I used:  
  
X\_bmkg shape: (92883, 5, 10)

y\_bmkg shape: (92883, 1)  
  
  
X\_test shape: (18577, 5, 10)

y\_test shape: (18577, 1)  
  
  
  
Model: "model"

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Layer (type) Output Shape Param # Connected to

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input\_1 (InputLayer) [(None, 5, 10)] 0 []

conv1d (Conv1D) (None, 5, 16) 816 ['input\_1[0][0]']

batch\_normalization (Batch (None, 5, 16) 64 ['conv1d[0][0]']

Normalization)

max\_pooling1d (MaxPooling1 (None, 3, 16) 0 ['batch\_normalization[0][0]']

D)

conv1d\_1 (Conv1D) (None, 3, 32) 1568 ['max\_pooling1d[0][0]']

batch\_normalization\_1 (Bat (None, 3, 32) 128 ['conv1d\_1[0][0]']

chNormalization)

max\_pooling1d\_1 (MaxPoolin (None, 2, 32) 0 ['batch\_normalization\_1[0][0]'

g1D) ]

conv1d\_2 (Conv1D) (None, 2, 64) 6208 ['max\_pooling1d\_1[0][0]']

batch\_normalization\_2 (Bat (None, 2, 64) 256 ['conv1d\_2[0][0]']

chNormalization)

max\_pooling1d\_2 (MaxPoolin (None, 1, 64) 0 ['batch\_normalization\_2[0][0]'

g1D) ]

conv1d\_3 (Conv1D) (None, 1, 128) 24704 ['max\_pooling1d\_2[0][0]']

batch\_normalization\_3 (Bat (None, 1, 128) 512 ['conv1d\_3[0][0]']

chNormalization)

max\_pooling1d\_3 (MaxPoolin (None, 1, 128) 0 ['batch\_normalization\_3[0][0]'

g1D) ]

bidirectional (Bidirection (None, 1, 256) 263168 ['max\_pooling1d\_3[0][0]']

al)

dropout (Dropout) (None, 1, 256) 0 ['bidirectional[0][0]']

bidirectional\_1 (Bidirecti (None, 1, 128) 164352 ['dropout[0][0]']

onal)

dropout\_1 (Dropout) (None, 1, 128) 0 ['bidirectional\_1[0][0]']

attention (Attention) (None, 1, 128) 0 ['dropout\_1[0][0]',

'dropout\_1[0][0]']

dense (Dense) (None, 1, 32) 4128 ['attention[0][0]']

dense\_1 (Dense) (None, 1, 10) 330 ['dense[0][0]']

dense\_2 (Dense) (None, 1, 1) 11 ['dense\_1[0][0]']

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Total params: 466245 (1.78 MB)

Trainable params: 465765 (1.78 MB)

Non-trainable params: 480 (1.88 KB)

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# Callbacks  
from tensorflow.keras.callbacks import EarlyStopping, ReduceLROnPlateau  
early\_stopping = EarlyStopping(monitor='val\_loss',  
 patience=10,  
 restore\_best\_weights=True)  
  
  
reduce\_lr = ReduceLROnPlateau(monitor='val\_loss',  
 factor=0.1,  
 patience=5,  
 min\_lr=1e-6)  
  
# Train the model  
history = model.fit(X\_bmkg, y\_bmkg,  
 batch\_size=64,  
 epochs=100,  
 validation\_split=0.2,  
 callbacks=[early\_stopping])

Epoch 1/100

1162/1162 [==============================] - 13s 8ms/step - loss: 0.0146 - mae: 0.0958 - val\_loss: 0.0137 - val\_mae: 0.0931

Epoch 2/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0119 - mae: 0.0864 - val\_loss: 0.0132 - val\_mae: 0.0917

Epoch 3/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0109 - mae: 0.0823 - val\_loss: 0.0119 - val\_mae: 0.0846

Epoch 4/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0105 - mae: 0.0805 - val\_loss: 0.0112 - val\_mae: 0.0821

Epoch 5/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0102 - mae: 0.0793 - val\_loss: 0.0121 - val\_mae: 0.0855

Epoch 6/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0100 - mae: 0.0785 - val\_loss: 0.0113 - val\_mae: 0.0818

Epoch 7/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0099 - mae: 0.0780 - val\_loss: 0.0111 - val\_mae: 0.0819

Epoch 8/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0098 - mae: 0.0774 - val\_loss: 0.0128 - val\_mae: 0.0887

Epoch 9/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0097 - mae: 0.0772 - val\_loss: 0.0110 - val\_mae: 0.0824

Epoch 10/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0096 - mae: 0.0766 - val\_loss: 0.0116 - val\_mae: 0.0860

Epoch 11/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0095 - mae: 0.0761 - val\_loss: 0.0107 - val\_mae: 0.0811

Epoch 12/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0094 - mae: 0.0758 - val\_loss: 0.0119 - val\_mae: 0.0861

Epoch 13/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0092 - mae: 0.0751 - val\_loss: 0.0104 - val\_mae: 0.0791

Epoch 14/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0092 - mae: 0.0751 - val\_loss: 0.0106 - val\_mae: 0.0792

Epoch 15/100

1162/1162 [==============================] - 8s 7ms/step - loss: 0.0092 - mae: 0.0748 - val\_loss: 0.0108 - val\_mae: 0.0795

Epoch 16/100

1162/1162 [==============================] - 9s 7ms/step - loss: 0.0091 - mae: 0.0745 - val\_loss: 0.0108 - val\_mae: 0.0807

Epoch 17/100

1162/1162 [==============================] - 9s 8ms/step - loss: 0.0090 - mae: 0.0743 - val\_loss: 0.0110 - val\_mae: 0.0816

Epoch 18/100

1162/1162 [==============================] - 9s 7ms/step - loss: 0.0090 - mae: 0.0739 - val\_loss: 0.0114 - val\_mae: 0.0822

Epoch 19/100

1162/1162 [==============================] - 9s 7ms/step - loss: 0.0089 - mae: 0.0738 - val\_loss: 0.0106 - val\_mae: 0.0803

Epoch 20/100

1162/1162 [==============================] - 9s 7ms/step - loss: 0.0089 - mae: 0.0734 - val\_loss: 0.0110 - val\_mae: 0.0819

Epoch 21/100

1162/1162 [==============================] - 9s 8ms/step - loss: 0.0088 - mae: 0.0733 - val\_loss: 0.0107 - val\_mae: 0.0808

Epoch 22/100

1162/1162 [==============================] - 9s 8ms/step - loss: 0.0088 - mae: 0.0731 - val\_loss: 0.0111 - val\_mae: 0.0816

Epoch 23/100

1162/1162 [==============================] - 9s 8ms/step - loss: 0.0087 - mae: 0.0728 - val\_loss: 0.0111 - val\_mae: 0.0818  
  
  
  
  
 I got:

581/581 [==============================] - 1s 2ms/step - loss: 0.0093 - mae: 0.0752

Test Loss (MSE): 0.0093058617785573

Test MAE: 0.07520165294408798  
  
  
Test RMSE: 0.09646691616760734

R^2 Score: 0.36638620127775  
  
  
  
  


