I used this:  
 X\_jma shape: (85325, 10, 10)

y\_jma shape: (85325, 1)

import tensorflow as tf  
from tensorflow.keras.models import Sequential  
from tensorflow.keras.layers import Conv1D, MaxPooling1D, BatchNormalization, GRU, Dropout, Dense  
from tensorflow.keras.regularizers import l2  
from tensorflow.keras.optimizers import Adam  
from tensorflow.keras.callbacks import EarlyStopping, ReduceLROnPlateau  
  
from tensorflow.keras.layers import LeakyReLU  
  
def build\_optimized\_cnn\_gru\_model(input\_shape):  
 model = Sequential()  
  
 # CNN Layers  
 model.add(Conv1D(filters=64, kernel\_size=3, padding='same', input\_shape=input\_shape))  
 model.add(LeakyReLU(alpha=0.1)) # LeakyReLU for better gradient flow  
 model.add(BatchNormalization())  
 model.add(MaxPooling1D(pool\_size=2))  
  
 model.add(Conv1D(filters=128, kernel\_size=3, padding='same'))  
 model.add(LeakyReLU(alpha=0.1))  
 model.add(BatchNormalization())  
 model.add(MaxPooling1D(pool\_size=2))  
  
 # GRU Layers  
 model.add(GRU(units=192, return\_sequences=True, kernel\_regularizer=l2(0.0001)))  
 model.add(Dropout(0.3))  
 model.add(GRU(units=128, return\_sequences=False, kernel\_regularizer=l2(0.0001)))  
 model.add(Dropout(0.3))  
  
 # Dense Layers  
 model.add(Dense(units=64))  
 model.add(LeakyReLU(alpha=0.1))  
 model.add(Dropout(0.4))  
 model.add(Dense(units=1, activation='linear')) # Regression Output  
  
 # Compile the model  
 model.compile(optimizer=Adam(learning\_rate=0.001), loss='mse', metrics=['mae'])  
  
 return model

# Build the model  
input\_shape = (10, 10) # Adjust based on your data  
model = build\_optimized\_cnn\_gru\_model(input\_shape)

from tensorflow.keras.callbacks import LearningRateScheduler  
# Define Callbacks  
early\_stopping = EarlyStopping(  
 monitor='val\_loss',  
 patience=15, # Stop if no improvement after 10 epochs  
 restore\_best\_weights=True  
)  
reduce\_lr = ReduceLROnPlateau(  
 monitor='val\_loss',  
 factor=0.5, # Reduce learning rate by half  
 patience=5, # After 5 epochs of no improvement  
 min\_lr=1e-6 # Minimum learning rate  
)  
# Define the learning rate scheduler function  
def lr\_schedule(epoch, lr):  
 if epoch % 5 == 0 and epoch != 0: # Decay every 5 epochs, excluding the first epoch  
 return lr \* 0.95 # Multiply the current learning rate by 0.9  
 return lr  
  
# Create the LearningRateScheduler callback  
lr\_scheduler = LearningRateScheduler(lr\_schedule, verbose=1)

# Adjust the input shape to match the new data  
input\_shape = (X\_jma.shape[1], X\_jma.shape[2]) # (10, 10)  
  
# Build the model  
model = build\_optimized\_cnn\_gru\_model(input\_shape)  
model.summary()

akyReLU (None, 64) 0

)

Model: "sequential\_50"

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Layer (type) Output Shape Param #

=================================================================

conv1d\_103 (Conv1D) (None, 10, 64) 1984

leaky\_re\_lu\_101 (LeakyReLU (None, 10, 64) 0

)

batch\_normalization\_100 (B (None, 10, 64) 256

atchNormalization)

max\_pooling1d\_100 (MaxPool (None, 5, 64) 0

ing1D)

conv1d\_104 (Conv1D) (None, 5, 128) 24704

leaky\_re\_lu\_102 (LeakyReLU (None, 5, 128) 0

)

batch\_normalization\_101 (B (None, 5, 128) 512

atchNormalization)

max\_pooling1d\_101 (MaxPool (None, 2, 128) 0

ing1D)

gru\_94 (GRU) (None, 2, 192) 185472

dropout\_129 (Dropout) (None, 2, 192) 0

gru\_95 (GRU) (None, 128) 123648

dropout\_130 (Dropout) (None, 128) 0

dense\_90 (Dense) (None, 64) 8256

leaky\_re\_lu\_103 (LeakyReLU (None, 64) 0

)

dropout\_131 (Dropout) (None, 64) 0

dense\_91 (Dense) (None, 1) 65

=================================================================

Total params: 344897 (1.32 MB)

Trainable params: 344513 (1.31 MB)

Non-trainable params: 384 (1.50 KB)

# Train the model  
history = model.fit(  
 X\_jma, y\_jma,  
 validation\_split=0.2,  
 epochs=100, # Increased to 100 to allow for more learning  
 batch\_size=64,  
 callbacks=[early\_stopping, reduce\_lr, lr\_scheduler],  
)

I got this:

Training Loss: 0.5571

Training MAE: 0.5580

Epoch 1: LearningRateScheduler setting learning rate to 0.0010000000474974513.

Epoch 1/100

1067/1067 [==============================] - 14s 11ms/step - loss: 1.2720 - mae: 0.8595 - val\_loss: 0.8091 - val\_mae: 0.6975 - lr: 0.0010

Epoch 2: LearningRateScheduler setting learning rate to 0.0010000000474974513.

Epoch 2/100

1067/1067 [==============================] - 12s 11ms/step - loss: 1.0349 - mae: 0.7857 - val\_loss: 0.7869 - val\_mae: 0.6885 - lr: 0.0010

Epoch 3: LearningRateScheduler setting learning rate to 0.0010000000474974513.

Epoch 3/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.9656 - mae: 0.7561 - val\_loss: 0.8093 - val\_mae: 0.7188 - lr: 0.0010

Epoch 4: LearningRateScheduler setting learning rate to 0.0010000000474974513.

Epoch 4/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.8809 - mae: 0.7178 - val\_loss: 0.8182 - val\_mae: 0.6891 - lr: 0.0010

Epoch 5: LearningRateScheduler setting learning rate to 0.0010000000474974513.

Epoch 5/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.7969 - mae: 0.6773 - val\_loss: 0.8466 - val\_mae: 0.7451 - lr: 0.0010

Epoch 6: LearningRateScheduler setting learning rate to 0.0009500000451225787.

Epoch 6/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.7276 - mae: 0.6439 - val\_loss: 0.7287 - val\_mae: 0.6885 - lr: 9.5000e-04

Epoch 7: LearningRateScheduler setting learning rate to 0.0009500000160187483.

Epoch 7/100

1067/1067 [==============================] - 12s 12ms/step - loss: 0.6966 - mae: 0.6279 - val\_loss: 0.5976 - val\_mae: 0.6011 - lr: 9.5000e-04

Epoch 8: LearningRateScheduler setting learning rate to 0.0009500000160187483.

Epoch 8/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6744 - mae: 0.6170 - val\_loss: 0.5876 - val\_mae: 0.5811 - lr: 9.5000e-04

Epoch 9: LearningRateScheduler setting learning rate to 0.0009500000160187483.

Epoch 9/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6767 - mae: 0.6188 - val\_loss: 0.6168 - val\_mae: 0.6183 - lr: 9.5000e-04

Epoch 10: LearningRateScheduler setting learning rate to 0.0009500000160187483.

Epoch 10/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6531 - mae: 0.6070 - val\_loss: 0.7966 - val\_mae: 0.7247 - lr: 9.5000e-04

Epoch 11: LearningRateScheduler setting learning rate to 0.0009025000152178108.

Epoch 11/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6374 - mae: 0.5998 - val\_loss: 0.5423 - val\_mae: 0.5680 - lr: 9.0250e-04

Epoch 12: LearningRateScheduler setting learning rate to 0.0009025000035762787.

Epoch 12/100

1067/1067 [==============================] - 12s 12ms/step - loss: 0.6336 - mae: 0.5971 - val\_loss: 0.7463 - val\_mae: 0.7030 - lr: 9.0250e-04

Epoch 13: LearningRateScheduler setting learning rate to 0.0009025000035762787.

Epoch 13/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6271 - mae: 0.5938 - val\_loss: 0.6603 - val\_mae: 0.6433 - lr: 9.0250e-04

Epoch 14: LearningRateScheduler setting learning rate to 0.0009025000035762787.

Epoch 14/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6262 - mae: 0.5942 - val\_loss: 0.5307 - val\_mae: 0.5544 - lr: 9.0250e-04

Epoch 15: LearningRateScheduler setting learning rate to 0.0009025000035762787.

Epoch 15/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6202 - mae: 0.5908 - val\_loss: 0.6606 - val\_mae: 0.6529 - lr: 9.0250e-04

Epoch 16: LearningRateScheduler setting learning rate to 0.0008573750033974647.

Epoch 16/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6109 - mae: 0.5861 - val\_loss: 0.5670 - val\_mae: 0.5882 - lr: 8.5737e-04

Epoch 17: LearningRateScheduler setting learning rate to 0.0008573749801144004.

Epoch 17/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6097 - mae: 0.5858 - val\_loss: 0.5920 - val\_mae: 0.6099 - lr: 8.5737e-04

Epoch 18: LearningRateScheduler setting learning rate to 0.0008573749801144004.

Epoch 18/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6049 - mae: 0.5834 - val\_loss: 0.5525 - val\_mae: 0.5672 - lr: 8.5737e-04

Epoch 19: LearningRateScheduler setting learning rate to 0.0008573749801144004.

Epoch 19/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6012 - mae: 0.5820 - val\_loss: 0.5048 - val\_mae: 0.5369 - lr: 8.5737e-04

Epoch 20: LearningRateScheduler setting learning rate to 0.0008573749801144004.

Epoch 20/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.6025 - mae: 0.5827 - val\_loss: 0.6321 - val\_mae: 0.6323 - lr: 8.5737e-04

Epoch 21: LearningRateScheduler setting learning rate to 0.0008145062311086804.

Epoch 21/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5988 - mae: 0.5806 - val\_loss: 0.5973 - val\_mae: 0.6096 - lr: 8.1451e-04

Epoch 22: LearningRateScheduler setting learning rate to 0.0008145062020048499.

Epoch 22/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5988 - mae: 0.5808 - val\_loss: 0.6260 - val\_mae: 0.6292 - lr: 8.1451e-04

Epoch 23: LearningRateScheduler setting learning rate to 0.0008145062020048499.

Epoch 23/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5979 - mae: 0.5803 - val\_loss: 0.5567 - val\_mae: 0.5843 - lr: 8.1451e-04

Epoch 24: LearningRateScheduler setting learning rate to 0.0008145062020048499.

Epoch 24/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5965 - mae: 0.5796 - val\_loss: 0.5266 - val\_mae: 0.5578 - lr: 4.0725e-04

Epoch 25: LearningRateScheduler setting learning rate to 0.00040725310100242496.

Epoch 25/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5861 - mae: 0.5744 - val\_loss: 0.5325 - val\_mae: 0.5646 - lr: 4.0725e-04

Epoch 26: LearningRateScheduler setting learning rate to 0.0003868904459523037.

Epoch 26/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5822 - mae: 0.5726 - val\_loss: 0.5177 - val\_mae: 0.5500 - lr: 3.8689e-04

Epoch 27: LearningRateScheduler setting learning rate to 0.0003868904314003885.

Epoch 27/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5811 - mae: 0.5716 - val\_loss: 0.5073 - val\_mae: 0.5431 - lr: 3.8689e-04

Epoch 28: LearningRateScheduler setting learning rate to 0.0003868904314003885.

Epoch 28/100

1067/1067 [==============================] - 13s 12ms/step - loss: 0.5794 - mae: 0.5712 - val\_loss: 0.5500 - val\_mae: 0.5820 - lr: 3.8689e-04

Epoch 29: LearningRateScheduler setting learning rate to 0.0003868904314003885.

Epoch 29/100

1067/1067 [==============================] - 13s 12ms/step - loss: 0.5793 - mae: 0.5712 - val\_loss: 0.5141 - val\_mae: 0.5529 - lr: 1.9345e-04

Epoch 30: LearningRateScheduler setting learning rate to 0.00019344521570019424.

Epoch 30/100

1067/1067 [==============================] - 12s 12ms/step - loss: 0.5740 - mae: 0.5683 - val\_loss: 0.5027 - val\_mae: 0.5425 - lr: 1.9345e-04

Epoch 31: LearningRateScheduler setting learning rate to 0.0001837729549151845.

Epoch 31/100

1067/1067 [==============================] - 12s 12ms/step - loss: 0.5724 - mae: 0.5678 - val\_loss: 0.5141 - val\_mae: 0.5517 - lr: 1.8377e-04

Epoch 32: LearningRateScheduler setting learning rate to 0.00018377295054960996.

Epoch 32/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5737 - mae: 0.5688 - val\_loss: 0.5071 - val\_mae: 0.5460 - lr: 1.8377e-04

Epoch 33: LearningRateScheduler setting learning rate to 0.00018377295054960996.

Epoch 33/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5726 - mae: 0.5677 - val\_loss: 0.5038 - val\_mae: 0.5441 - lr: 1.8377e-04

Epoch 34: LearningRateScheduler setting learning rate to 0.00018377295054960996.

Epoch 34/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5708 - mae: 0.5663 - val\_loss: 0.5008 - val\_mae: 0.5407 - lr: 1.8377e-04

Epoch 35: LearningRateScheduler setting learning rate to 0.00018377295054960996.

Epoch 35/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5711 - mae: 0.5676 - val\_loss: 0.5229 - val\_mae: 0.5630 - lr: 1.8377e-04

Epoch 36: LearningRateScheduler setting learning rate to 0.00017458430302212945.

Epoch 36/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5700 - mae: 0.5667 - val\_loss: 0.5571 - val\_mae: 0.5863 - lr: 1.7458e-04

Epoch 37: LearningRateScheduler setting learning rate to 0.00017458430374972522.

Epoch 37/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5700 - mae: 0.5669 - val\_loss: 0.4987 - val\_mae: 0.5395 - lr: 1.7458e-04

Epoch 38: LearningRateScheduler setting learning rate to 0.00017458430374972522.

Epoch 38/100

1067/1067 [==============================] - 12s 12ms/step - loss: 0.5690 - mae: 0.5664 - val\_loss: 0.4976 - val\_mae: 0.5386 - lr: 1.7458e-04

Epoch 39: LearningRateScheduler setting learning rate to 0.00017458430374972522.

Epoch 39/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5682 - mae: 0.5662 - val\_loss: 0.5005 - val\_mae: 0.5411 - lr: 1.7458e-04

Epoch 40: LearningRateScheduler setting learning rate to 0.00017458430374972522.

Epoch 40/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5692 - mae: 0.5657 - val\_loss: 0.5222 - val\_mae: 0.5609 - lr: 1.7458e-04

Epoch 41: LearningRateScheduler setting learning rate to 0.00016585508856223897.

Epoch 41/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5681 - mae: 0.5659 - val\_loss: 0.5036 - val\_mae: 0.5460 - lr: 1.6586e-04

Epoch 42: LearningRateScheduler setting learning rate to 0.00016585509001743048.

Epoch 42/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5682 - mae: 0.5653 - val\_loss: 0.5229 - val\_mae: 0.5602 - lr: 1.6586e-04

Epoch 43: LearningRateScheduler setting learning rate to 0.00016585509001743048.

Epoch 43/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5664 - mae: 0.5640 - val\_loss: 0.5194 - val\_mae: 0.5593 - lr: 8.2928e-05

Epoch 44: LearningRateScheduler setting learning rate to 8.292754500871524e-05.

Epoch 44/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5656 - mae: 0.5650 - val\_loss: 0.5056 - val\_mae: 0.5475 - lr: 8.2928e-05

Epoch 45: LearningRateScheduler setting learning rate to 8.292754500871524e-05.

Epoch 45/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5650 - mae: 0.5639 - val\_loss: 0.5109 - val\_mae: 0.5524 - lr: 8.2928e-05

Epoch 46: LearningRateScheduler setting learning rate to 7.878116775827948e-05.

Epoch 46/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5638 - mae: 0.5631 - val\_loss: 0.5033 - val\_mae: 0.5462 - lr: 7.8781e-05

Epoch 47: LearningRateScheduler setting learning rate to 7.878116593929008e-05.

Epoch 47/100

1067/1067 [==============================] - 13s 12ms/step - loss: 0.5634 - mae: 0.5639 - val\_loss: 0.5207 - val\_mae: 0.5606 - lr: 7.8781e-05

Epoch 48: LearningRateScheduler setting learning rate to 7.878116593929008e-05.

Epoch 48/100

1067/1067 [==============================] - 13s 12ms/step - loss: 0.5646 - mae: 0.5636 - val\_loss: 0.4966 - val\_mae: 0.5386 - lr: 7.8781e-05

Epoch 49: LearningRateScheduler setting learning rate to 7.878116593929008e-05.

Epoch 49/100

1067/1067 [==============================] - 13s 12ms/step - loss: 0.5637 - mae: 0.5637 - val\_loss: 0.4983 - val\_mae: 0.5390 - lr: 7.8781e-05

Epoch 50: LearningRateScheduler setting learning rate to 7.878116593929008e-05.

Epoch 50/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5625 - mae: 0.5628 - val\_loss: 0.5018 - val\_mae: 0.5434 - lr: 7.8781e-05

Epoch 51: LearningRateScheduler setting learning rate to 7.484210764232557e-05.

Epoch 51/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5617 - mae: 0.5626 - val\_loss: 0.5063 - val\_mae: 0.5479 - lr: 7.4842e-05

Epoch 52: LearningRateScheduler setting learning rate to 7.484210800612345e-05.

Epoch 52/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5629 - mae: 0.5633 - val\_loss: 0.4983 - val\_mae: 0.5397 - lr: 7.4842e-05

Epoch 53: LearningRateScheduler setting learning rate to 7.484210800612345e-05.

Epoch 53/100

1067/1067 [==============================] - 12s 12ms/step - loss: 0.5617 - mae: 0.5621 - val\_loss: 0.5099 - val\_mae: 0.5505 - lr: 3.7421e-05

Epoch 54: LearningRateScheduler setting learning rate to 3.742105400306173e-05.

Epoch 54/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5606 - mae: 0.5624 - val\_loss: 0.4986 - val\_mae: 0.5408 - lr: 3.7421e-05

Epoch 55: LearningRateScheduler setting learning rate to 3.742105400306173e-05.

Epoch 55/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5603 - mae: 0.5621 - val\_loss: 0.5036 - val\_mae: 0.5465 - lr: 3.7421e-05

Epoch 56: LearningRateScheduler setting learning rate to 3.555000130290864e-05.

Epoch 56/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5588 - mae: 0.5616 - val\_loss: 0.5005 - val\_mae: 0.5432 - lr: 3.5550e-05

Epoch 57: LearningRateScheduler setting learning rate to 3.555000148480758e-05.

Epoch 57/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5607 - mae: 0.5624 - val\_loss: 0.4955 - val\_mae: 0.5381 - lr: 3.5550e-05

Epoch 58: LearningRateScheduler setting learning rate to 3.555000148480758e-05.

Epoch 58/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5596 - mae: 0.5611 - val\_loss: 0.4976 - val\_mae: 0.5402 - lr: 3.5550e-05

Epoch 59: LearningRateScheduler setting learning rate to 3.555000148480758e-05.

Epoch 59/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5603 - mae: 0.5622 - val\_loss: 0.4928 - val\_mae: 0.5344 - lr: 3.5550e-05

Epoch 60: LearningRateScheduler setting learning rate to 3.555000148480758e-05.

Epoch 60/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5602 - mae: 0.5623 - val\_loss: 0.4992 - val\_mae: 0.5423 - lr: 3.5550e-05

Epoch 61: LearningRateScheduler setting learning rate to 3.37725014105672e-05.

Epoch 61/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5595 - mae: 0.5614 - val\_loss: 0.4981 - val\_mae: 0.5400 - lr: 3.3772e-05

Epoch 62: LearningRateScheduler setting learning rate to 3.37724995915778e-05.

Epoch 62/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5591 - mae: 0.5619 - val\_loss: 0.4935 - val\_mae: 0.5356 - lr: 3.3772e-05

Epoch 63: LearningRateScheduler setting learning rate to 3.37724995915778e-05.

Epoch 63/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5591 - mae: 0.5611 - val\_loss: 0.4969 - val\_mae: 0.5399 - lr: 3.3772e-05

Epoch 64: LearningRateScheduler setting learning rate to 3.37724995915778e-05.

Epoch 64/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5601 - mae: 0.5615 - val\_loss: 0.4963 - val\_mae: 0.5393 - lr: 1.6886e-05

Epoch 65: LearningRateScheduler setting learning rate to 1.68862497957889e-05.

Epoch 65/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5588 - mae: 0.5610 - val\_loss: 0.4946 - val\_mae: 0.5367 - lr: 1.6886e-05

Epoch 66: LearningRateScheduler setting learning rate to 1.6041937305999452e-05.

Epoch 66/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5608 - mae: 0.5621 - val\_loss: 0.4996 - val\_mae: 0.5419 - lr: 1.6042e-05

Epoch 67: LearningRateScheduler setting learning rate to 1.6041936760302633e-05.

Epoch 67/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5591 - mae: 0.5611 - val\_loss: 0.4966 - val\_mae: 0.5390 - lr: 1.6042e-05

Epoch 68: LearningRateScheduler setting learning rate to 1.6041936760302633e-05.

Epoch 68/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5585 - mae: 0.5608 - val\_loss: 0.4976 - val\_mae: 0.5400 - lr: 1.6042e-05

Epoch 69: LearningRateScheduler setting learning rate to 1.6041936760302633e-05.

Epoch 69/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5581 - mae: 0.5610 - val\_loss: 0.5014 - val\_mae: 0.5442 - lr: 8.0210e-06

Epoch 70: LearningRateScheduler setting learning rate to 8.020968380151317e-06.

Epoch 70/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5588 - mae: 0.5616 - val\_loss: 0.4978 - val\_mae: 0.5403 - lr: 8.0210e-06

Epoch 71: LearningRateScheduler setting learning rate to 7.61991996114375e-06.

Epoch 71/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5580 - mae: 0.5613 - val\_loss: 0.4952 - val\_mae: 0.5377 - lr: 7.6199e-06

Epoch 72: LearningRateScheduler setting learning rate to 7.6199198701942805e-06.

Epoch 72/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5578 - mae: 0.5604 - val\_loss: 0.4948 - val\_mae: 0.5373 - lr: 7.6199e-06

Epoch 73: LearningRateScheduler setting learning rate to 7.6199198701942805e-06.

Epoch 73/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5578 - mae: 0.5606 - val\_loss: 0.4988 - val\_mae: 0.5411 - lr: 7.6199e-06

Epoch 74: LearningRateScheduler setting learning rate to 7.6199198701942805e-06.

Epoch 74/100

1067/1067 [==============================] - 12s 11ms/step - loss: 0.5581 - mae: 0.5608 - val\_loss: 0.4968 - val\_mae: 0.5400 - lr: 3.8100e-06



