For each dataset last column is predicted except from AAPL stock where close price is predicted.

All predictions vs actual graphs show the prediction of the first data point irregardless of horizon

Hyperparameters: lr=0.001, Epochs=100 w/ early stopping, Sequence length=48

Forecast lengths = [1,12,24,48]

MLP ( 2 hidden layers of 256)

AAPL Stock

F=1

Test Loss: 0.0124

Mean Absolute Percentage Error: 7.3916

A graph of a graph

Description automatically generated

A graph with blue and orange lines

Description automatically generated

F=12

Test Loss: 0.0342

Mean Absolute Percentage Error: 12.0139

A graph of a graph

Description automatically generated

A graph with blue and orange lines

Description automatically generated

A graph with colored lines

Description automatically generated

F=24

Test Loss: 0.0985

Mean Absolute Percentage Error: 19.1886

A graph of a graph

Description automatically generated

A graph with blue and orange lines

Description automatically generated

A graph showing different colored lines

Description automatically generated

F=48

Test Loss: 0.3854

Mean Absolute Percentage Error: 31.8671

A graph of blue and orange lines

Description automatically generated

A graph showing the difference between two different graphs

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

ETTm1

F=48

Test Loss: 0.4641

Mean Absolute Percentage Error: 37.8475

A graph of a graph

Description automatically generated

A graph showing blue and orange lines

Description automatically generated

A graph showing different colored lines

Description automatically generated

F=1

Test Loss: 0.0695

Mean Absolute Percentage Error: 15.2678

A graph of a graph

Description automatically generated with medium confidence

A graph showing a blue and orange line

Description automatically generated

F=12

Test Loss: 0.1337

Mean Absolute Percentage Error: 21.4892

A graph with blue and orange lines

Description automatically generated

A graph showing blue and orange lines

Description automatically generated

A graph showing different colored lines

Description automatically generated

F=24

Test Loss: 0.1576

Mean Absolute Percentage Error: 23.3858

A graph of a graph

Description automatically generatedA graph showing a blue and orange line

Description automatically generatedA graph showing different colored lines

Description automatically generated

ETTm2

F=1

Test Loss: 0.0130

Mean Absolute Percentage Error: 8.8466

A graph with orange lines

Description automatically generated

A graph showing a comparison of the results

Description automatically generated with medium confidence

F=12

Test Loss: 0.0916

Mean Absolute Percentage Error: 28.7356

A graph with orange lines and numbers

Description automatically generated

A graph showing a comparison of the results

Description automatically generated with medium confidence

A graph showing different colored lines

Description automatically generated

F=24

Test Loss: 0.1705

Mean Absolute Percentage Error: 42.7802

A graph showing a comparison of a number of statistical data

Description automatically generated with medium confidence

A graph showing different colored lines

Description automatically generated

F=48

Test Loss: 0.5272

Mean Absolute Percentage Error: 64.7698

A graph with orange lines and numbers

Description automatically generated

A graph showing a comparison of a graph

Description automatically generated with medium confidence

A graph showing the difference between two different colored lines

Description automatically generated with medium confidence

KAN ( 2 hidden layers of 256, layernorm so don’t need grid extensions)

AAPL Stock

F=1

Test Loss: 0.0162

Mean Absolute Percentage Error: 16.9614

A graph with blue and orange lines

Description automatically generated

A graph with blue and orange lines

Description automatically generated

F=12

Test Loss: 0.0281

Mean Absolute Percentage Error: 22.8748

A graph with blue and orange lines

Description automatically generated

A graph with orange lines and numbers

Description automatically generated

A graph showing different colored lines

Description automatically generated

F=24

Test Loss: 0.0288

Mean Absolute Percentage Error: 23.0675

A graph with blue and orange lines

Description automatically generated

A graph with blue and orange lines

Description automatically generated

A graph showing different colored lines

Description automatically generated

F=48

Test Loss: 0.0239

Mean Absolute Percentage Error: 20.1719

A graph with blue and orange lines

Description automatically generated

A graph with orange lines and blue lines

Description automatically generated

A graph showing different colored lines

Description automatically generated

ETTm1

F=1

Test Loss: 0.0616

Mean Absolute Percentage Error: 7.6880

A graph with blue lines and numbers

Description automatically generated

A graph showing a blue and orange line

Description automatically generated

F=12

Test Loss: 0.2760

Mean Absolute Percentage Error: 21.7738

A graph of a graph

Description automatically generatedA graph showing a blue and orange line

Description automatically generatedA graph showing different colored lines

Description automatically generated

F=24

Test Loss: 1.5039

Mean Absolute Percentage Error: 31.5698

A graph with blue and orange lines

Description automatically generated

A graph showing a graph of different colored lines

Description automatically generated with medium confidence

A graph showing different colored lines

Description automatically generated

F=48

Mean Absolute Percentage Error: 33.4480

Test Loss: 0.4641

A graph of a graph

Description automatically generated with medium confidence

A graph showing a comparison of a number of samples

Description automatically generated with medium confidence

A graph showing different colored lines

Description automatically generated

ETTm2

F=1

Test Loss: 0.1882

Mean Absolute Percentage Error: 18.8683

A graph of a graph

Description automatically generated

A graph with blue and orange lines

Description automatically generated

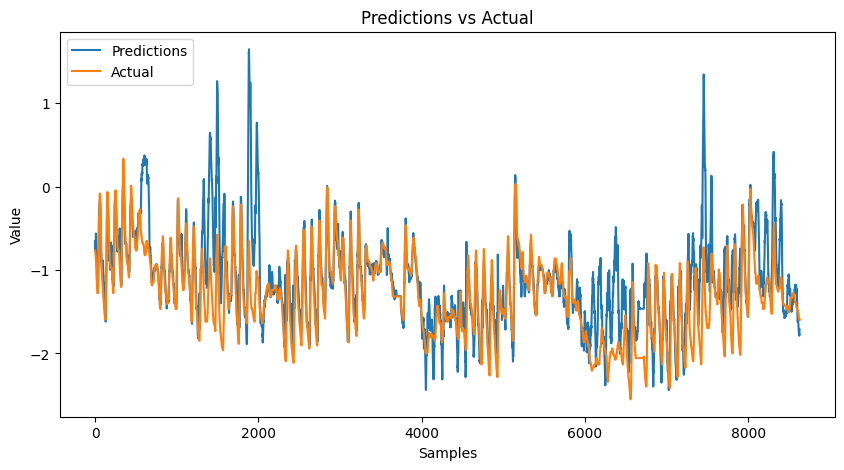
F=12

Test Loss: 0.2251

Mean Absolute Percentage Error: 33.9296

A graph of a graph

Description automatically generated with medium confidence

 A graph showing different colored lines

Description automatically generated

F=24

Test Loss: 2.3131

Mean Absolute Percentage Error: 93.6540

A graph with orange and blue lines

Description automatically generated

A graph with different colored lines

Description automatically generatedA graph with blue and orange lines

Description automatically generated

F=48

Test Loss: 1.1406

Mean Absolute Percentage Error: 78.5234

A graph of a graph

Description automatically generated

A graph showing a comparison of a number of graphs

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

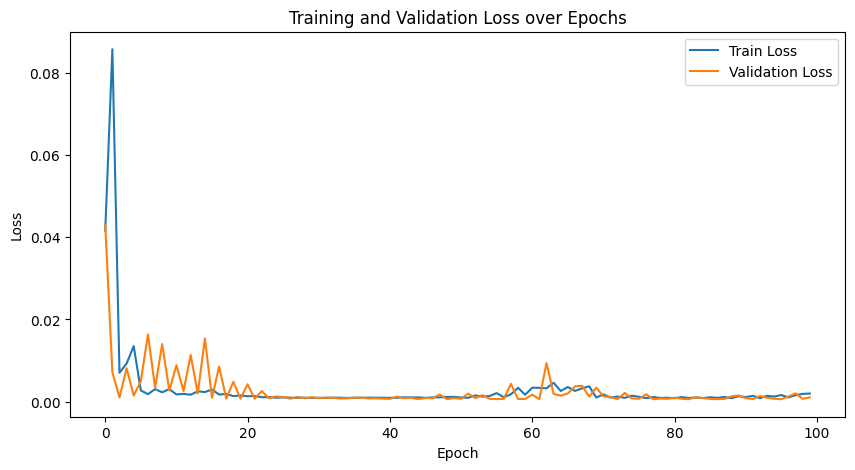
TCN(3 hidden layers, kernel size=3, 256,128,128 channels at each hidden layer)

AAPL

F=1

Test Loss: 0.0011

Mean Absolute Percentage Error: 5.0561



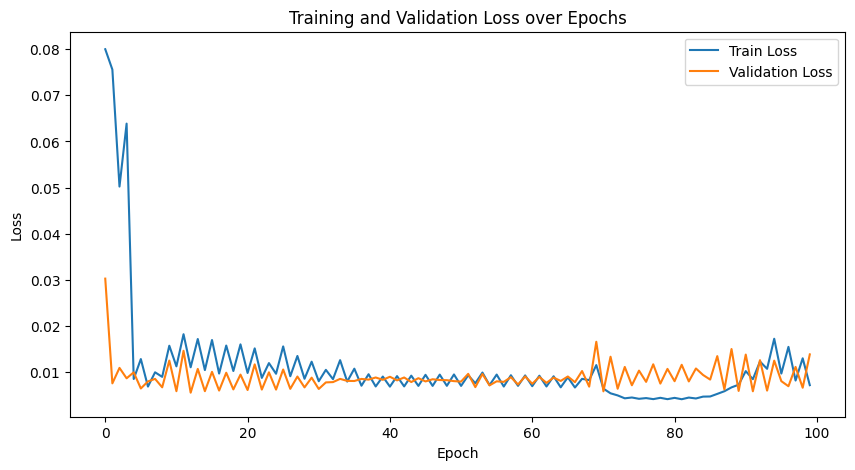
A graph with blue and orange lines

Description automatically generated

F=12

Test Loss: 0.0091

Mean Absolute Percentage Error: 13.2520



A graph with blue and orange lines

Description automatically generated A graph with colored lines

Description automatically generated

F=24

Test Loss: 0.0261

Mean Absolute Percentage Error: 21.0062

A graph with blue and orange lines

Description automatically generated A graph with blue and orange lines

Description automatically generated A graph showing different colored lines

Description automatically generated

F=48

Test Loss: 0.0737

Mean Absolute Percentage Error: 32.7801

A graph of a person with a dog

Description automatically generated with medium confidence A graph showing the difference between two different colored lines

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

ETTm1

F=1

Test Loss: 0.0109

Mean Absolute Percentage Error: 6.1350

F=12

Test Loss: 0.0659

Mean Absolute Percentage Error: 15.3915

F=24

Test Loss: 0.0726

Mean Absolute Percentage Error: 15.4706

A graph showing the results of a comparison

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

F=48

Test Loss: 0.2304

Mean Absolute Percentage Error: 27.3779

A graph showing a comparison of the results

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

ETTm2

F=1

Test Loss: 76.7480

Mean Absolute Percentage Error: 106.1547

F=12

Test Loss: 96.8810

Mean Absolute Percentage Error: 116.1427

F=24

Test Loss: 123.1123

Mean Absolute Percentage Error: 136.2179

F=48

Test Loss: 180

Mean Absolute Percentage Error: 156.2179

TCKAN(3 hidden layers, kernel size=3, 256,128,128 channels at each hidden layer)

AAPL

F=1

Test Loss: 0.0347

Mean Absolute Percentage Error: 18.6266

A graph with blue and orange lines

Description automatically generated A graph with blue and orange lines

Description automatically generated

F=12

Test Loss: 0.0535

Mean Absolute Percentage Error: 25.9718

A graph with blue and orange lines

Description automatically generated

A graph showing the results of a comparison

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

F=24

Test Loss: 0.0639

Mean Absolute Percentage Error: 28.8669

A graph with blue and orange lines

Description automatically generated

A graph with blue and orange lines

Description automatically generated A graph with colored lines

Description automatically generated

F=48

Test Loss: 0.0789

Mean Absolute Percentage Error: 33.5295

A graph of a graph

Description automatically generated with medium confidence

A graph showing the difference between two different colored lines

Description automatically generated with medium confidence

A graph showing different colored lines

Description automatically generated

ETTm1 (tckan)

F=1

Test Loss: 0.0020

Mean Absolute Percentage Error: 2.8318

F=24

Test Loss: 0.1619

Mean Absolute Percentage Error: 23.1924

A graph of a graph

Description automatically generated A graph showing a comparison of the results

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

F=12

Test Loss: 0.0623

Mean Absolute Percentage Error: 14.6607

A graph with orange lines

Description automatically generated A graph showing a comparison of the results

Description automatically generated with medium confidence A graph showing different colored lines

Description automatically generated

F=48

Test Loss: 0.4027

Mean Absolute Percentage Error: 36.6891

Transformer( dmodel=128, heads=8, encoder layers = 4, ffdim=128)

AAPL

F=1

Test Loss: 0.0296

Mean Absolute Percentage Error: 18.6499

A graph with blue and orange lines

Description automatically generated A graph with blue and orange lines

Description automatically generated

F=12

Test Loss: 0.0662

Mean Absolute Percentage Error: 27.5846

F=24

Test Loss: 0.0404

Mean Absolute Percentage Error: 23.0636

F=48

Test Loss: 0.0627

Mean Absolute Percentage Error: 32.0978

KANTransformer( dmodel=128, heads=8, encoder layers = 4, ffdim=128)

APPL

F=1

Test Loss: 0.0493

Mean Absolute Percentage Error: 24.4500

F=12

Test Loss: 0.1964

Mean Absolute Percentage Error: 67.1046

F=24

Test Loss: 0.1194

Mean Absolute Percentage Error: 43.5702

F=48

Test Loss: 0.1308

Mean Absolute Percentage Error: 52.4660