mse:
0.2545 - val_rmse: 0.5045 - val_mae: 0.2575 - val_mape: 8.1317 - lr: 1.0000e-05
Epoch 889/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2562 - mse: 0.2542
- rmse: 0.5042 - mae: 0.2562 - mape: 8.1119
Epoch 889: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2576 - rmse: 0.5076 - mae: 0.2578 - mape: 8.1716 - val_loss: 0.2580 - val_mse:
0.2542 - val_rmse: 0.5042 - val_mae: 0.2580 - val_mape: 8.1371 - lr: 1.0000e-05
Epoch 890/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2579 - mse: 0.2592
- rmse: 0.5091 - mae: 0.2579 - mape: 8.1658
Epoch 890: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2579 - mape: 8.1809 - val_loss: 0.2584 - val_mse:
0.2552 - val_rmse: 0.5051 - val_mae: 0.2584 - val_mape: 8.1687 - lr: 1.0000e-05
Epoch 891/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2567 - mse: 0.2573
- rmse: 0.5073 - mae: 0.2567 - mape: 8.1378
Epoch 891: val_loss did not improve from 0.25716
318/318 [=====] - 0s 2ms/step - loss: 0.2576 - mse:
0.2572 - rmse: 0.5072 - mae: 0.2576 - mape: 8.1658 - val_loss: 0.2583 - val_mse:
0.2634 - val_rmse: 0.5132 - val_mae: 0.2583 - val_mape: 8.2748 - lr: 1.0000e-05
Epoch 892/1000
284/318 [=====>...] - ETA: 0s - loss: 0.2580 - mse: 0.2593
- rmse: 0.5092 - mae: 0.2580 - mape: 8.1881
Epoch 892: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2580 - rmse: 0.5079 - mae: 0.2579 - mape: 8.1814 - val_loss: 0.2576 - val_mse:
0.2617 - val_rmse: 0.5116 - val_mae: 0.2576 - val_mape: 8.2060 - lr: 1.0000e-05
Epoch 893/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2572 - mse: 0.2571
- rmse: 0.5070 - mae: 0.2572 - mape: 8.1634
Epoch 893: val_loss did not improve from 0.25716
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2580 - rmse: 0.5079 - mae: 0.2579 - mape: 8.1728 - val_loss: 0.2575 - val_mse:
0.2552 - val_rmse: 0.5052 - val_mae: 0.2575 - val_mape: 8.1538 - lr: 1.0000e-05
Epoch 894/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2586 - mse: 0.2600
- rmse: 0.5099 - mae: 0.2586 - mape: 8.1899
Epoch 894: val_loss improved from 0.25716 to 0.25706, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5

318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse: 0.2575 - rmse: 0.5075 - mae: 0.2577 - mape: 8.1638 - val_loss: 0.2571 - val_mse: 0.2590 - val_rmse: 0.5089 - val_mae: 0.2571 - val_mape: 8.1789 - lr: 1.0000e-05
Epoch 895/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2575 - mse: 0.2573 - rmse: 0.5073 - mae: 0.2575 - mape: 8.1544
Epoch 895: val_loss did not improve from 0.25706
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse: 0.2580 - rmse: 0.5079 - mae: 0.2577 - mape: 8.1667 - val_loss: 0.2573 - val_mse: 0.2574 - val_rmse: 0.5074 - val_mae: 0.2573 - val_mape: 8.1721 - lr: 1.0000e-05
Epoch 896/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2569 - mse: 0.2561 - rmse: 0.5060 - mae: 0.2569 - mape: 8.1297
Epoch 896: val_loss did not improve from 0.25706
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse: 0.2571 - rmse: 0.5070 - mae: 0.2576 - mape: 8.1641 - val_loss: 0.2576 - val_mse: 0.2599 - val_rmse: 0.5098 - val_mae: 0.2576 - val_mape: 8.1973 - lr: 1.0000e-05
Epoch 897/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2573 - mse: 0.2570 - rmse: 0.5070 - mae: 0.2573 - mape: 8.1618
Epoch 897: val_loss did not improve from 0.25706
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse: 0.2581 - rmse: 0.5080 - mae: 0.2577 - mape: 8.1612 - val_loss: 0.2572 - val_mse: 0.2556 - val_rmse: 0.5056 - val_mae: 0.2572 - val_mape: 8.1577 - lr: 1.0000e-05
Epoch 898/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2562 - mse: 0.2555 - rmse: 0.5054 - mae: 0.2562 - mape: 8.1310
Epoch 898: val_loss did not improve from 0.25706
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse: 0.2579 - rmse: 0.5078 - mae: 0.2577 - mape: 8.1774 - val_loss: 0.2574 - val_mse: 0.2569 - val_rmse: 0.5069 - val_mae: 0.2574 - val_mape: 8.1209 - lr: 1.0000e-05
Epoch 899/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2585 - mse: 0.2589 - rmse: 0.5088 - mae: 0.2585 - mape: 8.1944
Epoch 899: val_loss did not improve from 0.25706
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse: 0.2579 - rmse: 0.5079 - mae: 0.2579 - mape: 8.1696 - val_loss: 0.2571 - val_mse: 0.2579 - val_rmse: 0.5079 - val_mae: 0.2571 - val_mape: 8.1755 - lr: 1.0000e-05
Epoch 900/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2565 - mse: 0.2584 - rmse: 0.5083 - mae: 0.2565 - mape: 8.1275
Epoch 900: val_loss improved from 0.25706 to 0.25701, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 0s 2ms/step - loss: 0.2578 - mse: 0.2590 - rmse: 0.5089 - mae: 0.2578 - mape: 8.1744 - val_loss: 0.2570 - val_mse: 0.2562 - val_rmse: 0.5062 - val_mae: 0.2570 - val_mape: 8.1194 - lr: 1.0000e-05
Epoch 901/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2567 - mse: 0.2558


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- rmse: 0.5058 - mae: 0.2567 - mape: 8.1427
Epoch 901: val_loss did not improve from 0.25701
318/318 [=====] - 1s 2ms/step - loss: 0.2580 - mse:
0.2580 - rmse: 0.5080 - mae: 0.2580 - mape: 8.1797 - val_loss: 0.2571 - val_mse:
0.2584 - val_rmse: 0.5084 - val_mae: 0.2571 - val_mape: 8.1856 - lr: 1.0000e-05
Epoch 902/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2564 - mse: 0.2545
- rmse: 0.5045 - mae: 0.2564 - mape: 8.1345
Epoch 902: val_loss did not improve from 0.25701
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2583 - rmse: 0.5082 - mae: 0.2578 - mape: 8.1785 - val_loss: 0.2570 - val_mse:
0.2548 - val_rmse: 0.5048 - val_mae: 0.2570 - val_mape: 8.1542 - lr: 1.0000e-05
Epoch 903/1000
283/318 [=====>...] - ETA: 0s - loss: 0.2570 - mse: 0.2573
- rmse: 0.5072 - mae: 0.2570 - mape: 8.1548
Epoch 903: val_loss did not improve from 0.25701
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2576 - mape: 8.1709 - val_loss: 0.2581 - val_mse:
0.2568 - val_rmse: 0.5067 - val_mae: 0.2581 - val_mape: 8.1206 - lr: 1.0000e-05
Epoch 904/1000
293/318 [=====>...] - ETA: 0s - loss: 0.2573 - mse: 0.2557
- rmse: 0.5056 - mae: 0.2573 - mape: 8.1569
Epoch 904: val_loss improved from 0.25701 to 0.25701, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2567 - rmse: 0.5067 - mae: 0.2578 - mape: 8.1669 - val_loss: 0.2570 - val_mse:
0.2582 - val_rmse: 0.5082 - val_mae: 0.2570 - val_mape: 8.1410 - lr: 1.0000e-05
Epoch 905/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2580 - mse: 0.2592
- rmse: 0.5091 - mae: 0.2580 - mape: 8.1970
Epoch 905: val_loss did not improve from 0.25701
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2584 - rmse: 0.5083 - mae: 0.2577 - mape: 8.1709 - val_loss: 0.2571 - val_mse:
0.2587 - val_rmse: 0.5087 - val_mae: 0.2571 - val_mape: 8.1654 - lr: 1.0000e-05
Epoch 906/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2569 - mse: 0.2567
- rmse: 0.5067 - mae: 0.2569 - mape: 8.1679
Epoch 906: val_loss did not improve from 0.25701
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2586 - rmse: 0.5086 - mae: 0.2579 - mape: 8.1804 - val_loss: 0.2570 - val_mse:
0.2574 - val_rmse: 0.5074 - val_mae: 0.2570 - val_mape: 8.1437 - lr: 1.0000e-05
Epoch 907/1000
290/318 [=====>...] - ETA: 0s - loss: 0.2554 - mse: 0.2546
- rmse: 0.5046 - mae: 0.2554 - mape: 8.1262
Epoch 907: val_loss improved from 0.25701 to 0.25692, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse:
0.2580 - rmse: 0.5080 - mae: 0.2576 - mape: 8.1730 - val_loss: 0.2569 - val_mse:

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0.2556 - val_rmse: 0.5055 - val_mae: 0.2569 - val_mape: 8.1385 - lr: 1.0000e-05
Epoch 908/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2593 - mse: 0.2616
- rmse: 0.5115 - mae: 0.2593 - mape: 8.2098
Epoch 908: val_loss did not improve from 0.25692
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2581 - rmse: 0.5081 - mae: 0.2578 - mape: 8.1656 - val_loss: 0.2573 - val_mse:
0.2587 - val_rmse: 0.5086 - val_mae: 0.2573 - val_mape: 8.2036 - lr: 1.0000e-05
Epoch 909/1000
271/318 [=====>...] - ETA: 0s - loss: 0.2562 - mse: 0.2544
- rmse: 0.5044 - mae: 0.2562 - mape: 8.1486
Epoch 909: val_loss did not improve from 0.25692
318/318 [=====] - 0s 1ms/step - loss: 0.2577 - mse:
0.2579 - rmse: 0.5079 - mae: 0.2577 - mape: 8.1642 - val_loss: 0.2569 - val_mse:
0.2566 - val_rmse: 0.5066 - val_mae: 0.2569 - val_mape: 8.1217 - lr: 1.0000e-05
Epoch 910/1000
280/318 [=====>...] - ETA: 0s - loss: 0.2576 - mse: 0.2569
- rmse: 0.5068 - mae: 0.2576 - mape: 8.1606
Epoch 910: val_loss improved from 0.25692 to 0.25688, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2586 - rmse: 0.5085 - mae: 0.2579 - mape: 8.1712 - val_loss: 0.2569 - val_mse:
0.2583 - val_rmse: 0.5083 - val_mae: 0.2569 - val_mape: 8.1487 - lr: 1.0000e-05
Epoch 911/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2574 - mse: 0.2578
- rmse: 0.5077 - mae: 0.2574 - mape: 8.1828
Epoch 911: val_loss did not improve from 0.25688
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2580 - rmse: 0.5079 - mae: 0.2575 - mape: 8.1569 - val_loss: 0.2570 - val_mse:
0.2589 - val_rmse: 0.5088 - val_mae: 0.2570 - val_mape: 8.1792 - lr: 1.0000e-05
Epoch 912/1000
273/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2576
- rmse: 0.5075 - mae: 0.2577 - mape: 8.1583
Epoch 912: val_loss did not improve from 0.25688
318/318 [=====] - 1s 2ms/step - loss: 0.2578 - mse:
0.2589 - rmse: 0.5088 - mae: 0.2578 - mape: 8.1806 - val_loss: 0.2571 - val_mse:
0.2540 - val_rmse: 0.5040 - val_mae: 0.2571 - val_mape: 8.1082 - lr: 1.0000e-05
Epoch 913/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2574 - mse: 0.2580
- rmse: 0.5079 - mae: 0.2574 - mape: 8.1450
Epoch 913: val_loss did not improve from 0.25688
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2577 - mape: 8.1590 - val_loss: 0.2573 - val_mse:
0.2586 - val_rmse: 0.5085 - val_mae: 0.2573 - val_mape: 8.2144 - lr: 1.0000e-05
Epoch 914/1000
300/318 [=====>..] - ETA: 0s - loss: 0.2581 - mse: 0.2577
- rmse: 0.5076 - mae: 0.2581 - mape: 8.1842
Epoch 914: val_loss improved from 0.25688 to 0.25680, saving model to

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model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2575 - rmse: 0.5075 - mae: 0.2577 - mape: 8.1656 - val_loss: 0.2568 - val_mse:
0.2559 - val_rmse: 0.5059 - val_mae: 0.2568 - val_mape: 8.1398 - lr: 1.0000e-05
Epoch 915/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2571 - mse: 0.2553
- rmse: 0.5052 - mae: 0.2571 - mape: 8.1505
Epoch 915: val_loss did not improve from 0.25680
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse:
0.2573 - rmse: 0.5073 - mae: 0.2576 - mape: 8.1778 - val_loss: 0.2579 - val_mse:
0.2540 - val_rmse: 0.5040 - val_mae: 0.2579 - val_mape: 8.1015 - lr: 1.0000e-05
Epoch 916/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2589 - mse: 0.2586
- rmse: 0.5086 - mae: 0.2589 - mape: 8.2014
Epoch 916: val_loss did not improve from 0.25680
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2575 - mape: 8.1569 - val_loss: 0.2569 - val_mse:
0.2580 - val_rmse: 0.5080 - val_mae: 0.2569 - val_mape: 8.1404 - lr: 1.0000e-05
Epoch 917/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2598
- rmse: 0.5098 - mae: 0.2585 - mape: 8.1680
Epoch 917: val_loss improved from 0.25680 to 0.25677, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse:
0.2579 - rmse: 0.5079 - mae: 0.2576 - mape: 8.1619 - val_loss: 0.2568 - val_mse:
0.2583 - val_rmse: 0.5082 - val_mae: 0.2568 - val_mape: 8.1530 - lr: 1.0000e-05
Epoch 918/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2595 - mse: 0.2584
- rmse: 0.5083 - mae: 0.2595 - mape: 8.2039
Epoch 918: val_loss did not improve from 0.25677
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2570 - rmse: 0.5069 - mae: 0.2575 - mape: 8.1632 - val_loss: 0.2569 - val_mse:
0.2594 - val_rmse: 0.5093 - val_mae: 0.2569 - val_mape: 8.1791 - lr: 1.0000e-05
Epoch 919/1000
272/318 [=====>...] - ETA: 0s - loss: 0.2581 - mse: 0.2591
- rmse: 0.5090 - mae: 0.2581 - mape: 8.1765
Epoch 919: val_loss did not improve from 0.25677
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2568 - rmse: 0.5068 - mae: 0.2575 - mape: 8.1722 - val_loss: 0.2572 - val_mse:
0.2571 - val_rmse: 0.5071 - val_mae: 0.2572 - val_mape: 8.1686 - lr: 1.0000e-05
Epoch 920/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2581 - mse: 0.2585
- rmse: 0.5084 - mae: 0.2581 - mape: 8.1805
Epoch 920: val_loss did not improve from 0.25677
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:
0.2568 - rmse: 0.5068 - mae: 0.2574 - mape: 8.1536 - val_loss: 0.2569 - val_mse:
0.2567 - val_rmse: 0.5067 - val_mae: 0.2569 - val_mape: 8.1595 - lr: 1.0000e-05
Epoch 921/1000

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296/318 [=====>...] - ETA: 0s - loss: 0.2576 - mse: 0.2568
- rmse: 0.5068 - mae: 0.2576 - mape: 8.1808
Epoch 921: val_loss did not improve from 0.25677
318/318 [=====] - 1s 2ms/step - loss: 0.2573 - mse:
0.2558 - rmse: 0.5058 - mae: 0.2573 - mape: 8.1543 - val_loss: 0.2586 - val_mse:
0.2566 - val_rmse: 0.5066 - val_mae: 0.2586 - val_mape: 8.2281 - lr: 1.0000e-05
Epoch 922/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2587 - mse: 0.2597
- rmse: 0.5096 - mae: 0.2587 - mape: 8.2046
Epoch 922: val_loss improved from 0.25677 to 0.25671, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2583 - rmse: 0.5082 - mae: 0.2579 - mape: 8.1780 - val_loss: 0.2567 - val_mse:
0.2557 - val_rmse: 0.5057 - val_mae: 0.2567 - val_mape: 8.1571 - lr: 1.0000e-05
Epoch 923/1000
294/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2595
- rmse: 0.5095 - mae: 0.2585 - mape: 8.2071
Epoch 923: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:
0.2573 - rmse: 0.5073 - mae: 0.2574 - mape: 8.1638 - val_loss: 0.2573 - val_mse:
0.2575 - val_rmse: 0.5074 - val_mae: 0.2573 - val_mape: 8.1890 - lr: 1.0000e-05
Epoch 924/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2576 - mse: 0.2582
- rmse: 0.5081 - mae: 0.2576 - mape: 8.1676
Epoch 924: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2576 - mape: 8.1667 - val_loss: 0.2569 - val_mse:
0.2555 - val_rmse: 0.5055 - val_mae: 0.2569 - val_mape: 8.1398 - lr: 1.0000e-05
Epoch 925/1000
274/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2585
- rmse: 0.5084 - mae: 0.2585 - mape: 8.1898
Epoch 925: val_loss did not improve from 0.25671
318/318 [=====] - 0s 2ms/step - loss: 0.2574 - mse:
0.2567 - rmse: 0.5067 - mae: 0.2574 - mape: 8.1548 - val_loss: 0.2570 - val_mse:
0.2589 - val_rmse: 0.5088 - val_mae: 0.2570 - val_mape: 8.1863 - lr: 1.0000e-05
Epoch 926/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2585 - mse: 0.2589
- rmse: 0.5088 - mae: 0.2585 - mape: 8.1960
Epoch 926: val_loss did not improve from 0.25671
318/318 [=====] - 0s 2ms/step - loss: 0.2575 - mse:
0.2569 - rmse: 0.5069 - mae: 0.2575 - mape: 8.1604 - val_loss: 0.2572 - val_mse:
0.2570 - val_rmse: 0.5070 - val_mae: 0.2572 - val_mape: 8.1622 - lr: 1.0000e-05
Epoch 927/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2580 - mse: 0.2606
- rmse: 0.5105 - mae: 0.2580 - mape: 8.2003
Epoch 927: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2573 - mse:
0.2578 - rmse: 0.5077 - mae: 0.2573 - mape: 8.1616 - val_loss: 0.2571 - val_mse:

0.2542 - val_rmse: 0.5042 - val_mae: 0.2571 - val_mape: 8.1152 - lr: 1.0000e-05
Epoch 928/1000
279/318 [=====>...] - ETA: 0s - loss: 0.2568 - mse: 0.2555
- rmse: 0.5055 - mae: 0.2568 - mape: 8.1419
Epoch 928: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2569 - rmse: 0.5069 - mae: 0.2575 - mape: 8.1635 - val_loss: 0.2567 - val_mse:
0.2564 - val_rmse: 0.5064 - val_mae: 0.2567 - val_mape: 8.1503 - lr: 1.0000e-05
Epoch 929/1000
291/318 [=====>...] - ETA: 0s - loss: 0.2573 - mse: 0.2582
- rmse: 0.5081 - mae: 0.2573 - mape: 8.1726
Epoch 929: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2581 - rmse: 0.5080 - mae: 0.2572 - mape: 8.1622 - val_loss: 0.2567 - val_mse:
0.2554 - val_rmse: 0.5054 - val_mae: 0.2567 - val_mape: 8.1550 - lr: 1.0000e-05
Epoch 930/1000
318/318 [=====] - ETA: 0s - loss: 0.2576 - mse: 0.2580
- rmse: 0.5080 - mae: 0.2576 - mape: 8.1674
Epoch 930: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2576 - mse:
0.2580 - rmse: 0.5080 - mae: 0.2576 - mape: 8.1674 - val_loss: 0.2579 - val_mse:
0.2533 - val_rmse: 0.5033 - val_mae: 0.2579 - val_mape: 8.1242 - lr: 1.0000e-05
Epoch 931/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2566 - mse: 0.2559
- rmse: 0.5059 - mae: 0.2566 - mape: 8.0863
Epoch 931: val_loss did not improve from 0.25671
318/318 [=====] - 0s 2ms/step - loss: 0.2573 - mse:
0.2564 - rmse: 0.5064 - mae: 0.2573 - mape: 8.1471 - val_loss: 0.2571 - val_mse:
0.2597 - val_rmse: 0.5096 - val_mae: 0.2571 - val_mape: 8.1962 - lr: 1.0000e-05
Epoch 932/1000
314/318 [=====>.] - ETA: 0s - loss: 0.2578 - mse: 0.2588
- rmse: 0.5087 - mae: 0.2578 - mape: 8.1720
Epoch 932: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2579 - mse:
0.2586 - rmse: 0.5086 - mae: 0.2579 - mape: 8.1750 - val_loss: 0.2576 - val_mse:
0.2545 - val_rmse: 0.5045 - val_mae: 0.2576 - val_mape: 8.1769 - lr: 1.0000e-05
Epoch 933/1000
317/318 [=====>.] - ETA: 0s - loss: 0.2571 - mse: 0.2566
- rmse: 0.5066 - mae: 0.2571 - mape: 8.1515
Epoch 933: val_loss did not improve from 0.25671
318/318 [=====] - 0s 2ms/step - loss: 0.2572 - mse:
0.2568 - rmse: 0.5068 - mae: 0.2572 - mape: 8.1538 - val_loss: 0.2577 - val_mse:
0.2580 - val_rmse: 0.5080 - val_mae: 0.2577 - val_mape: 8.2065 - lr: 1.0000e-05
Epoch 934/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2586 - mse: 0.2585
- rmse: 0.5085 - mae: 0.2586 - mape: 8.2132
Epoch 934: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:

0.2569 - rmse: 0.5069 - mae: 0.2574 - mape: 8.1656 - val_loss: 0.2567 - val_mse:
0.2594 - val_rmse: 0.5093 - val_mae: 0.2567 - val_mape: 8.1763 - lr: 1.0000e-05
Epoch 935/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2586
- rmse: 0.5086 - mae: 0.2577 - mape: 8.1945
Epoch 935: val_loss did not improve from 0.25671
318/318 [=====] - 1s 2ms/step - loss: 0.2573 - mse:
0.2571 - rmse: 0.5070 - mae: 0.2573 - mape: 8.1557 - val_loss: 0.2581 - val_mse:
0.2623 - val_rmse: 0.5122 - val_mae: 0.2581 - val_mape: 8.2773 - lr: 1.0000e-05
Epoch 936/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2564 - mse: 0.2562
- rmse: 0.5062 - mae: 0.2564 - mape: 8.1441
Epoch 936: val_loss improved from 0.25671 to 0.25662, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2572 - mape: 8.1653 - val_loss: 0.2566 - val_mse:
0.2564 - val_rmse: 0.5064 - val_mae: 0.2566 - val_mape: 8.1432 - lr: 1.0000e-05
Epoch 937/1000
316/318 [=====>.] - ETA: 0s - loss: 0.2573 - mse: 0.2578
- rmse: 0.5078 - mae: 0.2573 - mape: 8.1563
Epoch 937: val_loss did not improve from 0.25662
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:
0.2578 - rmse: 0.5078 - mae: 0.2574 - mape: 8.1595 - val_loss: 0.2571 - val_mse:
0.2564 - val_rmse: 0.5063 - val_mae: 0.2571 - val_mape: 8.0929 - lr: 1.0000e-05
Epoch 938/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2576 - mse: 0.2568
- rmse: 0.5067 - mae: 0.2576 - mape: 8.1641
Epoch 938: val_loss did not improve from 0.25662
318/318 [=====] - 1s 2ms/step - loss: 0.2573 - mse:
0.2563 - rmse: 0.5062 - mae: 0.2573 - mape: 8.1578 - val_loss: 0.2575 - val_mse:
0.2553 - val_rmse: 0.5052 - val_mae: 0.2575 - val_mape: 8.0877 - lr: 1.0000e-05
Epoch 939/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2577 - mse: 0.2578
- rmse: 0.5078 - mae: 0.2577 - mape: 8.1574
Epoch 939: val_loss did not improve from 0.25662
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2575 - mape: 8.1598 - val_loss: 0.2574 - val_mse:
0.2611 - val_rmse: 0.5110 - val_mae: 0.2574 - val_mape: 8.2232 - lr: 1.0000e-05
Epoch 940/1000
307/318 [=====>..] - ETA: 0s - loss: 0.2582 - mse: 0.2589
- rmse: 0.5088 - mae: 0.2582 - mape: 8.1873
Epoch 940: val_loss did not improve from 0.25662
318/318 [=====] - 0s 2ms/step - loss: 0.2576 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2576 - mape: 8.1677 - val_loss: 0.2571 - val_mse:
0.2593 - val_rmse: 0.5092 - val_mae: 0.2571 - val_mape: 8.1819 - lr: 1.0000e-05
Epoch 941/1000
288/318 [=====>...] - ETA: 0s - loss: 0.2581 - mse: 0.2575
- rmse: 0.5074 - mae: 0.2581 - mape: 8.2110

Epoch 941: val_loss did not improve from 0.25662
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2572 - rmse: 0.5071 - mae: 0.2572 - mape: 8.1584 - val_loss: 0.2568 - val_mse:
0.2565 - val_rmse: 0.5065 - val_mae: 0.2568 - val_mape: 8.1015 - lr: 1.0000e-05
Epoch 942/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2571 - mse: 0.2570
- rmse: 0.5069 - mae: 0.2571 - mape: 8.1388
Epoch 942: val_loss did not improve from 0.25662
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2568 - rmse: 0.5067 - mae: 0.2572 - mape: 8.1533 - val_loss: 0.2571 - val_mse:
0.2542 - val_rmse: 0.5042 - val_mae: 0.2571 - val_mape: 8.0908 - lr: 1.0000e-05
Epoch 943/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2573 - mse: 0.2585
- rmse: 0.5084 - mae: 0.2573 - mape: 8.1810
Epoch 943: val_loss did not improve from 0.25662
318/318 [=====] - 0s 2ms/step - loss: 0.2574 - mse:
0.2574 - rmse: 0.5074 - mae: 0.2574 - mape: 8.1595 - val_loss: 0.2570 - val_mse:
0.2531 - val_rmse: 0.5031 - val_mae: 0.2570 - val_mape: 8.1318 - lr: 1.0000e-05
Epoch 944/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2562 - mse: 0.2562
- rmse: 0.5061 - mae: 0.2562 - mape: 8.1499
Epoch 944: val_loss did not improve from 0.25662
318/318 [=====] - 1s 2ms/step - loss: 0.2571 - mse:
0.2569 - rmse: 0.5069 - mae: 0.2571 - mape: 8.1445 - val_loss: 0.2568 - val_mse:
0.2546 - val_rmse: 0.5046 - val_mae: 0.2568 - val_mape: 8.1570 - lr: 1.0000e-05
Epoch 945/1000
271/318 [=====>...] - ETA: 0s - loss: 0.2584 - mse: 0.2580
- rmse: 0.5079 - mae: 0.2584 - mape: 8.1771
Epoch 945: val_loss improved from 0.25662 to 0.25645, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2577 - mse:
0.2572 - rmse: 0.5071 - mae: 0.2577 - mape: 8.1731 - val_loss: 0.2564 - val_mse:
0.2564 - val_rmse: 0.5064 - val_mae: 0.2564 - val_mape: 8.1316 - lr: 1.0000e-05
Epoch 946/1000
282/318 [=====>...] - ETA: 0s - loss: 0.2579 - mse: 0.2588
- rmse: 0.5087 - mae: 0.2579 - mape: 8.1738
Epoch 946: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2566 - rmse: 0.5066 - mae: 0.2572 - mape: 8.1484 - val_loss: 0.2568 - val_mse:
0.2559 - val_rmse: 0.5059 - val_mae: 0.2568 - val_mape: 8.1396 - lr: 1.0000e-05
Epoch 947/1000
289/318 [=====>...] - ETA: 0s - loss: 0.2569 - mse: 0.2582
- rmse: 0.5081 - mae: 0.2569 - mape: 8.1541
Epoch 947: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2573 - mse:
0.2580 - rmse: 0.5079 - mae: 0.2573 - mape: 8.1613 - val_loss: 0.2572 - val_mse:
0.2576 - val_rmse: 0.5075 - val_mae: 0.2572 - val_mape: 8.1148 - lr: 1.0000e-05
Epoch 948/1000

318/318 [=====] - ETA: 0s - loss: 0.2575 - mse: 0.2574
- rmse: 0.5074 - mae: 0.2575 - mape: 8.1540
Epoch 948: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2574 - rmse: 0.5074 - mae: 0.2575 - mape: 8.1540 - val_loss: 0.2581 - val_mse:
0.2643 - val_rmse: 0.5141 - val_mae: 0.2581 - val_mape: 8.2599 - lr: 1.0000e-05
Epoch 949/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2564 - mse: 0.2549
- rmse: 0.5049 - mae: 0.2564 - mape: 8.1301
Epoch 949: val_loss did not improve from 0.25645
318/318 [=====] - 0s 2ms/step - loss: 0.2573 - mse:
0.2585 - rmse: 0.5084 - mae: 0.2573 - mape: 8.1609 - val_loss: 0.2567 - val_mse:
0.2557 - val_rmse: 0.5057 - val_mae: 0.2567 - val_mape: 8.0946 - lr: 1.0000e-05
Epoch 950/1000
264/318 [=====>...] - ETA: 0s - loss: 0.2560 - mse: 0.2540
- rmse: 0.5040 - mae: 0.2560 - mape: 8.1436
Epoch 950: val_loss did not improve from 0.25645
318/318 [=====] - 0s 2ms/step - loss: 0.2571 - mse:
0.2569 - rmse: 0.5068 - mae: 0.2571 - mape: 8.1367 - val_loss: 0.2573 - val_mse:
0.2556 - val_rmse: 0.5056 - val_mae: 0.2573 - val_mape: 8.1506 - lr: 1.0000e-05
Epoch 951/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2585 - mse: 0.2602
- rmse: 0.5101 - mae: 0.2585 - mape: 8.1720
Epoch 951: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2571 - mse:
0.2575 - rmse: 0.5074 - mae: 0.2571 - mape: 8.1415 - val_loss: 0.2577 - val_mse:
0.2635 - val_rmse: 0.5133 - val_mae: 0.2577 - val_mape: 8.2585 - lr: 1.0000e-05
Epoch 952/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2575 - mse: 0.2584
- rmse: 0.5083 - mae: 0.2575 - mape: 8.1657
Epoch 952: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2571 - rmse: 0.5071 - mae: 0.2572 - mape: 8.1511 - val_loss: 0.2568 - val_mse:
0.2580 - val_rmse: 0.5079 - val_mae: 0.2568 - val_mape: 8.1441 - lr: 1.0000e-05
Epoch 953/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2572 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2572 - mape: 8.1647
Epoch 953: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2579 - rmse: 0.5079 - mae: 0.2570 - mape: 8.1567 - val_loss: 0.2573 - val_mse:
0.2534 - val_rmse: 0.5034 - val_mae: 0.2573 - val_mape: 8.0973 - lr: 1.0000e-05
Epoch 954/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2593
- rmse: 0.5093 - mae: 0.2577 - mape: 8.1974
Epoch 954: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2574 - mape: 8.1575 - val_loss: 0.2568 - val_mse:
0.2558 - val_rmse: 0.5057 - val_mae: 0.2568 - val_mape: 8.1587 - lr: 1.0000e-05

Epoch 955/1000
269/318 [=====>...] - ETA: 0s - loss: 0.2572 - mse: 0.2608
- rmse: 0.5107 - mae: 0.2572 - mape: 8.1584
Epoch 955: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2574 - mape: 8.1667 - val_loss: 0.2569 - val_mse:
0.2540 - val_rmse: 0.5040 - val_mae: 0.2569 - val_mape: 8.0893 - lr: 1.0000e-05
Epoch 956/1000
306/318 [=====>..] - ETA: 0s - loss: 0.2576 - mse: 0.2586
- rmse: 0.5086 - mae: 0.2576 - mape: 8.1586
Epoch 956: val_loss did not improve from 0.25645
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2570 - rmse: 0.5069 - mae: 0.2570 - mape: 8.1341 - val_loss: 0.2568 - val_mse:
0.2543 - val_rmse: 0.5043 - val_mae: 0.2568 - val_mape: 8.1305 - lr: 1.0000e-05
Epoch 957/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2557 - mse: 0.2561
- rmse: 0.5061 - mae: 0.2557 - mape: 8.1161
Epoch 957: val_loss improved from 0.25645 to 0.25632, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2572 - mape: 8.1595 - val_loss: 0.2563 - val_mse:
0.2556 - val_rmse: 0.5055 - val_mae: 0.2563 - val_mape: 8.1034 - lr: 1.0000e-05
Epoch 958/1000
302/318 [=====>..] - ETA: 0s - loss: 0.2557 - mse: 0.2556
- rmse: 0.5056 - mae: 0.2557 - mape: 8.1080
Epoch 958: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2572 - rmse: 0.5072 - mae: 0.2569 - mape: 8.1476 - val_loss: 0.2566 - val_mse:
0.2546 - val_rmse: 0.5046 - val_mae: 0.2566 - val_mape: 8.0984 - lr: 1.0000e-05
Epoch 959/1000
275/318 [=====>...] - ETA: 0s - loss: 0.2562 - mse: 0.2558
- rmse: 0.5058 - mae: 0.2562 - mape: 8.1519
Epoch 959: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2568 - rmse: 0.5067 - mae: 0.2569 - mape: 8.1332 - val_loss: 0.2571 - val_mse:
0.2611 - val_rmse: 0.5109 - val_mae: 0.2571 - val_mape: 8.2160 - lr: 1.0000e-05
Epoch 960/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2588 - mse: 0.2613
- rmse: 0.5112 - mae: 0.2588 - mape: 8.2149
Epoch 960: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2571 - mse:
0.2577 - rmse: 0.5077 - mae: 0.2571 - mape: 8.1583 - val_loss: 0.2565 - val_mse:
0.2545 - val_rmse: 0.5045 - val_mae: 0.2565 - val_mape: 8.1134 - lr: 1.0000e-05
Epoch 961/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2569 - mse: 0.2558
- rmse: 0.5058 - mae: 0.2569 - mape: 8.1547
Epoch 961: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:

0.2565 - rmse: 0.5065 - mae: 0.2570 - mape: 8.1444 - val_loss: 0.2572 - val_mse:
0.2610 - val_rmse: 0.5109 - val_mae: 0.2572 - val_mape: 8.1918 - lr: 1.0000e-05
Epoch 962/1000
305/318 [=====>..] - ETA: 0s - loss: 0.2571 - mse: 0.2565
- rmse: 0.5064 - mae: 0.2571 - mape: 8.1568
Epoch 962: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2572 - mape: 8.1496 - val_loss: 0.2565 - val_mse:
0.2582 - val_rmse: 0.5081 - val_mae: 0.2565 - val_mape: 8.1757 - lr: 1.0000e-05
Epoch 963/1000
315/318 [=====>.] - ETA: 0s - loss: 0.2572 - mse: 0.2575
- rmse: 0.5074 - mae: 0.2572 - mape: 8.1576
Epoch 963: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2572 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2572 - mape: 8.1585 - val_loss: 0.2567 - val_mse:
0.2545 - val_rmse: 0.5044 - val_mae: 0.2567 - val_mape: 8.0785 - lr: 1.0000e-05
Epoch 964/1000
308/318 [=====>.] - ETA: 0s - loss: 0.2577 - mse: 0.2571
- rmse: 0.5070 - mae: 0.2577 - mape: 8.1562
Epoch 964: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2571 - mse:
0.2571 - rmse: 0.5071 - mae: 0.2571 - mape: 8.1421 - val_loss: 0.2568 - val_mse:
0.2580 - val_rmse: 0.5080 - val_mae: 0.2568 - val_mape: 8.1565 - lr: 1.0000e-05
Epoch 965/1000
277/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2586
- rmse: 0.5085 - mae: 0.2577 - mape: 8.1779
Epoch 965: val_loss did not improve from 0.25632
318/318 [=====] - 0s 2ms/step - loss: 0.2572 - mse:
0.2572 - rmse: 0.5071 - mae: 0.2572 - mape: 8.1466 - val_loss: 0.2565 - val_mse:
0.2537 - val_rmse: 0.5037 - val_mae: 0.2565 - val_mape: 8.1017 - lr: 1.0000e-05
Epoch 966/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2552 - mse: 0.2508
- rmse: 0.5008 - mae: 0.2552 - mape: 8.0755
Epoch 966: val_loss did not improve from 0.25632
318/318 [=====] - 0s 2ms/step - loss: 0.2570 - mse:
0.2566 - rmse: 0.5066 - mae: 0.2570 - mape: 8.1448 - val_loss: 0.2565 - val_mse:
0.2560 - val_rmse: 0.5060 - val_mae: 0.2565 - val_mape: 8.1245 - lr: 1.0000e-05
Epoch 967/1000
278/318 [=====>...] - ETA: 0s - loss: 0.2571 - mse: 0.2585
- rmse: 0.5084 - mae: 0.2571 - mape: 8.1438
Epoch 967: val_loss did not improve from 0.25632
318/318 [=====] - 1s 2ms/step - loss: 0.2571 - mse:
0.2568 - rmse: 0.5067 - mae: 0.2571 - mape: 8.1470 - val_loss: 0.2565 - val_mse:
0.2547 - val_rmse: 0.5047 - val_mae: 0.2565 - val_mape: 8.0998 - lr: 1.0000e-05
Epoch 968/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2574 - mse: 0.2573
- rmse: 0.5072 - mae: 0.2574 - mape: 8.1350
Epoch 968: val_loss improved from 0.25632 to 0.25629, saving model to

```

model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2568 - rmse: 0.5068 - mae: 0.2570 - mape: 8.1452 - val_loss: 0.2563 - val_mse:
0.2552 - val_rmse: 0.5051 - val_mae: 0.2563 - val_mape: 8.1228 - lr: 1.0000e-05
Epoch 969/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2571 - mse: 0.2590
- rmse: 0.5089 - mae: 0.2571 - mape: 8.1286
Epoch 969: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2570 - mape: 8.1372 - val_loss: 0.2564 - val_mse:
0.2537 - val_rmse: 0.5037 - val_mae: 0.2564 - val_mape: 8.1130 - lr: 1.0000e-05
Epoch 970/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2572 - mse: 0.2557
- rmse: 0.5056 - mae: 0.2572 - mape: 8.1314
Epoch 970: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2574 - mse:
0.2567 - rmse: 0.5067 - mae: 0.2574 - mape: 8.1537 - val_loss: 0.2565 - val_mse:
0.2553 - val_rmse: 0.5053 - val_mae: 0.2565 - val_mape: 8.0935 - lr: 1.0000e-05
Epoch 971/1000
270/318 [=====>...] - ETA: 0s - loss: 0.2549 - mse: 0.2569
- rmse: 0.5069 - mae: 0.2549 - mape: 8.0711
Epoch 971: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2567 - mse:
0.2571 - rmse: 0.5071 - mae: 0.2567 - mape: 8.1363 - val_loss: 0.2581 - val_mse:
0.2548 - val_rmse: 0.5047 - val_mae: 0.2581 - val_mape: 8.0764 - lr: 1.0000e-05
Epoch 972/1000
313/318 [=====>.] - ETA: 0s - loss: 0.2569 - mse: 0.2558
- rmse: 0.5057 - mae: 0.2569 - mape: 8.1404
Epoch 972: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2561 - rmse: 0.5061 - mae: 0.2570 - mape: 8.1425 - val_loss: 0.2569 - val_mse:
0.2581 - val_rmse: 0.5080 - val_mae: 0.2569 - val_mape: 8.0916 - lr: 1.0000e-05
Epoch 973/1000
267/318 [=====>...] - ETA: 0s - loss: 0.2573 - mse: 0.2579
- rmse: 0.5078 - mae: 0.2573 - mape: 8.1449
Epoch 973: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2569 - mape: 8.1458 - val_loss: 0.2563 - val_mse:
0.2582 - val_rmse: 0.5081 - val_mae: 0.2563 - val_mape: 8.1641 - lr: 1.0000e-05
Epoch 974/1000
317/318 [=====>.] - ETA: 0s - loss: 0.2572 - mse: 0.2576
- rmse: 0.5075 - mae: 0.2572 - mape: 8.1615
Epoch 974: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2571 - mse:
0.2574 - rmse: 0.5073 - mae: 0.2571 - mape: 8.1589 - val_loss: 0.2577 - val_mse:
0.2603 - val_rmse: 0.5102 - val_mae: 0.2577 - val_mape: 8.1654 - lr: 1.0000e-05
Epoch 975/1000
263/318 [=====>...] - ETA: 0s - loss: 0.2575 - mse: 0.2576

```

```

- rmse: 0.5075 - mae: 0.2575 - mape: 8.1494
Epoch 975: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2573 - rmse: 0.5072 - mae: 0.2569 - mape: 8.1362 - val_loss: 0.2565 - val_mse:
0.2549 - val_rmse: 0.5048 - val_mae: 0.2565 - val_mape: 8.0973 - lr: 1.0000e-05
Epoch 976/1000
266/318 [=====>...] - ETA: 0s - loss: 0.2557 - mse: 0.2522
- rmse: 0.5022 - mae: 0.2557 - mape: 8.0930
Epoch 976: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2576 - rmse: 0.5076 - mae: 0.2570 - mape: 8.1438 - val_loss: 0.2563 - val_mse:
0.2551 - val_rmse: 0.5051 - val_mae: 0.2563 - val_mape: 8.1401 - lr: 1.0000e-05
Epoch 977/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2556 - mse: 0.2542
- rmse: 0.5042 - mae: 0.2556 - mape: 8.0913
Epoch 977: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse:
0.2564 - rmse: 0.5064 - mae: 0.2568 - mape: 8.1322 - val_loss: 0.2578 - val_mse:
0.2529 - val_rmse: 0.5029 - val_mae: 0.2578 - val_mape: 8.1055 - lr: 1.0000e-05
Epoch 978/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2578 - mse: 0.2565
- rmse: 0.5064 - mae: 0.2578 - mape: 8.1384
Epoch 978: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2559 - rmse: 0.5058 - mae: 0.2570 - mape: 8.1241 - val_loss: 0.2570 - val_mse:
0.2609 - val_rmse: 0.5108 - val_mae: 0.2570 - val_mape: 8.1777 - lr: 1.0000e-05
Epoch 979/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2561 - mse: 0.2560
- rmse: 0.5060 - mae: 0.2561 - mape: 8.1176
Epoch 979: val_loss did not improve from 0.25629
318/318 [=====] - 1s 2ms/step - loss: 0.2575 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2575 - mape: 8.1596 - val_loss: 0.2563 - val_mse:
0.2571 - val_rmse: 0.5071 - val_mae: 0.2563 - val_mape: 8.1193 - lr: 1.0000e-05
Epoch 980/1000
272/318 [=====>...] - ETA: 0s - loss: 0.2573 - mse: 0.2579
- rmse: 0.5078 - mae: 0.2573 - mape: 8.1220
Epoch 980: val_loss improved from 0.25629 to 0.25622, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2571 - rmse: 0.5070 - mae: 0.2569 - mape: 8.1374 - val_loss: 0.2562 - val_mse:
0.2589 - val_rmse: 0.5088 - val_mae: 0.2562 - val_mape: 8.1526 - lr: 1.0000e-05
Epoch 981/1000
286/318 [=====>...] - ETA: 0s - loss: 0.2570 - mse: 0.2578
- rmse: 0.5077 - mae: 0.2570 - mape: 8.1291
Epoch 981: val_loss improved from 0.25622 to 0.25613, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2570 - rmse: 0.5069 - mae: 0.2569 - mape: 8.1416 - val_loss: 0.2561 - val_mse:

```

0.2581 - val_rmse: 0.5081 - val_mae: 0.2561 - val_mape: 8.1569 - lr: 1.0000e-05
Epoch 982/1000
268/318 [=====>...] - ETA: 0s - loss: 0.2554 - mse: 0.2535
- rmse: 0.5034 - mae: 0.2554 - mape: 8.0847
Epoch 982: val_loss did not improve from 0.25613
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2579 - rmse: 0.5078 - mae: 0.2569 - mape: 8.1319 - val_loss: 0.2565 - val_mse:
0.2543 - val_rmse: 0.5042 - val_mae: 0.2565 - val_mape: 8.1000 - lr: 1.0000e-05
Epoch 983/1000
271/318 [=====>...] - ETA: 0s - loss: 0.2553 - mse: 0.2519
- rmse: 0.5019 - mae: 0.2553 - mape: 8.0988
Epoch 983: val_loss did not improve from 0.25613
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2575 - rmse: 0.5074 - mae: 0.2569 - mape: 8.1519 - val_loss: 0.2561 - val_mse:
0.2560 - val_rmse: 0.5060 - val_mae: 0.2561 - val_mape: 8.1080 - lr: 1.0000e-05
Epoch 984/1000
276/318 [=====>...] - ETA: 0s - loss: 0.2580 - mse: 0.2619
- rmse: 0.5118 - mae: 0.2580 - mape: 8.1857
Epoch 984: val_loss did not improve from 0.25613
318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse:
0.2577 - rmse: 0.5076 - mae: 0.2568 - mape: 8.1366 - val_loss: 0.2572 - val_mse:
0.2614 - val_rmse: 0.5113 - val_mae: 0.2572 - val_mape: 8.2244 - lr: 1.0000e-05
Epoch 985/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2572 - mse: 0.2581
- rmse: 0.5081 - mae: 0.2572 - mape: 8.1398
Epoch 985: val_loss did not improve from 0.25613
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2573 - rmse: 0.5073 - mae: 0.2569 - mape: 8.1343 - val_loss: 0.2566 - val_mse:
0.2537 - val_rmse: 0.5037 - val_mae: 0.2566 - val_mape: 8.1046 - lr: 1.0000e-05
Epoch 986/1000
281/318 [=====>...] - ETA: 0s - loss: 0.2571 - mse: 0.2549
- rmse: 0.5049 - mae: 0.2571 - mape: 8.1163
Epoch 986: val_loss improved from 0.25613 to 0.25610, saving model to
model_weights/20221123-211518_mlp_best_weights.hdf5
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2561 - rmse: 0.5060 - mae: 0.2569 - mape: 8.1393 - val_loss: 0.2561 - val_mse:
0.2545 - val_rmse: 0.5045 - val_mae: 0.2561 - val_mape: 8.1020 - lr: 1.0000e-05
Epoch 987/1000
287/318 [=====>...] - ETA: 0s - loss: 0.2560 - mse: 0.2581
- rmse: 0.5081 - mae: 0.2560 - mape: 8.1328
Epoch 987: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2575 - rmse: 0.5075 - mae: 0.2570 - mape: 8.1411 - val_loss: 0.2562 - val_mse:
0.2574 - val_rmse: 0.5074 - val_mae: 0.2562 - val_mape: 8.1404 - lr: 1.0000e-05
Epoch 988/1000
298/318 [=====>..] - ETA: 0s - loss: 0.2574 - mse: 0.2571
- rmse: 0.5070 - mae: 0.2574 - mape: 8.1506
Epoch 988: val_loss did not improve from 0.25610

```

318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse:
0.2575 - rmse: 0.5074 - mae: 0.2568 - mape: 8.1465 - val_loss: 0.2584 - val_mse:
0.2611 - val_rmse: 0.5110 - val_mae: 0.2584 - val_mape: 8.1493 - lr: 1.0000e-05
Epoch 989/1000
303/318 [=====>..] - ETA: 0s - loss: 0.2562 - mse: 0.2555
- rmse: 0.5055 - mae: 0.2562 - mape: 8.1047
Epoch 989: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2570 - mse:
0.2572 - rmse: 0.5072 - mae: 0.2570 - mape: 8.1405 - val_loss: 0.2564 - val_mse:
0.2596 - val_rmse: 0.5095 - val_mae: 0.2564 - val_mape: 8.1609 - lr: 1.0000e-05
Epoch 990/1000
296/318 [=====>...] - ETA: 0s - loss: 0.2566 - mse: 0.2576
- rmse: 0.5076 - mae: 0.2566 - mape: 8.1533
Epoch 990: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2567 - mse:
0.2576 - rmse: 0.5075 - mae: 0.2567 - mape: 8.1426 - val_loss: 0.2568 - val_mse:
0.2562 - val_rmse: 0.5062 - val_mae: 0.2568 - val_mape: 8.0907 - lr: 1.0000e-05
Epoch 991/1000
299/318 [=====>..] - ETA: 0s - loss: 0.2560 - mse: 0.2551
- rmse: 0.5051 - mae: 0.2560 - mape: 8.1053
Epoch 991: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2565 - mse:
0.2569 - rmse: 0.5069 - mae: 0.2565 - mape: 8.1249 - val_loss: 0.2570 - val_mse:
0.2581 - val_rmse: 0.5080 - val_mae: 0.2570 - val_mape: 8.0870 - lr: 1.0000e-05
Epoch 992/1000
318/318 [=====] - ETA: 0s - loss: 0.2569 - mse: 0.2576
- rmse: 0.5075 - mae: 0.2569 - mape: 8.1327
Epoch 992: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2569 - mse:
0.2576 - rmse: 0.5075 - mae: 0.2569 - mape: 8.1327 - val_loss: 0.2570 - val_mse:
0.2551 - val_rmse: 0.5050 - val_mae: 0.2570 - val_mape: 8.1877 - lr: 1.0000e-05
Epoch 993/1000
295/318 [=====>...] - ETA: 0s - loss: 0.2565 - mse: 0.2572
- rmse: 0.5071 - mae: 0.2565 - mape: 8.1237
Epoch 993: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2566 - mse:
0.2563 - rmse: 0.5063 - mae: 0.2566 - mape: 8.1344 - val_loss: 0.2562 - val_mse:
0.2592 - val_rmse: 0.5091 - val_mae: 0.2562 - val_mape: 8.1690 - lr: 1.0000e-05
Epoch 994/1000
310/318 [=====>.] - ETA: 0s - loss: 0.2569 - mse: 0.2569
- rmse: 0.5068 - mae: 0.2569 - mape: 8.1358
Epoch 994: val_loss did not improve from 0.25610
318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse:
0.2569 - rmse: 0.5069 - mae: 0.2568 - mape: 8.1370 - val_loss: 0.2568 - val_mse:
0.2596 - val_rmse: 0.5095 - val_mae: 0.2568 - val_mape: 8.2116 - lr: 1.0000e-05
Epoch 995/1000
311/318 [=====>.] - ETA: 0s - loss: 0.2566 - mse: 0.2562
- rmse: 0.5062 - mae: 0.2566 - mape: 8.1340

```

Epoch 995: val_loss did not improve from 0.25610
 318/318 [=====] - 1s 2ms/step - loss: 0.2567 - mse: 0.2565 - rmse: 0.5065 - mae: 0.2567 - mape: 8.1408 - val_loss: 0.2562 - val_mse: 0.2564 - val_rmse: 0.5064 - val_mae: 0.2562 - val_mape: 8.1331 - lr: 1.0000e-05
 Epoch 996/1000
 274/318 [=====>...] - ETA: 0s - loss: 0.2577 - mse: 0.2594 - rmse: 0.5093 - mae: 0.2577 - mape: 8.1662
 Epoch 996: val_loss did not improve from 0.25610
 318/318 [=====] - 1s 2ms/step - loss: 0.2566 - mse: 0.2556 - rmse: 0.5055 - mae: 0.2566 - mape: 8.1350 - val_loss: 0.2566 - val_mse: 0.2560 - val_rmse: 0.5059 - val_mae: 0.2566 - val_mape: 8.1000 - lr: 1.0000e-05
 Epoch 997/1000
 274/318 [=====>...] - ETA: 0s - loss: 0.2558 - mse: 0.2537 - rmse: 0.5036 - mae: 0.2558 - mape: 8.1343
 Epoch 997: val_loss improved from 0.25610 to 0.25598, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
 318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse: 0.2563 - rmse: 0.5062 - mae: 0.2568 - mape: 8.1421 - val_loss: 0.2560 - val_mse: 0.2554 - val_rmse: 0.5054 - val_mae: 0.2560 - val_mape: 8.1227 - lr: 1.0000e-05
 Epoch 998/1000
 268/318 [=====>...] - ETA: 0s - loss: 0.2561 - mse: 0.2552 - rmse: 0.5052 - mae: 0.2561 - mape: 8.1113
 Epoch 998: val_loss did not improve from 0.25598
 318/318 [=====] - 1s 2ms/step - loss: 0.2564 - mse: 0.2562 - rmse: 0.5061 - mae: 0.2564 - mape: 8.1292 - val_loss: 0.2570 - val_mse: 0.2529 - val_rmse: 0.5029 - val_mae: 0.2570 - val_mape: 8.0610 - lr: 1.0000e-05
 Epoch 999/1000
 318/318 [=====] - ETA: 0s - loss: 0.2568 - mse: 0.2566 - rmse: 0.5065 - mae: 0.2568 - mape: 8.1321
 Epoch 999: val_loss improved from 0.25598 to 0.25596, saving model to model_weights/20221123-211518_mlp_best_weights.hdf5
 318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse: 0.2566 - rmse: 0.5065 - mae: 0.2568 - mape: 8.1321 - val_loss: 0.2560 - val_mse: 0.2552 - val_rmse: 0.5052 - val_mae: 0.2560 - val_mape: 8.1082 - lr: 1.0000e-05
 Epoch 1000/1000
 311/318 [=====>.] - ETA: 0s - loss: 0.2566 - mse: 0.2551 - rmse: 0.5050 - mae: 0.2566 - mape: 8.1265
 Epoch 1000: val_loss did not improve from 0.25596
 318/318 [=====] - 1s 2ms/step - loss: 0.2568 - mse: 0.2560 - rmse: 0.5060 - mae: 0.2568 - mape: 8.1322 - val_loss: 0.2563 - val_mse: 0.2528 - val_rmse: 0.5028 - val_mae: 0.2563 - val_mape: 8.0898 - lr: 1.0000e-05

[]: <keras.callbacks.History at 0x7f089dcb1f30>

1.5 Test model

```
[ ]: print(date_actual)
```

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```
[ ]: best_model = models.load_model(f'model_weights/{date_actual}_mlp_best_weights.  
    ↪hdf5')
```

```
[ ]: best_model.evaluate(X_test, y_test)
```

398/398 [=====] - 0s 557us/step - loss: 0.3429 - mse:
0.3815 - rmse: 0.6177 - mae: 0.3429 - mape: 12.1199

```
[ ]: [0.34287169575691223,  
     0.3815343976020813,  
     0.6176847219467163,  
     0.34287169575691223,  
     12.119946479797363]
```

```
[ ]: y_pred = best_model.predict(X_test)
```

398/398 [=====] - 0s 444us/step

```
[ ]: print("R^2: ", r2_score(y_test, y_pred))  
     print("mse: ", mean_squared_error(y_test, y_pred))  
     print("rmse: ", mean_squared_error(y_test, y_pred, squared=False))  
     print("mae: ", mean_absolute_error(y_test, y_pred))  
     print("mape: ", mean_absolute_percentage_error(y_test, y_pred))  
     print("Error estandar: ", stde(y_test.squeeze(),  
                                     y_pred.squeeze(), ddof=2))
```

R^2: 0.02351544519270865
mse: 0.381534390933214
rmse: 0.6176847018772716
mae: 0.34287172744600436
mape: 0.12119945810086158
Error estandar: 0.6081122558299572

```
[ ]: residuals = y_test - y_pred  
     residuals_std = residuals/residuals.std()  
  
     y_real_stage = np.array([i[0] for i in y_test])  
     residual_stage = np.array([i[0] for i in residuals])  
  
     y_real_discharge = np.array([i[-1] for i in y_test])  
     residual_discharge = np.array([i[-1] for i in residuals])
```



```

figure, ax = plt.subplots(ncols=2, figsize=(20, 8), dpi=80)

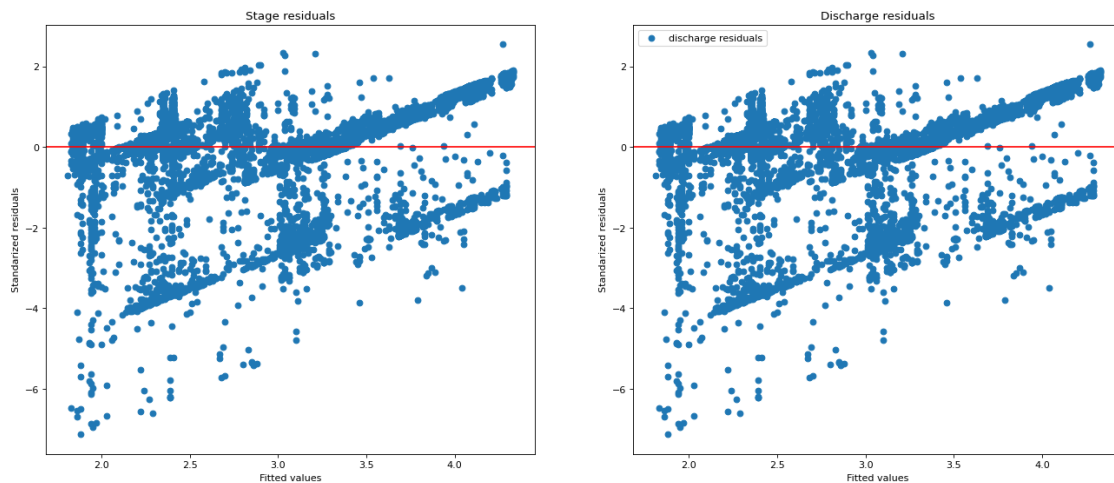
ax[0].scatter(y_real_stage, residual_stage / residual_stage.std(), label="stage_
↳residuals")
ax[1].scatter(y_real_discharge, residual_discharge / residual_discharge.std(),
↳label="discharge residuals")
ax[0].axhline(y=0.0, color='r', linestyle='-')
ax[1].axhline(y=0.0, color='r', linestyle='-')

ax[0].set_title("Stage residuals")
ax[1].set_title("Discharge residuals")

ax[1].set_xlabel("Fitted values")
ax[0].set_xlabel("Fitted values")
ax[1].set_ylabel("Standarized residuals")
ax[0].set_ylabel("Standarized residuals")

plt.legend()
plt.show()

```



```

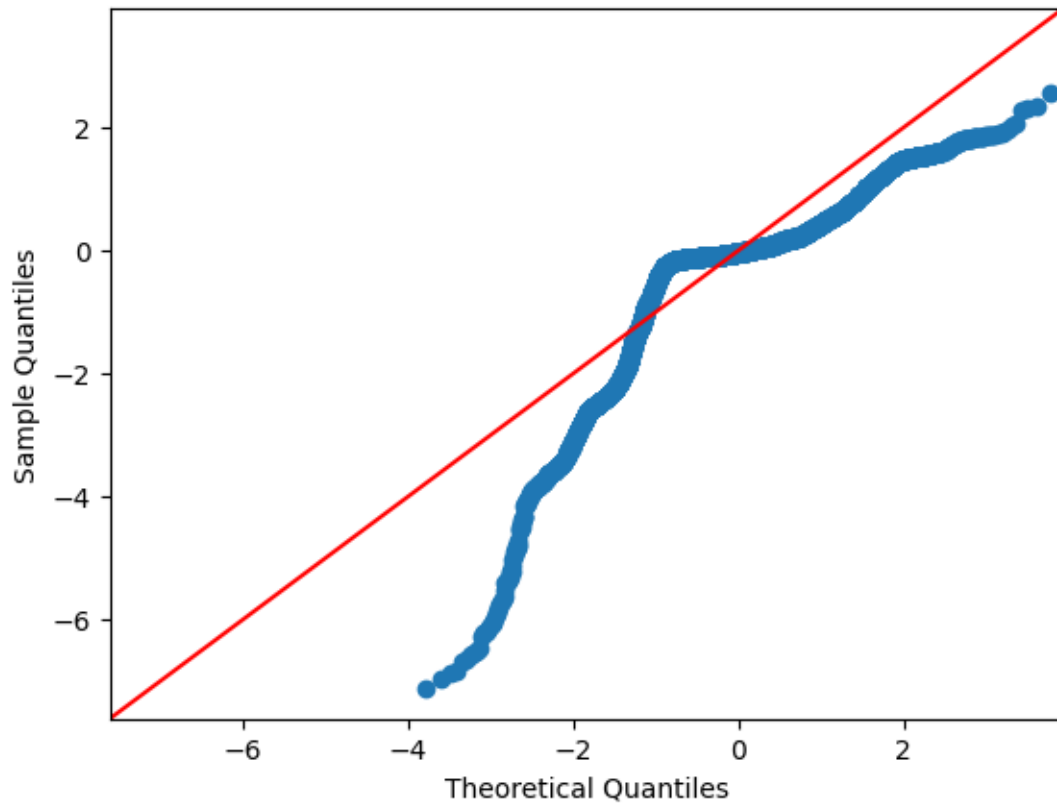
[ ]: import statsmodels.api as sm
from statsmodels.stats.diagnostic import normal_ad

#figure = sm.qqplot(residual_stage / residual_stage.std(), line='45',
↳label='stage')
plt.show()

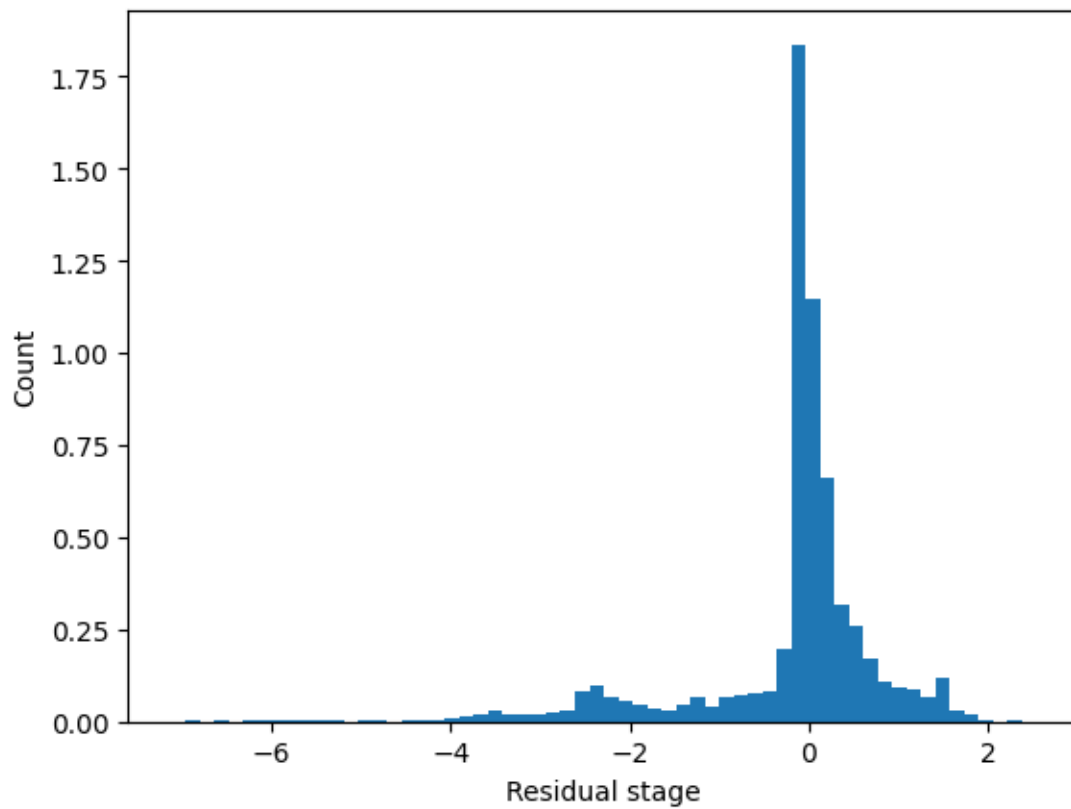
[ ]: figure = sm.qqplot(residual_discharge / residual_discharge.std(), line='45',
↳label='discharge')

```

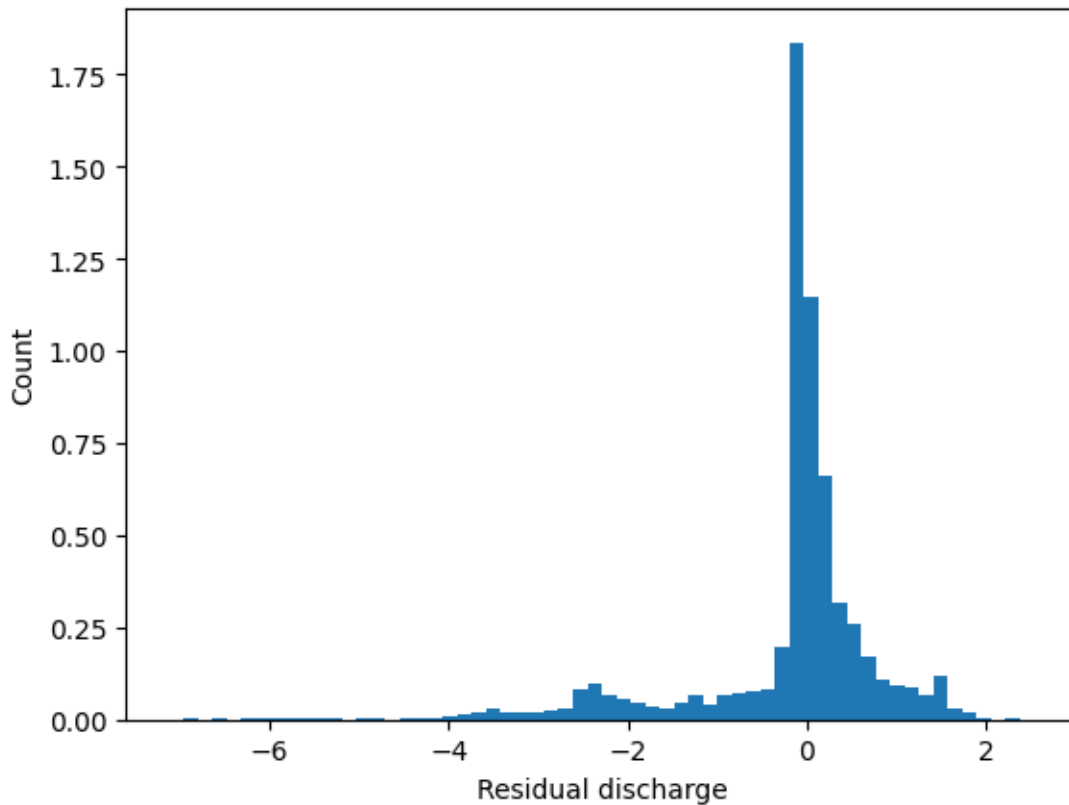
```
plt.show()
```



```
[ ]: plt.hist(residual_stage / residual_stage.std(), density=True, bins = 60)
plt.ylabel('Count')
plt.xlabel('Residual stage');
plt.show()
```



```
[ ]: plt.hist(residual_discharge / residual_discharge.std(), density=True, bins = 60)
plt.ylabel('Count')
plt.xlabel('Residual discharge');
plt.show()
```



```
[ ]: stat, pval = normal_ad(residual_discharge / residual_discharge.std())
print("p-value:", pval)

if pval < 0.05:
    print("Hay evidencia de que los residuos no provienen de una distribución_
    ↪normal.")
else:
    print("No hay evidencia para rechazar la hipótesis de que los residuos_
    ↪vienen de una distribución normal.")
```

p-value: 0.0

Hay evidencia de que los residuos no provienen de una distribución normal.

```
[ ]: figure, ax = plt.subplots(ncols=2, figsize=(20, 8), dpi=80)

ax[0].plot(np.arange(len(y_test)), y_test, label="Stage real")
ax[0].plot(np.arange(len(y_test)), y_pred, label="Stage pred")

ax[0].set_title("Stage residuals")
ax[1].set_title("Discharge residuals")
```

```

ax[1].set_ylabel("Values")
ax[0].set_ylabel("Values")
ax[1].set_xlabel("Time")
ax[0].set_xlabel("Time")

plt.legend()
plt.show()

```

No artists with labels found to put in legend. Note that artists whose label start with an underscore are ignored when legend() is called with no argument.

