

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
In [2]: dataset_leste = pd.read_csv("dataset_leste.csv")
dataset_nordeste = pd.read_csv("dataset_nordeste.csv")
dataset_noroeste = pd.read_csv("dataset_noroeste.csv")
dataset_norte = pd.read_csv("dataset_norte.csv")
dataset_oeste = pd.read_csv("dataset_oeste.csv")
dataset_sudeste = pd.read_csv("dataset_sudeste.csv")
dataset_sudoeste = pd.read_csv("dataset_sudoeste.csv")
dataset_sul = pd.read_csv("dataset_sul.csv")
```

```
In [3]: import math
```

```
In [4]: def append_data(datas):
    data_frame = []
    columns = datas[0].columns

    for i in range(0, len(datas)):

        data = datas[i]

        for j in range(0, len(columns)):

            if len(data_frame) <= j:
                data_frame.append(list(np.array(data[columns[j]])))
            else:
                for val in np.array(data[columns[j]]):
                    data_frame[j].append(val)

    return pd.DataFrame.from_records(np.transpose(data_frame), columns = columns)
```

```
In [5]: def get_theta(data, t):
    theta = np.ones(len(data["x1"]))
    data["theta"] = theta*t
    return data
```

```
In [6]: dataset_norte = get_theta(dataset_norte,0)
dataset_noroeste = get_theta(dataset_noroeste,math.pi/4.0)
dataset_oeste = get_theta(dataset_oeste,math.pi/2.0)
dataset_sudoeste = get_theta(dataset_sudoeste,math.pi*3.0/4.0)
dataset_sul = get_theta(dataset_sul,math.pi)

dataset_sudeste = get_theta(dataset_sudeste, -math.pi)
dataset_leste = get_theta(dataset_leste, -math.pi/2.0)
dataset_nordeste = get_theta(dataset_nordeste,-math.pi/4.0)
```

```
In [7]: data_frame = append_data((
    dataset_norte,
    dataset_noroeste,
    dataset_oeste,
    dataset_sudoeste,
    dataset_sul,
    dataset_sudeste,
    dataset_leste,
    dataset_nordeste
))
```

```
In [8]: import matplotlib.pyplot as plt
```

```
In [9]: def visualizar(y_pred):
    plt.title("Resultado")
    axes = plt.gca()
    #axes.set_xlim([-0,400])
    #axes.set_ylim([-0,2*math.pi])
    plt.plot(y_pred)
    plt.ylabel('theta')
    plt.xlabel('times')
    plt.show()
```

```
In [10]: data_frame
```

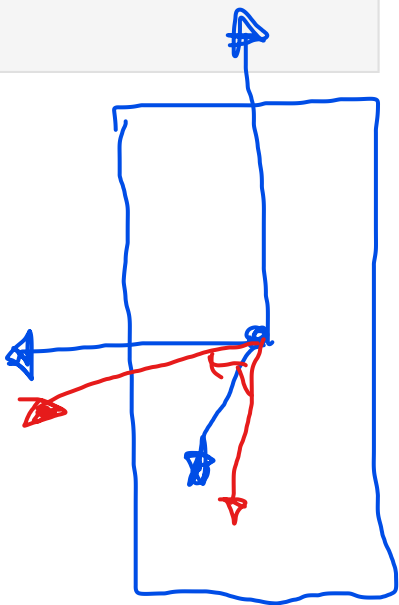
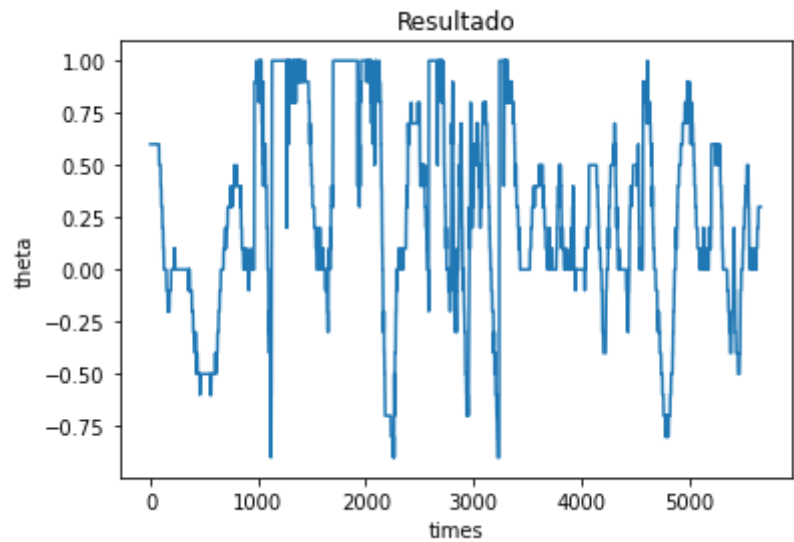
Out[10]:

	x1	x2	x3	x4	x5	x6	theta
0	0.5	0.1	0.2	0.0	0.7	0.6	0.000000
1	0.5	0.1	0.2	0.0	0.7	0.6	0.000000
2	0.5	0.1	0.2	0.0	0.7	0.6	0.000000

	x1	x2	x3	x4	x5	x6	theta
3	0.5	0.1	0.2	0.0	0.7	0.6	0.000000
4	0.5	0.1	0.2	0.0	0.7	0.6	0.000000
...
5661	0.6	-0.3	-0.4	-0.1	0.8	0.3	-0.785398
5662	0.6	-0.3	-0.4	-0.1	0.8	0.3	-0.785398
5663	0.6	-0.3	-0.4	-0.1	0.8	0.3	-0.785398
5664	0.6	-0.3	-0.4	-0.2	0.8	0.3	-0.785398
5665	0.6	-0.3	-0.4	-0.2	0.8	0.3	-0.785398

5666 rows × 7 columns

```
In [14]: visualizar(data_frame['x6'])
```



Modelo redes neurais com Tensorflow

```
In [14]: import tensorflow as tf
```

```
In [47]: def regressor_conv():

    inputs = tf.keras.Input(shape=(6,1))
    extract = tf.keras.layers.Conv1D(18, 3)(inputs)
    extract = tf.keras.layers.Conv1D(36, 3)(extract)
    extract = tf.keras.layers.Conv1D(36, 2)(extract)
    one_d = tf.keras.layers.Flatten()(extract)

    dense = tf.keras.layers.Dense(1)(one_d)

    model = tf.keras.Model(inputs=inputs, outputs=dense)

    model.summary()
    model.compile(
        optimizer=tf.optimizers.Adam(),
        loss='mse',
        metrics=['mae', 'mse']
    )

    return model
```

```
In [69]: #generator of phi
def phi_regressor():

    inputs = tf.keras.Input(shape=(3,))

    #dense = tf.keras.layers.Dense(3, activation='tanh')(inputs)
    #dense = tf.keras.layers.Dense(4)(dense)
    dense = tf.keras.layers.Dense(1, activation='tanh')(inputs)

    model = tf.keras.Model(inputs=inputs, outputs=dense)

    model.summary()
    model.compile(
        optimizer=tf.optimizers.Adam(),
        loss='mse',
        metrics=['mae', 'mse']
    )

    return model
```

```
In [ ]: #discriminator
def theta_regressor():
```

```

inputs = tf.keras.Input(shape=(4,))

dense = tf.keras.layers.Dense(3, activation='tanh')(inputs)
#dense = tf.keras.layers.Dense(4)(dense)
dense = tf.keras.layers.Dense(1)(dense)

model = tf.keras.Model(inputs=inputs, outputs=dense)

model.summary()

model.compile(
    optimizer=tf.optimizers.Adam(),
    loss='mse',
    metrics=['mae', 'mse']
)

return model

```

In [70]:

```

data_frame = data_frame.sample(frac = 1)
y = data_frame['theta']
X = data_frame.drop(['theta'], axis=1)

model = regressor()

history = model.fit(x = X,
                    y = y,
                    epochs = 1000,
                    batch_size = 1000,
                    validation_split = 0.2
                    )

```

Model: "model_12"

Layer (type)	Output Shape	Param #
input_13 (InputLayer)	[(None, 6)]	0
dense_24 (Dense)	(None, 3)	21
dense_25 (Dense)	(None, 1)	4
Total params: 25		
Trainable params: 25		
Non-trainable params: 0		

```

Epoch 1/1000
5/5 [=====] - 0s 29ms/step - loss: 3.0747 - mae: 1.4331 - mse: 3.0747 - val_loss: 2.8527 - val_mae: 1.373
- val_mse: 2.8527
Epoch 2/1000
5/5 [=====] - 0s 6ms/step - loss: 3.0076 - mae: 1.4139 - mse: 3.0076 - val_loss: 2.7914 - val_mae: 1.3551
- val_mse: 2.7914
Epoch 3/1000
5/5 [=====] - 0s 6ms/step - loss: 2.9438 - mae: 1.3953 - mse: 2.9438 - val_loss: 2.7326 - val_mae: 1.3372
- val_mse: 2.7326
Epoch 4/1000
5/5 [=====] - 0s 5ms/step - loss: 2.8810 - mae: 1.3766 - mse: 2.8810 - val_loss: 2.6769 - val_mae: 1.3200
- val_mse: 2.6769
Epoch 5/1000
5/5 [=====] - 0s 6ms/step - loss: 2.8225 - mae: 1.3589 - mse: 2.8225 - val_loss: 2.6237 - val_mae: 1.3036
- val_mse: 2.6237
Epoch 6/1000
5/5 [=====] - 0s 6ms/step - loss: 2.7657 - mae: 1.3417 - mse: 2.7657 - val_loss: 2.5732 - val_mae: 1.2880
- val_mse: 2.5732
Epoch 7/1000
5/5 [=====] - 0s 6ms/step - loss: 2.7117 - mae: 1.3251 - mse: 2.7117 - val_loss: 2.5251 - val_mae: 1.2733
- val_mse: 2.5251
Epoch 8/1000
5/5 [=====] - 0s 6ms/step - loss: 2.6606 - mae: 1.3096 - mse: 2.6606 - val_loss: 2.4793 - val_mae: 1.2592
- val_mse: 2.4793
Epoch 9/1000
5/5 [=====] - 0s 6ms/step - loss: 2.6114 - mae: 1.2945 - mse: 2.6114 - val_loss: 2.4359 - val_mae: 1.2455
- val_mse: 2.4359
Epoch 10/1000
5/5 [=====] - 0s 6ms/step - loss: 2.5650 - mae: 1.2804 - mse: 2.5650 - val_loss: 2.3945 - val_mae: 1.2328
- val_mse: 2.3945
Epoch 11/1000
5/5 [=====] - 0s 7ms/step - loss: 2.5203 - mae: 1.2673 - mse: 2.5203 - val_loss: 2.3551 - val_mae: 1.2209
- val_mse: 2.3551
Epoch 12/1000
5/5 [=====] - 0s 7ms/step - loss: 2.4776 - mae: 1.2549 - mse: 2.4776 - val_loss: 2.3176 - val_mae: 1.2096
- val_mse: 2.3176
Epoch 13/1000
5/5 [=====] - 0s 7ms/step - loss: 2.4380 - mae: 1.2437 - mse: 2.4380 - val_loss: 2.2814 - val_mae: 1.1989
- val_mse: 2.2814
Epoch 14/1000
5/5 [=====] - 0s 6ms/step - loss: 2.3989 - mae: 1.2326 - mse: 2.3989 - val_loss: 2.2471 - val_mae: 1.1885
- val_mse: 2.2471
Epoch 15/1000
5/5 [=====] - 0s 6ms/step - loss: 2.3616 - mae: 1.2219 - mse: 2.3616 - val_loss: 2.2142 - val_mae: 1.1784
- val_mse: 2.2142
Epoch 16/1000
5/5 [=====] - 0s 6ms/step - loss: 2.3261 - mae: 1.2116 - mse: 2.3261 - val_loss: 2.1826 - val_mae: 1.1685
- val_mse: 2.1826
Epoch 17/1000
5/5 [=====] - 0s 6ms/step - loss: 2.2922 - mae: 1.2016 - mse: 2.2922 - val_loss: 2.1522 - val_mae: 1.1590

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- val_mse: 2.1522
Epoch 18/1000
5/5 [=====] - 0s 6ms/step - loss: 2.2589 - mae: 1.1917 - mse: 2.2589 - val_loss: 2.1229 - val_mae: 1.1496
- val_mse: 2.1229
Epoch 19/1000
5/5 [=====] - 0s 6ms/step - loss: 2.2272 - mae: 1.1822 - mse: 2.2272 - val_loss: 2.0945 - val_mae: 1.1405
- val_mse: 2.0945
Epoch 20/1000
5/5 [=====] - 0s 6ms/step - loss: 2.1965 - mae: 1.1727 - mse: 2.1965 - val_loss: 2.0670 - val_mae: 1.1316
- val_mse: 2.0670
Epoch 21/1000
5/5 [=====] - 0s 7ms/step - loss: 2.1666 - mae: 1.1635 - mse: 2.1666 - val_loss: 2.0403 - val_mae: 1.1227
- val_mse: 2.0403
Epoch 22/1000
5/5 [=====] - 0s 6ms/step - loss: 2.1372 - mae: 1.1542 - mse: 2.1372 - val_loss: 2.0144 - val_mae: 1.1140
- val_mse: 2.0144
Epoch 23/1000
5/5 [=====] - 0s 7ms/step - loss: 2.1093 - mae: 1.1453 - mse: 2.1093 - val_loss: 1.9888 - val_mae: 1.1053
- val_mse: 1.9888
Epoch 24/1000
5/5 [=====] - 0s 7ms/step - loss: 2.0816 - mae: 1.1364 - mse: 2.0816 - val_loss: 1.9638 - val_mae: 1.0967
- val_mse: 1.9638
Epoch 25/1000
5/5 [=====] - 0s 6ms/step - loss: 2.0543 - mae: 1.1275 - mse: 2.0543 - val_loss: 1.9393 - val_mae: 1.0883
- val_mse: 1.9393
Epoch 26/1000
5/5 [=====] - 0s 7ms/step - loss: 2.0277 - mae: 1.1188 - mse: 2.0277 - val_loss: 1.9152 - val_mae: 1.0798
- val_mse: 1.9152
Epoch 27/1000
5/5 [=====] - 0s 7ms/step - loss: 2.0018 - mae: 1.1102 - mse: 2.0018 - val_loss: 1.8913 - val_mae: 1.0714
- val_mse: 1.8913
Epoch 28/1000
5/5 [=====] - 0s 7ms/step - loss: 1.9758 - mae: 1.1016 - mse: 1.9758 - val_loss: 1.8678 - val_mae: 1.0631
- val_mse: 1.8678
Epoch 29/1000
5/5 [=====] - 0s 6ms/step - loss: 1.9503 - mae: 1.0931 - mse: 1.9503 - val_loss: 1.8445 - val_mae: 1.0549
- val_mse: 1.8445
Epoch 30/1000
5/5 [=====] - 0s 6ms/step - loss: 1.9255 - mae: 1.0847 - mse: 1.9255 - val_loss: 1.8214 - val_mae: 1.0468
- val_mse: 1.8214
Epoch 31/1000
5/5 [=====] - 0s 7ms/step - loss: 1.9005 - mae: 1.0763 - mse: 1.9005 - val_loss: 1.7985 - val_mae: 1.0387
- val_mse: 1.7985
Epoch 32/1000
5/5 [=====] - 0s 6ms/step - loss: 1.8756 - mae: 1.0679 - mse: 1.8756 - val_loss: 1.7758 - val_mae: 1.0308
- val_mse: 1.7758
Epoch 33/1000
5/5 [=====] - 0s 6ms/step - loss: 1.8513 - mae: 1.0596 - mse: 1.8513 - val_loss: 1.7531 - val_mae: 1.0228
- val_mse: 1.7531
Epoch 34/1000
5/5 [=====] - 0s 6ms/step - loss: 1.8268 - mae: 1.0512 - mse: 1.8268 - val_loss: 1.7305 - val_mae: 1.0148
- val_mse: 1.7305
Epoch 35/1000
5/5 [=====] - 0s 7ms/step - loss: 1.8028 - mae: 1.0429 - mse: 1.8028 - val_loss: 1.7079 - val_mae: 1.0067
- val_mse: 1.7079
Epoch 36/1000
5/5 [=====] - 0s 6ms/step - loss: 1.7785 - mae: 1.0345 - mse: 1.7785 - val_loss: 1.6854 - val_mae: 0.9988
- val_mse: 1.6854
Epoch 37/1000
5/5 [=====] - 0s 6ms/step - loss: 1.7545 - mae: 1.0263 - mse: 1.7545 - val_loss: 1.6630 - val_mae: 0.9912
- val_mse: 1.6630
Epoch 38/1000
5/5 [=====] - 0s 5ms/step - loss: 1.7303 - mae: 1.0182 - mse: 1.7303 - val_loss: 1.6407 - val_mae: 0.9835
- val_mse: 1.6407
Epoch 39/1000
5/5 [=====] - 0s 5ms/step - loss: 1.7065 - mae: 1.0101 - mse: 1.7065 - val_loss: 1.6182 - val_mae: 0.9758
- val_mse: 1.6182
Epoch 40/1000
5/5 [=====] - 0s 6ms/step - loss: 1.6826 - mae: 1.0021 - mse: 1.6826 - val_loss: 1.5959 - val_mae: 0.9681
- val_mse: 1.5959
Epoch 41/1000
5/5 [=====] - 0s 6ms/step - loss: 1.6588 - mae: 0.9939 - mse: 1.6588 - val_loss: 1.5735 - val_mae: 0.9605
- val_mse: 1.5735
Epoch 42/1000
5/5 [=====] - 0s 6ms/step - loss: 1.6350 - mae: 0.9858 - mse: 1.6350 - val_loss: 1.5512 - val_mae: 0.9527
- val_mse: 1.5512
Epoch 43/1000
5/5 [=====] - 0s 5ms/step - loss: 1.6112 - mae: 0.9777 - mse: 1.6112 - val_loss: 1.5289 - val_mae: 0.9449
- val_mse: 1.5289
Epoch 44/1000
5/5 [=====] - 0s 6ms/step - loss: 1.5875 - mae: 0.9694 - mse: 1.5875 - val_loss: 1.5066 - val_mae: 0.9370
- val_mse: 1.5066
Epoch 45/1000
5/5 [=====] - 0s 6ms/step - loss: 1.5639 - mae: 0.9612 - mse: 1.5639 - val_loss: 1.4844 - val_mae: 0.9292
- val_mse: 1.4844
Epoch 46/1000
5/5 [=====] - 0s 6ms/step - loss: 1.5402 - mae: 0.9530 - mse: 1.5402 - val_loss: 1.4622 - val_mae: 0.9213
- val_mse: 1.4622
Epoch 47/1000
5/5 [=====] - 0s 5ms/step - loss: 1.5167 - mae: 0.9447 - mse: 1.5167 - val_loss: 1.4400 - val_mae: 0.9134
- val_mse: 1.4400
Epoch 48/1000
5/5 [=====] - 0s 5ms/step - loss: 1.4932 - mae: 0.9363 - mse: 1.4932 - val_loss: 1.4179 - val_mae: 0.9054
- val_mse: 1.4179
Epoch 49/1000
5/5 [=====] - 0s 6ms/step - loss: 1.4697 - mae: 0.9279 - mse: 1.4697 - val_loss: 1.3958 - val_mae: 0.8973
- val_mse: 1.3958
Epoch 50/1000
5/5 [=====] - 0s 5ms/step - loss: 1.4465 - mae: 0.9195 - mse: 1.4465 - val_loss: 1.3737 - val_mae: 0.8892
- val_mse: 1.3737
```

Epoch 51/1000
5/5 [=====] - 0s 6ms/step - loss: 1.4231 - mae: 0.9110 - mse: 1.4231 - val_loss: 1.3517 - val_mae: 0.8812
- val_mse: 1.3517
Epoch 52/1000
5/5 [=====] - 0s 6ms/step - loss: 1.3997 - mae: 0.9025 - mse: 1.3997 - val_loss: 1.3299 - val_mae: 0.8731
- val_mse: 1.3299
Epoch 53/1000
5/5 [=====] - 0s 5ms/step - loss: 1.3767 - mae: 0.8940 - mse: 1.3767 - val_loss: 1.3081 - val_mae: 0.8650
- val_mse: 1.3081
Epoch 54/1000
5/5 [=====] - 0s 6ms/step - loss: 1.3536 - mae: 0.8854 - mse: 1.3536 - val_loss: 1.2864 - val_mae: 0.8569
- val_mse: 1.2864
Epoch 55/1000
5/5 [=====] - 0s 6ms/step - loss: 1.3308 - mae: 0.8768 - mse: 1.3308 - val_loss: 1.2648 - val_mae: 0.8487
- val_mse: 1.2648
Epoch 56/1000
5/5 [=====] - 0s 5ms/step - loss: 1.3077 - mae: 0.8682 - mse: 1.3077 - val_loss: 1.2434 - val_mae: 0.8405
- val_mse: 1.2434
Epoch 57/1000
5/5 [=====] - 0s 6ms/step - loss: 1.2852 - mae: 0.8596 - mse: 1.2852 - val_loss: 1.2222 - val_mae: 0.8323
- val_mse: 1.2222
Epoch 58/1000
5/5 [=====] - 0s 5ms/step - loss: 1.2630 - mae: 0.8510 - mse: 1.2630 - val_loss: 1.2012 - val_mae: 0.8241
- val_mse: 1.2012
Epoch 59/1000
5/5 [=====] - 0s 6ms/step - loss: 1.2406 - mae: 0.8424 - mse: 1.2406 - val_loss: 1.1804 - val_mae: 0.8160
- val_mse: 1.1804
Epoch 60/1000
5/5 [=====] - 0s 6ms/step - loss: 1.2187 - mae: 0.8340 - mse: 1.2187 - val_loss: 1.1599 - val_mae: 0.8079
- val_mse: 1.1599
Epoch 61/1000
5/5 [=====] - 0s 6ms/step - loss: 1.1971 - mae: 0.8255 - mse: 1.1971 - val_loss: 1.1396 - val_mae: 0.7998
- val_mse: 1.1396
Epoch 62/1000
5/5 [=====] - 0s 6ms/step - loss: 1.1756 - mae: 0.8171 - mse: 1.1756 - val_loss: 1.1197 - val_mae: 0.7919
- val_mse: 1.1197
Epoch 63/1000
5/5 [=====] - 0s 5ms/step - loss: 1.1544 - mae: 0.8088 - mse: 1.1544 - val_loss: 1.0999 - val_mae: 0.7839
- val_mse: 1.0999
Epoch 64/1000
5/5 [=====] - 0s 6ms/step - loss: 1.1336 - mae: 0.8005 - mse: 1.1336 - val_loss: 1.0804 - val_mae: 0.7759
- val_mse: 1.0804
Epoch 65/1000
5/5 [=====] - 0s 5ms/step - loss: 1.1130 - mae: 0.7921 - mse: 1.1130 - val_loss: 1.0612 - val_mae: 0.7679
- val_mse: 1.0612
Epoch 66/1000
5/5 [=====] - 0s 6ms/step - loss: 1.0925 - mae: 0.7837 - mse: 1.0925 - val_loss: 1.0424 - val_mae: 0.7600
- val_mse: 1.0424
Epoch 67/1000
5/5 [=====] - 0s 5ms/step - loss: 1.0725 - mae: 0.7755 - mse: 1.0725 - val_loss: 1.0237 - val_mae: 0.7521
- val_mse: 1.0237
Epoch 68/1000
5/5 [=====] - 0s 6ms/step - loss: 1.0527 - mae: 0.7672 - mse: 1.0527 - val_loss: 1.0052 - val_mae: 0.7442
- val_mse: 1.0052
Epoch 69/1000
5/5 [=====] - 0s 6ms/step - loss: 1.0332 - mae: 0.7590 - mse: 1.0332 - val_loss: 0.9870 - val_mae: 0.7364
- val_mse: 0.9870
Epoch 70/1000
5/5 [=====] - 0s 5ms/step - loss: 1.0140 - mae: 0.7509 - mse: 1.0140 - val_loss: 0.9692 - val_mae: 0.7287
- val_mse: 0.9692
Epoch 71/1000
5/5 [=====] - 0s 5ms/step - loss: 0.9950 - mae: 0.7428 - mse: 0.9950 - val_loss: 0.9516 - val_mae: 0.7210
- val_mse: 0.9516
Epoch 72/1000
5/5 [=====] - 0s 6ms/step - loss: 0.9765 - mae: 0.7347 - mse: 0.9765 - val_loss: 0.9343 - val_mae: 0.7133
- val_mse: 0.9343
Epoch 73/1000
5/5 [=====] - 0s 5ms/step - loss: 0.9582 - mae: 0.7267 - mse: 0.9582 - val_loss: 0.9173 - val_mae: 0.7057
- val_mse: 0.9173
Epoch 74/1000
5/5 [=====] - 0s 6ms/step - loss: 0.9403 - mae: 0.7187 - mse: 0.9403 - val_loss: 0.9004 - val_mae: 0.6980
- val_mse: 0.9004
Epoch 75/1000
5/5 [=====] - 0s 5ms/step - loss: 0.9225 - mae: 0.7108 - mse: 0.9225 - val_loss: 0.8840 - val_mae: 0.6905
- val_mse: 0.8840
Epoch 76/1000
5/5 [=====] - 0s 5ms/step - loss: 0.9051 - mae: 0.7029 - mse: 0.9051 - val_loss: 0.8678 - val_mae: 0.6830
- val_mse: 0.8678
Epoch 77/1000
5/5 [=====] - 0s 6ms/step - loss: 0.8880 - mae: 0.6951 - mse: 0.8880 - val_loss: 0.8519 - val_mae: 0.6755
- val_mse: 0.8519
Epoch 78/1000
5/5 [=====] - 0s 5ms/step - loss: 0.8712 - mae: 0.6873 - mse: 0.8712 - val_loss: 0.8362 - val_mae: 0.6681
- val_mse: 0.8362
Epoch 79/1000
5/5 [=====] - 0s 6ms/step - loss: 0.8549 - mae: 0.6797 - mse: 0.8549 - val_loss: 0.8208 - val_mae: 0.6606
- val_mse: 0.8208
Epoch 80/1000
5/5 [=====] - 0s 5ms/step - loss: 0.8386 - mae: 0.6720 - mse: 0.8386 - val_loss: 0.8058 - val_mae: 0.6534
- val_mse: 0.8058
Epoch 81/1000
5/5 [=====] - 0s 5ms/step - loss: 0.8227 - mae: 0.6644 - mse: 0.8227 - val_loss: 0.7910 - val_mae: 0.6463
- val_mse: 0.7910
Epoch 82/1000
5/5 [=====] - 0s 5ms/step - loss: 0.8071 - mae: 0.6571 - mse: 0.8071 - val_loss: 0.7765 - val_mae: 0.6393
- val_mse: 0.7765
Epoch 83/1000
5/5 [=====] - 0s 5ms/step - loss: 0.7919 - mae: 0.6497 - mse: 0.7919 - val_loss: 0.7622 - val_mae: 0.6322
- val_mse: 0.7622
Epoch 84/1000

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5/5 [=====] - 0s 6ms/step - loss: 0.7768 - mae: 0.6424 - mse: 0.7768 - val_loss: 0.7483 - val_mae: 0.6253
- val_mse: 0.7483
Epoch 85/1000
5/5 [=====] - 0s 6ms/step - loss: 0.7622 - mae: 0.6352 - mse: 0.7622 - val_loss: 0.7346 - val_mae: 0.6186
- val_mse: 0.7346
Epoch 86/1000
5/5 [=====] - 0s 5ms/step - loss: 0.7479 - mae: 0.6283 - mse: 0.7479 - val_loss: 0.7212 - val_mae: 0.6120
- val_mse: 0.7212
Epoch 87/1000
5/5 [=====] - 0s 5ms/step - loss: 0.7336 - mae: 0.6214 - mse: 0.7336 - val_loss: 0.7081 - val_mae: 0.6055
- val_mse: 0.7081
Epoch 88/1000
5/5 [=====] - 0s 5ms/step - loss: 0.7199 - mae: 0.6146 - mse: 0.7199 - val_loss: 0.6951 - val_mae: 0.5991
- val_mse: 0.6951
Epoch 89/1000
5/5 [=====] - 0s 5ms/step - loss: 0.7063 - mae: 0.6079 - mse: 0.7063 - val_loss: 0.6826 - val_mae: 0.5929
- val_mse: 0.6826
Epoch 90/1000
5/5 [=====] - 0s 6ms/step - loss: 0.6932 - mae: 0.6014 - mse: 0.6932 - val_loss: 0.6703 - val_mae: 0.5867
- val_mse: 0.6703
Epoch 91/1000
5/5 [=====] - 0s 5ms/step - loss: 0.6803 - mae: 0.5948 - mse: 0.6803 - val_loss: 0.6582 - val_mae: 0.5805
- val_mse: 0.6582
Epoch 92/1000
5/5 [=====] - 0s 5ms/step - loss: 0.6676 - mae: 0.5886 - mse: 0.6676 - val_loss: 0.6464 - val_mae: 0.5745
- val_mse: 0.6464
Epoch 93/1000
5/5 [=====] - 0s 5ms/step - loss: 0.6552 - mae: 0.5823 - mse: 0.6552 - val_loss: 0.6349 - val_mae: 0.5686
- val_mse: 0.6349
Epoch 94/1000
5/5 [=====] - 0s 5ms/step - loss: 0.6430 - mae: 0.5763 - mse: 0.6430 - val_loss: 0.6237 - val_mae: 0.5629
- val_mse: 0.6237
Epoch 95/1000
5/5 [=====] - 0s 6ms/step - loss: 0.6313 - mae: 0.5704 - mse: 0.6313 - val_loss: 0.6126 - val_mae: 0.5573
- val_mse: 0.6126
Epoch 96/1000
5/5 [=====] - 0s 5ms/step - loss: 0.6198 - mae: 0.5647 - mse: 0.6198 - val_loss: 0.6017 - val_mae: 0.5518
- val_mse: 0.6017
Epoch 97/1000
5/5 [=====] - 0s 6ms/step - loss: 0.6084 - mae: 0.5592 - mse: 0.6084 - val_loss: 0.5912 - val_mae: 0.5467
- val_mse: 0.5912
Epoch 98/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5972 - mae: 0.5538 - mse: 0.5972 - val_loss: 0.5810 - val_mae: 0.5418
- val_mse: 0.5810
Epoch 99/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5865 - mae: 0.5487 - mse: 0.5865 - val_loss: 0.5709 - val_mae: 0.5370
- val_mse: 0.5709
Epoch 100/1000
5/5 [=====] - 0s 5ms/step - loss: 0.5759 - mae: 0.5437 - mse: 0.5759 - val_loss: 0.5611 - val_mae: 0.5324
- val_mse: 0.5611
Epoch 101/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5656 - mae: 0.5389 - mse: 0.5656 - val_loss: 0.5516 - val_mae: 0.5282
- val_mse: 0.5516
Epoch 102/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5556 - mae: 0.5343 - mse: 0.5556 - val_loss: 0.5422 - val_mae: 0.5240
- val_mse: 0.5422
Epoch 103/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5457 - mae: 0.5297 - mse: 0.5457 - val_loss: 0.5331 - val_mae: 0.5198
- val_mse: 0.5331
Epoch 104/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5362 - mae: 0.5251 - mse: 0.5362 - val_loss: 0.5241 - val_mae: 0.5156
- val_mse: 0.5241
Epoch 105/1000
5/5 [=====] - 0s 6ms/step - loss: 0.5268 - mae: 0.5206 - mse: 0.5268 - val_loss: 0.5155 - val_mae: 0.5115
- val_mse: 0.5155
Epoch 106/1000
5/5 [=====] - 0s 5ms/step - loss: 0.5177 - mae: 0.5162 - mse: 0.5177 - val_loss: 0.5070 - val_mae: 0.5075
- val_mse: 0.5070
Epoch 107/1000
5/5 [=====] - 0s 5ms/step - loss: 0.5089 - mae: 0.5119 - mse: 0.5089 - val_loss: 0.4988 - val_mae: 0.5036
- val_mse: 0.4988
Epoch 108/1000
5/5 [=====] - 0s 5ms/step - loss: 0.5001 - mae: 0.5077 - mse: 0.5001 - val_loss: 0.4908 - val_mae: 0.4998
- val_mse: 0.4908
Epoch 109/1000
5/5 [=====] - 0s 6ms/step - loss: 0.4918 - mae: 0.5035 - mse: 0.4918 - val_loss: 0.4830 - val_mae: 0.4959
- val_mse: 0.4830
Epoch 110/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4836 - mae: 0.4994 - mse: 0.4836 - val_loss: 0.4753 - val_mae: 0.4922
- val_mse: 0.4753
Epoch 111/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4755 - mae: 0.4953 - mse: 0.4755 - val_loss: 0.4679 - val_mae: 0.4886
- val_mse: 0.4679
Epoch 112/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4677 - mae: 0.4913 - mse: 0.4677 - val_loss: 0.4607 - val_mae: 0.4850
- val_mse: 0.4607
Epoch 113/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4602 - mae: 0.4874 - mse: 0.4602 - val_loss: 0.4536 - val_mae: 0.4813
- val_mse: 0.4536
Epoch 114/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4528 - mae: 0.4834 - mse: 0.4528 - val_loss: 0.4468 - val_mae: 0.4779
- val_mse: 0.4468
Epoch 115/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4457 - mae: 0.4796 - mse: 0.4457 - val_loss: 0.4402 - val_mae: 0.4745
- val_mse: 0.4402
Epoch 116/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4386 - mae: 0.4760 - mse: 0.4386 - val_loss: 0.4338 - val_mae: 0.4712
- val_mse: 0.4338
Epoch 117/1000
5/5 [=====] - 0s 6ms/step - loss: 0.4319 - mae: 0.4725 - mse: 0.4319 - val_loss: 0.4275 - val_mae: 0.4682
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- val_mse: 0.4275
Epoch 118/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4253 - mae: 0.4692 - mse: 0.4253 - val_loss: 0.4214 - val_mae: 0.4653
- val_mse: 0.4214
Epoch 119/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4189 - mae: 0.4659 - mse: 0.4189 - val_loss: 0.4154 - val_mae: 0.4626
- val_mse: 0.4154
Epoch 120/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4126 - mae: 0.4628 - mse: 0.4126 - val_loss: 0.4096 - val_mae: 0.4600
- val_mse: 0.4096
Epoch 121/1000
5/5 [=====] - 0s 5ms/step - loss: 0.4066 - mae: 0.4598 - mse: 0.4066 - val_loss: 0.4040 - val_mae: 0.4574
- val_mse: 0.4040
Epoch 122/1000
5/5 [=====] - 0s 6ms/step - loss: 0.4006 - mae: 0.4568 - mse: 0.4006 - val_loss: 0.3986 - val_mae: 0.4549
- val_mse: 0.3986
Epoch 123/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3949 - mae: 0.4539 - mse: 0.3949 - val_loss: 0.3933 - val_mae: 0.4525
- val_mse: 0.3933
Epoch 124/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3893 - mae: 0.4511 - mse: 0.3893 - val_loss: 0.3882 - val_mae: 0.4501
- val_mse: 0.3882
Epoch 125/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3839 - mae: 0.4482 - mse: 0.3839 - val_loss: 0.3832 - val_mae: 0.4477
- val_mse: 0.3832
Epoch 126/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3787 - mae: 0.4455 - mse: 0.3787 - val_loss: 0.3784 - val_mae: 0.4454
- val_mse: 0.3784
Epoch 127/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3736 - mae: 0.4428 - mse: 0.3736 - val_loss: 0.3736 - val_mae: 0.4430
- val_mse: 0.3736
Epoch 128/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3686 - mae: 0.4400 - mse: 0.3686 - val_loss: 0.3691 - val_mae: 0.4408
- val_mse: 0.3691
Epoch 129/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3637 - mae: 0.4374 - mse: 0.3637 - val_loss: 0.3647 - val_mae: 0.4385
- val_mse: 0.3647
Epoch 130/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3591 - mae: 0.4348 - mse: 0.3591 - val_loss: 0.3603 - val_mae: 0.4364
- val_mse: 0.3603
Epoch 131/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3545 - mae: 0.4323 - mse: 0.3545 - val_loss: 0.3562 - val_mae: 0.4342
- val_mse: 0.3562
Epoch 132/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3501 - mae: 0.4298 - mse: 0.3501 - val_loss: 0.3521 - val_mae: 0.4321
- val_mse: 0.3521
Epoch 133/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3458 - mae: 0.4274 - mse: 0.3458 - val_loss: 0.3481 - val_mae: 0.4300
- val_mse: 0.3481
Epoch 134/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3416 - mae: 0.4251 - mse: 0.3416 - val_loss: 0.3443 - val_mae: 0.4281
- val_mse: 0.3443
Epoch 135/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3376 - mae: 0.4227 - mse: 0.3376 - val_loss: 0.3406 - val_mae: 0.4262
- val_mse: 0.3406
Epoch 136/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3337 - mae: 0.4205 - mse: 0.3337 - val_loss: 0.3370 - val_mae: 0.4244
- val_mse: 0.3370
Epoch 137/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3298 - mae: 0.4182 - mse: 0.3298 - val_loss: 0.3336 - val_mae: 0.4225
- val_mse: 0.3336
Epoch 138/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3262 - mae: 0.4161 - mse: 0.3262 - val_loss: 0.3302 - val_mae: 0.4207
- val_mse: 0.3302
Epoch 139/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3226 - mae: 0.4139 - mse: 0.3226 - val_loss: 0.3269 - val_mae: 0.4189
- val_mse: 0.3269
Epoch 140/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3191 - mae: 0.4118 - mse: 0.3191 - val_loss: 0.3238 - val_mae: 0.4172
- val_mse: 0.3238
Epoch 141/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3158 - mae: 0.4098 - mse: 0.3158 - val_loss: 0.3207 - val_mae: 0.4156
- val_mse: 0.3207
Epoch 142/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3125 - mae: 0.4078 - mse: 0.3125 - val_loss: 0.3177 - val_mae: 0.4141
- val_mse: 0.3177
Epoch 143/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3093 - mae: 0.4060 - mse: 0.3093 - val_loss: 0.3148 - val_mae: 0.4126
- val_mse: 0.3148
Epoch 144/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3062 - mae: 0.4042 - mse: 0.3062 - val_loss: 0.3120 - val_mae: 0.4110
- val_mse: 0.3120
Epoch 145/1000
5/5 [=====] - 0s 6ms/step - loss: 0.3032 - mae: 0.4024 - mse: 0.3032 - val_loss: 0.3093 - val_mae: 0.4095
- val_mse: 0.3093
Epoch 146/1000
5/5 [=====] - 0s 5ms/step - loss: 0.3003 - mae: 0.4007 - mse: 0.3003 - val_loss: 0.3066 - val_mae: 0.4080
- val_mse: 0.3066
Epoch 147/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2974 - mae: 0.3990 - mse: 0.2974 - val_loss: 0.3041 - val_mae: 0.4066
- val_mse: 0.3041
Epoch 148/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2947 - mae: 0.3973 - mse: 0.2947 - val_loss: 0.3016 - val_mae: 0.4052
- val_mse: 0.3016
Epoch 149/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2920 - mae: 0.3957 - mse: 0.2920 - val_loss: 0.2991 - val_mae: 0.4038
- val_mse: 0.2991
Epoch 150/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2894 - mae: 0.3941 - mse: 0.2894 - val_loss: 0.2968 - val_mae: 0.4025
- val_mse: 0.2968
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Epoch 151/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2869 - mae: 0.3926 - mse: 0.2869 - val_loss: 0.2945 - val_mae: 0.4013
- val_mse: 0.2945
Epoch 152/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2845 - mae: 0.3912 - mse: 0.2845 - val_loss: 0.2923 - val_mae: 0.4001
- val_mse: 0.2923
Epoch 153/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2821 - mae: 0.3898 - mse: 0.2821 - val_loss: 0.2902 - val_mae: 0.3990
- val_mse: 0.2902
Epoch 154/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2798 - mae: 0.3885 - mse: 0.2798 - val_loss: 0.2881 - val_mae: 0.3978
- val_mse: 0.2881
Epoch 155/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2775 - mae: 0.3871 - mse: 0.2775 - val_loss: 0.2861 - val_mae: 0.3967
- val_mse: 0.2861
Epoch 156/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2754 - mae: 0.3858 - mse: 0.2754 - val_loss: 0.2841 - val_mae: 0.3956
- val_mse: 0.2841
Epoch 157/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2733 - mae: 0.3846 - mse: 0.2733 - val_loss: 0.2822 - val_mae: 0.3946
- val_mse: 0.2822
Epoch 158/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2712 - mae: 0.3835 - mse: 0.2712 - val_loss: 0.2804 - val_mae: 0.3938
- val_mse: 0.2804
Epoch 159/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2692 - mae: 0.3823 - mse: 0.2692 - val_loss: 0.2786 - val_mae: 0.3928
- val_mse: 0.2786
Epoch 160/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2673 - mae: 0.3812 - mse: 0.2673 - val_loss: 0.2768 - val_mae: 0.3918
- val_mse: 0.2768
Epoch 161/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2654 - mae: 0.3800 - mse: 0.2654 - val_loss: 0.2751 - val_mae: 0.3909
- val_mse: 0.2751
Epoch 162/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2635 - mae: 0.3788 - mse: 0.2635 - val_loss: 0.2735 - val_mae: 0.3900
- val_mse: 0.2735
Epoch 163/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2617 - mae: 0.3777 - mse: 0.2617 - val_loss: 0.2719 - val_mae: 0.3891
- val_mse: 0.2719
Epoch 164/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2599 - mae: 0.3767 - mse: 0.2599 - val_loss: 0.2703 - val_mae: 0.3882
- val_mse: 0.2703
Epoch 165/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2583 - mae: 0.3757 - mse: 0.2583 - val_loss: 0.2687 - val_mae: 0.3874
- val_mse: 0.2687
Epoch 166/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2566 - mae: 0.3746 - mse: 0.2566 - val_loss: 0.2673 - val_mae: 0.3866
- val_mse: 0.2673
Epoch 167/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2549 - mae: 0.3737 - mse: 0.2549 - val_loss: 0.2658 - val_mae: 0.3859
- val_mse: 0.2658
Epoch 168/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2533 - mae: 0.3728 - mse: 0.2533 - val_loss: 0.2644 - val_mae: 0.3853
- val_mse: 0.2644
Epoch 169/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2518 - mae: 0.3720 - mse: 0.2518 - val_loss: 0.2630 - val_mae: 0.3846
- val_mse: 0.2630
Epoch 170/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2502 - mae: 0.3711 - mse: 0.2502 - val_loss: 0.2616 - val_mae: 0.3840
- val_mse: 0.2616
Epoch 171/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2487 - mae: 0.3703 - mse: 0.2487 - val_loss: 0.2603 - val_mae: 0.3834
- val_mse: 0.2603
Epoch 172/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2473 - mae: 0.3695 - mse: 0.2473 - val_loss: 0.2590 - val_mae: 0.3828
- val_mse: 0.2590
Epoch 173/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2459 - mae: 0.3687 - mse: 0.2459 - val_loss: 0.2577 - val_mae: 0.3821
- val_mse: 0.2577
Epoch 174/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2445 - mae: 0.3678 - mse: 0.2445 - val_loss: 0.2565 - val_mae: 0.3815
- val_mse: 0.2565
Epoch 175/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2431 - mae: 0.3670 - mse: 0.2431 - val_loss: 0.2552 - val_mae: 0.3808
- val_mse: 0.2552
Epoch 176/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2418 - mae: 0.3662 - mse: 0.2418 - val_loss: 0.2540 - val_mae: 0.3802
- val_mse: 0.2540
Epoch 177/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2404 - mae: 0.3654 - mse: 0.2404 - val_loss: 0.2528 - val_mae: 0.3797
- val_mse: 0.2528
Epoch 178/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2392 - mae: 0.3647 - mse: 0.2392 - val_loss: 0.2517 - val_mae: 0.3791
- val_mse: 0.2517
Epoch 179/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2379 - mae: 0.3639 - mse: 0.2379 - val_loss: 0.2505 - val_mae: 0.3785
- val_mse: 0.2505
Epoch 180/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2366 - mae: 0.3630 - mse: 0.2366 - val_loss: 0.2494 - val_mae: 0.3779
- val_mse: 0.2494
Epoch 181/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2354 - mae: 0.3623 - mse: 0.2354 - val_loss: 0.2483 - val_mae: 0.3773
- val_mse: 0.2483
Epoch 182/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2342 - mae: 0.3615 - mse: 0.2342 - val_loss: 0.2473 - val_mae: 0.3768
- val_mse: 0.2473
Epoch 183/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2331 - mae: 0.3608 - mse: 0.2331 - val_loss: 0.2462 - val_mae: 0.3762
- val_mse: 0.2462
Epoch 184/1000
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5/5 [=====] - 0s 5ms/step - loss: 0.2319 - mae: 0.3601 - mse: 0.2319 - val_loss: 0.2452 - val_mae: 0.3756
- val_mse: 0.2452
Epoch 185/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2307 - mae: 0.3594 - mse: 0.2307 - val_loss: 0.2441 - val_mae: 0.3751
- val_mse: 0.2441
Epoch 186/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2296 - mae: 0.3587 - mse: 0.2296 - val_loss: 0.2431 - val_mae: 0.3746
- val_mse: 0.2431
Epoch 187/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2286 - mae: 0.3581 - mse: 0.2286 - val_loss: 0.2421 - val_mae: 0.3740
- val_mse: 0.2421
Epoch 188/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2275 - mae: 0.3574 - mse: 0.2275 - val_loss: 0.2412 - val_mae: 0.3735
- val_mse: 0.2412
Epoch 189/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2264 - mae: 0.3567 - mse: 0.2264 - val_loss: 0.2402 - val_mae: 0.3729
- val_mse: 0.2402
Epoch 190/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2254 - mae: 0.3561 - mse: 0.2254 - val_loss: 0.2393 - val_mae: 0.3724
- val_mse: 0.2393
Epoch 191/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2243 - mae: 0.3555 - mse: 0.2243 - val_loss: 0.2384 - val_mae: 0.3719
- val_mse: 0.2384
Epoch 192/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2233 - mae: 0.3548 - mse: 0.2233 - val_loss: 0.2374 - val_mae: 0.3714
- val_mse: 0.2374
Epoch 193/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2223 - mae: 0.3542 - mse: 0.2223 - val_loss: 0.2365 - val_mae: 0.3709
- val_mse: 0.2365
Epoch 194/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2213 - mae: 0.3536 - mse: 0.2213 - val_loss: 0.2357 - val_mae: 0.3704
- val_mse: 0.2357
Epoch 195/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2203 - mae: 0.3530 - mse: 0.2203 - val_loss: 0.2348 - val_mae: 0.3699
- val_mse: 0.2348
Epoch 196/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2194 - mae: 0.3524 - mse: 0.2194 - val_loss: 0.2339 - val_mae: 0.3694
- val_mse: 0.2339
Epoch 197/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2184 - mae: 0.3518 - mse: 0.2184 - val_loss: 0.2331 - val_mae: 0.3689
- val_mse: 0.2331
Epoch 198/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2175 - mae: 0.3511 - mse: 0.2175 - val_loss: 0.2322 - val_mae: 0.3683
- val_mse: 0.2322
Epoch 199/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2165 - mae: 0.3505 - mse: 0.2165 - val_loss: 0.2313 - val_mae: 0.3678
- val_mse: 0.2313
Epoch 200/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2156 - mae: 0.3498 - mse: 0.2156 - val_loss: 0.2305 - val_mae: 0.3672
- val_mse: 0.2305
Epoch 201/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2147 - mae: 0.3491 - mse: 0.2147 - val_loss: 0.2297 - val_mae: 0.3666
- val_mse: 0.2297
Epoch 202/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2138 - mae: 0.3484 - mse: 0.2138 - val_loss: 0.2288 - val_mae: 0.3660
- val_mse: 0.2288
Epoch 203/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2130 - mae: 0.3478 - mse: 0.2130 - val_loss: 0.2280 - val_mae: 0.3655
- val_mse: 0.2280
Epoch 204/1000
5/5 [=====] - 0s 7ms/step - loss: 0.2121 - mae: 0.3472 - mse: 0.2121 - val_loss: 0.2272 - val_mae: 0.3650
- val_mse: 0.2272
Epoch 205/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2112 - mae: 0.3466 - mse: 0.2112 - val_loss: 0.2265 - val_mae: 0.3644
- val_mse: 0.2265
Epoch 206/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2104 - mae: 0.3460 - mse: 0.2104 - val_loss: 0.2257 - val_mae: 0.3639
- val_mse: 0.2257
Epoch 207/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2096 - mae: 0.3454 - mse: 0.2096 - val_loss: 0.2249 - val_mae: 0.3634
- val_mse: 0.2249
Epoch 208/1000
5/5 [=====] - 0s 7ms/step - loss: 0.2087 - mae: 0.3447 - mse: 0.2087 - val_loss: 0.2242 - val_mae: 0.3628
- val_mse: 0.2242
Epoch 209/1000
5/5 [=====] - 0s 7ms/step - loss: 0.2079 - mae: 0.3441 - mse: 0.2079 - val_loss: 0.2234 - val_mae: 0.3623
- val_mse: 0.2234
Epoch 210/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2071 - mae: 0.3436 - mse: 0.2071 - val_loss: 0.2227 - val_mae: 0.3618
- val_mse: 0.2227
Epoch 211/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2063 - mae: 0.3430 - mse: 0.2063 - val_loss: 0.2220 - val_mae: 0.3614
- val_mse: 0.2220
Epoch 212/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2055 - mae: 0.3424 - mse: 0.2055 - val_loss: 0.2213 - val_mae: 0.3608
- val_mse: 0.2213
Epoch 213/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2048 - mae: 0.3418 - mse: 0.2048 - val_loss: 0.2206 - val_mae: 0.3603
- val_mse: 0.2206
Epoch 214/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2040 - mae: 0.3412 - mse: 0.2040 - val_loss: 0.2199 - val_mae: 0.3598
- val_mse: 0.2199
Epoch 215/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2032 - mae: 0.3407 - mse: 0.2032 - val_loss: 0.2192 - val_mae: 0.3593
- val_mse: 0.2192
Epoch 216/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2025 - mae: 0.3402 - mse: 0.2025 - val_loss: 0.2185 - val_mae: 0.3588
- val_mse: 0.2185
Epoch 217/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2017 - mae: 0.3397 - mse: 0.2017 - val_loss: 0.2178 - val_mae: 0.3583
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- val_mse: 0.2178
Epoch 218/1000
5/5 [=====] - 0s 5ms/step - loss: 0.2010 - mae: 0.3391 - mse: 0.2010 - val_loss: 0.2171 - val_mae: 0.3579
- val_mse: 0.2171
Epoch 219/1000
5/5 [=====] - 0s 6ms/step - loss: 0.2003 - mae: 0.3386 - mse: 0.2003 - val_loss: 0.2165 - val_mae: 0.3574
- val_mse: 0.2165
Epoch 220/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1996 - mae: 0.3381 - mse: 0.1996 - val_loss: 0.2158 - val_mae: 0.3569
- val_mse: 0.2158
Epoch 221/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1989 - mae: 0.3375 - mse: 0.1989 - val_loss: 0.2152 - val_mae: 0.3564
- val_mse: 0.2152
Epoch 222/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1982 - mae: 0.3370 - mse: 0.1982 - val_loss: 0.2146 - val_mae: 0.3559
- val_mse: 0.2146
Epoch 223/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1975 - mae: 0.3365 - mse: 0.1975 - val_loss: 0.2139 - val_mae: 0.3554
- val_mse: 0.2139
Epoch 224/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1968 - mae: 0.3359 - mse: 0.1968 - val_loss: 0.2133 - val_mae: 0.3549
- val_mse: 0.2133
Epoch 225/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1962 - mae: 0.3353 - mse: 0.1962 - val_loss: 0.2127 - val_mae: 0.3544
- val_mse: 0.2127
Epoch 226/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1955 - mae: 0.3348 - mse: 0.1955 - val_loss: 0.2121 - val_mae: 0.3540
- val_mse: 0.2121
Epoch 227/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1948 - mae: 0.3344 - mse: 0.1948 - val_loss: 0.2115 - val_mae: 0.3535
- val_mse: 0.2115
Epoch 228/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1942 - mae: 0.3338 - mse: 0.1942 - val_loss: 0.2109 - val_mae: 0.3531
- val_mse: 0.2109
Epoch 229/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1935 - mae: 0.3333 - mse: 0.1935 - val_loss: 0.2103 - val_mae: 0.3526
- val_mse: 0.2103
Epoch 230/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1929 - mae: 0.3329 - mse: 0.1929 - val_loss: 0.2097 - val_mae: 0.3522
- val_mse: 0.2097
Epoch 231/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1923 - mae: 0.3324 - mse: 0.1923 - val_loss: 0.2091 - val_mae: 0.3517
- val_mse: 0.2091
Epoch 232/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1917 - mae: 0.3319 - mse: 0.1917 - val_loss: 0.2086 - val_mae: 0.3512
- val_mse: 0.2086
Epoch 233/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1911 - mae: 0.3314 - mse: 0.1911 - val_loss: 0.2080 - val_mae: 0.3508
- val_mse: 0.2080
Epoch 234/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1905 - mae: 0.3309 - mse: 0.1905 - val_loss: 0.2074 - val_mae: 0.3503
- val_mse: 0.2074
Epoch 235/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1899 - mae: 0.3304 - mse: 0.1899 - val_loss: 0.2069 - val_mae: 0.3499
- val_mse: 0.2069
Epoch 236/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1893 - mae: 0.3299 - mse: 0.1893 - val_loss: 0.2064 - val_mae: 0.3494
- val_mse: 0.2064
Epoch 237/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1887 - mae: 0.3294 - mse: 0.1887 - val_loss: 0.2059 - val_mae: 0.3489
- val_mse: 0.2059
Epoch 238/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1881 - mae: 0.3288 - mse: 0.1881 - val_loss: 0.2053 - val_mae: 0.3484
- val_mse: 0.2053
Epoch 239/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1876 - mae: 0.3283 - mse: 0.1876 - val_loss: 0.2048 - val_mae: 0.3479
- val_mse: 0.2048
Epoch 240/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1870 - mae: 0.3278 - mse: 0.1870 - val_loss: 0.2043 - val_mae: 0.3475
- val_mse: 0.2043
Epoch 241/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1864 - mae: 0.3274 - mse: 0.1864 - val_loss: 0.2038 - val_mae: 0.3471
- val_mse: 0.2038
Epoch 242/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1859 - mae: 0.3269 - mse: 0.1859 - val_loss: 0.2033 - val_mae: 0.3466
- val_mse: 0.2033
Epoch 243/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1854 - mae: 0.3264 - mse: 0.1854 - val_loss: 0.2028 - val_mae: 0.3462
- val_mse: 0.2028
Epoch 244/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1848 - mae: 0.3259 - mse: 0.1848 - val_loss: 0.2023 - val_mae: 0.3457
- val_mse: 0.2023
Epoch 245/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1843 - mae: 0.3254 - mse: 0.1843 - val_loss: 0.2018 - val_mae: 0.3453
- val_mse: 0.2018
Epoch 246/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1838 - mae: 0.3250 - mse: 0.1838 - val_loss: 0.2013 - val_mae: 0.3449
- val_mse: 0.2013
Epoch 247/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1833 - mae: 0.3246 - mse: 0.1833 - val_loss: 0.2008 - val_mae: 0.3444
- val_mse: 0.2008
Epoch 248/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1828 - mae: 0.3241 - mse: 0.1828 - val_loss: 0.2004 - val_mae: 0.3440
- val_mse: 0.2004
Epoch 249/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1823 - mae: 0.3237 - mse: 0.1823 - val_loss: 0.1999 - val_mae: 0.3436
- val_mse: 0.1999
Epoch 250/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1818 - mae: 0.3233 - mse: 0.1818 - val_loss: 0.1994 - val_mae: 0.3432
- val_mse: 0.1994
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Epoch 251/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1813 - mae: 0.3229 - mse: 0.1813 - val_loss: 0.1990 - val_mae: 0.3429
- val_mse: 0.1990
Epoch 252/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1808 - mae: 0.3225 - mse: 0.1808 - val_loss: 0.1986 - val_mae: 0.3425
- val_mse: 0.1986
Epoch 253/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1803 - mae: 0.3221 - mse: 0.1803 - val_loss: 0.1982 - val_mae: 0.3421
- val_mse: 0.1982
Epoch 254/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1799 - mae: 0.3217 - mse: 0.1799 - val_loss: 0.1977 - val_mae: 0.3417
- val_mse: 0.1977
Epoch 255/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1794 - mae: 0.3212 - mse: 0.1794 - val_loss: 0.1973 - val_mae: 0.3413
- val_mse: 0.1973
Epoch 256/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1789 - mae: 0.3208 - mse: 0.1789 - val_loss: 0.1969 - val_mae: 0.3409
- val_mse: 0.1969
Epoch 257/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1785 - mae: 0.3204 - mse: 0.1785 - val_loss: 0.1964 - val_mae: 0.3404
- val_mse: 0.1964
Epoch 258/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1780 - mae: 0.3199 - mse: 0.1780 - val_loss: 0.1960 - val_mae: 0.3401
- val_mse: 0.1960
Epoch 259/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1776 - mae: 0.3196 - mse: 0.1776 - val_loss: 0.1956 - val_mae: 0.3397
- val_mse: 0.1956
Epoch 260/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1771 - mae: 0.3192 - mse: 0.1771 - val_loss: 0.1952 - val_mae: 0.3393
- val_mse: 0.1952
Epoch 261/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1767 - mae: 0.3187 - mse: 0.1767 - val_loss: 0.1948 - val_mae: 0.3388
- val_mse: 0.1948
Epoch 262/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1763 - mae: 0.3183 - mse: 0.1763 - val_loss: 0.1944 - val_mae: 0.3385
- val_mse: 0.1944
Epoch 263/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1758 - mae: 0.3179 - mse: 0.1758 - val_loss: 0.1940 - val_mae: 0.3380
- val_mse: 0.1940
Epoch 264/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1754 - mae: 0.3174 - mse: 0.1754 - val_loss: 0.1937 - val_mae: 0.3376
- val_mse: 0.1937
Epoch 265/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1750 - mae: 0.3170 - mse: 0.1750 - val_loss: 0.1933 - val_mae: 0.3373
- val_mse: 0.1933
Epoch 266/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1746 - mae: 0.3166 - mse: 0.1746 - val_loss: 0.1929 - val_mae: 0.3369
- val_mse: 0.1929
Epoch 267/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1742 - mae: 0.3162 - mse: 0.1742 - val_loss: 0.1925 - val_mae: 0.3366
- val_mse: 0.1925
Epoch 268/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1738 - mae: 0.3158 - mse: 0.1738 - val_loss: 0.1922 - val_mae: 0.3362
- val_mse: 0.1922
Epoch 269/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1734 - mae: 0.3155 - mse: 0.1734 - val_loss: 0.1918 - val_mae: 0.3358
- val_mse: 0.1918
Epoch 270/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1730 - mae: 0.3151 - mse: 0.1730 - val_loss: 0.1914 - val_mae: 0.3354
- val_mse: 0.1914
Epoch 271/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1726 - mae: 0.3148 - mse: 0.1726 - val_loss: 0.1910 - val_mae: 0.3350
- val_mse: 0.1910
Epoch 272/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1722 - mae: 0.3143 - mse: 0.1722 - val_loss: 0.1906 - val_mae: 0.3346
- val_mse: 0.1906
Epoch 273/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1718 - mae: 0.3139 - mse: 0.1718 - val_loss: 0.1903 - val_mae: 0.3342
- val_mse: 0.1903
Epoch 274/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1714 - mae: 0.3135 - mse: 0.1714 - val_loss: 0.1900 - val_mae: 0.3339
- val_mse: 0.1900
Epoch 275/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1710 - mae: 0.3130 - mse: 0.1710 - val_loss: 0.1896 - val_mae: 0.3335
- val_mse: 0.1896
Epoch 276/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1707 - mae: 0.3126 - mse: 0.1707 - val_loss: 0.1893 - val_mae: 0.3331
- val_mse: 0.1893
Epoch 277/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1703 - mae: 0.3123 - mse: 0.1703 - val_loss: 0.1889 - val_mae: 0.3327
- val_mse: 0.1889
Epoch 278/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1699 - mae: 0.3119 - mse: 0.1699 - val_loss: 0.1886 - val_mae: 0.3324
- val_mse: 0.1886
Epoch 279/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1696 - mae: 0.3115 - mse: 0.1696 - val_loss: 0.1882 - val_mae: 0.3320
- val_mse: 0.1882
Epoch 280/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1692 - mae: 0.3111 - mse: 0.1692 - val_loss: 0.1879 - val_mae: 0.3317
- val_mse: 0.1879
Epoch 281/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1688 - mae: 0.3107 - mse: 0.1688 - val_loss: 0.1876 - val_mae: 0.3313
- val_mse: 0.1876
Epoch 282/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1685 - mae: 0.3104 - mse: 0.1685 - val_loss: 0.1873 - val_mae: 0.3310
- val_mse: 0.1873
Epoch 283/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1681 - mae: 0.3100 - mse: 0.1681 - val_loss: 0.1870 - val_mae: 0.3306
- val_mse: 0.1870
Epoch 284/1000
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5/5 [=====] - 0s 5ms/step - loss: 0.1678 - mae: 0.3096 - mse: 0.1678 - val_loss: 0.1866 - val_mae: 0.3303
- val_mse: 0.1866
Epoch 285/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1674 - mae: 0.3093 - mse: 0.1674 - val_loss: 0.1863 - val_mae: 0.3300
- val_mse: 0.1863
Epoch 286/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1671 - mae: 0.3090 - mse: 0.1671 - val_loss: 0.1860 - val_mae: 0.3296
- val_mse: 0.1860
Epoch 287/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1667 - mae: 0.3087 - mse: 0.1667 - val_loss: 0.1857 - val_mae: 0.3293
- val_mse: 0.1857
Epoch 288/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1664 - mae: 0.3083 - mse: 0.1664 - val_loss: 0.1854 - val_mae: 0.3289
- val_mse: 0.1854
Epoch 289/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1661 - mae: 0.3078 - mse: 0.1661 - val_loss: 0.1851 - val_mae: 0.3286
- val_mse: 0.1851
Epoch 290/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1657 - mae: 0.3074 - mse: 0.1657 - val_loss: 0.1848 - val_mae: 0.3282
- val_mse: 0.1848
Epoch 291/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1654 - mae: 0.3070 - mse: 0.1654 - val_loss: 0.1845 - val_mae: 0.3279
- val_mse: 0.1845
Epoch 292/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1651 - mae: 0.3067 - mse: 0.1651 - val_loss: 0.1842 - val_mae: 0.3276
- val_mse: 0.1842
Epoch 293/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1647 - mae: 0.3064 - mse: 0.1647 - val_loss: 0.1839 - val_mae: 0.3272
- val_mse: 0.1839
Epoch 294/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1644 - mae: 0.3061 - mse: 0.1644 - val_loss: 0.1835 - val_mae: 0.3269
- val_mse: 0.1835
Epoch 295/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1641 - mae: 0.3058 - mse: 0.1641 - val_loss: 0.1832 - val_mae: 0.3266
- val_mse: 0.1832
Epoch 296/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1638 - mae: 0.3055 - mse: 0.1638 - val_loss: 0.1830 - val_mae: 0.3263
- val_mse: 0.1830
Epoch 297/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1635 - mae: 0.3051 - mse: 0.1635 - val_loss: 0.1828 - val_mae: 0.3260
- val_mse: 0.1828
Epoch 298/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1632 - mae: 0.3047 - mse: 0.1632 - val_loss: 0.1825 - val_mae: 0.3257
- val_mse: 0.1825
Epoch 299/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1628 - mae: 0.3044 - mse: 0.1628 - val_loss: 0.1822 - val_mae: 0.3253
- val_mse: 0.1822
Epoch 300/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1625 - mae: 0.3040 - mse: 0.1625 - val_loss: 0.1819 - val_mae: 0.3250
- val_mse: 0.1819
Epoch 301/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1622 - mae: 0.3037 - mse: 0.1622 - val_loss: 0.1816 - val_mae: 0.3247
- val_mse: 0.1816
Epoch 302/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1619 - mae: 0.3033 - mse: 0.1619 - val_loss: 0.1814 - val_mae: 0.3243
- val_mse: 0.1814
Epoch 303/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1616 - mae: 0.3030 - mse: 0.1616 - val_loss: 0.1811 - val_mae: 0.3240
- val_mse: 0.1811
Epoch 304/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1613 - mae: 0.3026 - mse: 0.1613 - val_loss: 0.1808 - val_mae: 0.3237
- val_mse: 0.1808
Epoch 305/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1610 - mae: 0.3023 - mse: 0.1610 - val_loss: 0.1806 - val_mae: 0.3234
- val_mse: 0.1806
Epoch 306/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1607 - mae: 0.3020 - mse: 0.1607 - val_loss: 0.1803 - val_mae: 0.3231
- val_mse: 0.1803
Epoch 307/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1604 - mae: 0.3017 - mse: 0.1604 - val_loss: 0.1801 - val_mae: 0.3228
- val_mse: 0.1801
Epoch 308/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1601 - mae: 0.3013 - mse: 0.1601 - val_loss: 0.1798 - val_mae: 0.3225
- val_mse: 0.1798
Epoch 309/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1599 - mae: 0.3010 - mse: 0.1599 - val_loss: 0.1795 - val_mae: 0.3221
- val_mse: 0.1795
Epoch 310/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1596 - mae: 0.3007 - mse: 0.1596 - val_loss: 0.1792 - val_mae: 0.3218
- val_mse: 0.1792
Epoch 311/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1593 - mae: 0.3004 - mse: 0.1593 - val_loss: 0.1790 - val_mae: 0.3215
- val_mse: 0.1790
Epoch 312/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1590 - mae: 0.3000 - mse: 0.1590 - val_loss: 0.1788 - val_mae: 0.3212
- val_mse: 0.1788
Epoch 313/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1587 - mae: 0.2997 - mse: 0.1587 - val_loss: 0.1785 - val_mae: 0.3209
- val_mse: 0.1785
Epoch 314/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1584 - mae: 0.2993 - mse: 0.1584 - val_loss: 0.1782 - val_mae: 0.3205
- val_mse: 0.1782
Epoch 315/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1582 - mae: 0.2990 - mse: 0.1582 - val_loss: 0.1780 - val_mae: 0.3202
- val_mse: 0.1780
Epoch 316/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1579 - mae: 0.2987 - mse: 0.1579 - val_loss: 0.1778 - val_mae: 0.3200
- val_mse: 0.1778
Epoch 317/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1576 - mae: 0.2983 - mse: 0.1576 - val_loss: 0.1775 - val_mae: 0.3196
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- val_mse: 0.1775
Epoch 318/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1573 - mae: 0.2980 - mse: 0.1573 - val_loss: 0.1772 - val_mae: 0.3193
- val_mse: 0.1772
Epoch 319/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1571 - mae: 0.2977 - mse: 0.1571 - val_loss: 0.1770 - val_mae: 0.3189
- val_mse: 0.1770
Epoch 320/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1568 - mae: 0.2974 - mse: 0.1568 - val_loss: 0.1767 - val_mae: 0.3186
- val_mse: 0.1767
Epoch 321/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1565 - mae: 0.2970 - mse: 0.1565 - val_loss: 0.1765 - val_mae: 0.3183
- val_mse: 0.1765
Epoch 322/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1563 - mae: 0.2967 - mse: 0.1563 - val_loss: 0.1763 - val_mae: 0.3181
- val_mse: 0.1763
Epoch 323/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1560 - mae: 0.2965 - mse: 0.1560 - val_loss: 0.1760 - val_mae: 0.3178
- val_mse: 0.1760
Epoch 324/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1557 - mae: 0.2962 - mse: 0.1557 - val_loss: 0.1757 - val_mae: 0.3175
- val_mse: 0.1757
Epoch 325/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1555 - mae: 0.2959 - mse: 0.1555 - val_loss: 0.1755 - val_mae: 0.3172
- val_mse: 0.1755
Epoch 326/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1552 - mae: 0.2956 - mse: 0.1552 - val_loss: 0.1753 - val_mae: 0.3169
- val_mse: 0.1753
Epoch 327/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1549 - mae: 0.2953 - mse: 0.1549 - val_loss: 0.1751 - val_mae: 0.3167
- val_mse: 0.1751
Epoch 328/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1547 - mae: 0.2950 - mse: 0.1547 - val_loss: 0.1748 - val_mae: 0.3164
- val_mse: 0.1748
Epoch 329/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1544 - mae: 0.2947 - mse: 0.1544 - val_loss: 0.1746 - val_mae: 0.3161
- val_mse: 0.1746
Epoch 330/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1542 - mae: 0.2944 - mse: 0.1542 - val_loss: 0.1744 - val_mae: 0.3159
- val_mse: 0.1744
Epoch 331/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1539 - mae: 0.2941 - mse: 0.1539 - val_loss: 0.1742 - val_mae: 0.3156
- val_mse: 0.1742
Epoch 332/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1537 - mae: 0.2939 - mse: 0.1537 - val_loss: 0.1739 - val_mae: 0.3153
- val_mse: 0.1739
Epoch 333/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1534 - mae: 0.2936 - mse: 0.1534 - val_loss: 0.1737 - val_mae: 0.3150
- val_mse: 0.1737
Epoch 334/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1532 - mae: 0.2932 - mse: 0.1532 - val_loss: 0.1735 - val_mae: 0.3147
- val_mse: 0.1735
Epoch 335/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1529 - mae: 0.2930 - mse: 0.1529 - val_loss: 0.1732 - val_mae: 0.3144
- val_mse: 0.1732
Epoch 336/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1527 - mae: 0.2927 - mse: 0.1527 - val_loss: 0.1730 - val_mae: 0.3142
- val_mse: 0.1730
Epoch 337/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1524 - mae: 0.2924 - mse: 0.1524 - val_loss: 0.1728 - val_mae: 0.3138
- val_mse: 0.1728
Epoch 338/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1522 - mae: 0.2921 - mse: 0.1522 - val_loss: 0.1725 - val_mae: 0.3135
- val_mse: 0.1725
Epoch 339/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1520 - mae: 0.2919 - mse: 0.1520 - val_loss: 0.1723 - val_mae: 0.3133
- val_mse: 0.1723
Epoch 340/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1517 - mae: 0.2916 - mse: 0.1517 - val_loss: 0.1721 - val_mae: 0.3130
- val_mse: 0.1721
Epoch 341/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1515 - mae: 0.2913 - mse: 0.1515 - val_loss: 0.1720 - val_mae: 0.3127
- val_mse: 0.1720
Epoch 342/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1512 - mae: 0.2910 - mse: 0.1512 - val_loss: 0.1718 - val_mae: 0.3125
- val_mse: 0.1718
Epoch 343/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1510 - mae: 0.2906 - mse: 0.1510 - val_loss: 0.1716 - val_mae: 0.3122
- val_mse: 0.1716
Epoch 344/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1508 - mae: 0.2903 - mse: 0.1508 - val_loss: 0.1714 - val_mae: 0.3119
- val_mse: 0.1714
Epoch 345/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1505 - mae: 0.2900 - mse: 0.1505 - val_loss: 0.1712 - val_mae: 0.3116
- val_mse: 0.1712
Epoch 346/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1503 - mae: 0.2898 - mse: 0.1503 - val_loss: 0.1710 - val_mae: 0.3114
- val_mse: 0.1710
Epoch 347/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1501 - mae: 0.2895 - mse: 0.1501 - val_loss: 0.1707 - val_mae: 0.3111
- val_mse: 0.1707
Epoch 348/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1499 - mae: 0.2893 - mse: 0.1499 - val_loss: 0.1704 - val_mae: 0.3108
- val_mse: 0.1704
Epoch 349/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1496 - mae: 0.2891 - mse: 0.1496 - val_loss: 0.1702 - val_mae: 0.3105
- val_mse: 0.1702
Epoch 350/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1494 - mae: 0.2888 - mse: 0.1494 - val_loss: 0.1701 - val_mae: 0.3103
- val_mse: 0.1701
```

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Epoch 351/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1492 - mae: 0.2885 - mse: 0.1492 - val_loss: 0.1699 - val_mae: 0.3101
- val_mse: 0.1699
Epoch 352/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1489 - mae: 0.2882 - mse: 0.1489 - val_loss: 0.1697 - val_mae: 0.3097
- val_mse: 0.1697
Epoch 353/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1487 - mae: 0.2879 - mse: 0.1487 - val_loss: 0.1695 - val_mae: 0.3094
- val_mse: 0.1695
Epoch 354/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1485 - mae: 0.2876 - mse: 0.1485 - val_loss: 0.1692 - val_mae: 0.3091
- val_mse: 0.1692
Epoch 355/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1483 - mae: 0.2873 - mse: 0.1483 - val_loss: 0.1690 - val_mae: 0.3089
- val_mse: 0.1690
Epoch 356/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1481 - mae: 0.2871 - mse: 0.1481 - val_loss: 0.1688 - val_mae: 0.3086
- val_mse: 0.1688
Epoch 357/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1478 - mae: 0.2868 - mse: 0.1478 - val_loss: 0.1686 - val_mae: 0.3083
- val_mse: 0.1686
Epoch 358/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1476 - mae: 0.2865 - mse: 0.1476 - val_loss: 0.1685 - val_mae: 0.3081
- val_mse: 0.1685
Epoch 359/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1474 - mae: 0.2862 - mse: 0.1474 - val_loss: 0.1683 - val_mae: 0.3078
- val_mse: 0.1683
Epoch 360/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1472 - mae: 0.2859 - mse: 0.1472 - val_loss: 0.1681 - val_mae: 0.3076
- val_mse: 0.1681
Epoch 361/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1470 - mae: 0.2857 - mse: 0.1470 - val_loss: 0.1679 - val_mae: 0.3073
- val_mse: 0.1679
Epoch 362/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1468 - mae: 0.2854 - mse: 0.1468 - val_loss: 0.1677 - val_mae: 0.3070
- val_mse: 0.1677
Epoch 363/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1465 - mae: 0.2852 - mse: 0.1465 - val_loss: 0.1674 - val_mae: 0.3068
- val_mse: 0.1674
Epoch 364/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1463 - mae: 0.2850 - mse: 0.1463 - val_loss: 0.1673 - val_mae: 0.3065
- val_mse: 0.1673
Epoch 365/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1461 - mae: 0.2847 - mse: 0.1461 - val_loss: 0.1671 - val_mae: 0.3063
- val_mse: 0.1671
Epoch 366/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1459 - mae: 0.2845 - mse: 0.1459 - val_loss: 0.1668 - val_mae: 0.3061
- val_mse: 0.1668
Epoch 367/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1457 - mae: 0.2843 - mse: 0.1457 - val_loss: 0.1666 - val_mae: 0.3058
- val_mse: 0.1666
Epoch 368/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1455 - mae: 0.2841 - mse: 0.1455 - val_loss: 0.1664 - val_mae: 0.3056
- val_mse: 0.1664
Epoch 369/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1453 - mae: 0.2838 - mse: 0.1453 - val_loss: 0.1663 - val_mae: 0.3054
- val_mse: 0.1663
Epoch 370/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1451 - mae: 0.2836 - mse: 0.1451 - val_loss: 0.1661 - val_mae: 0.3052
- val_mse: 0.1661
Epoch 371/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1449 - mae: 0.2833 - mse: 0.1449 - val_loss: 0.1659 - val_mae: 0.3049
- val_mse: 0.1659
Epoch 372/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1447 - mae: 0.2830 - mse: 0.1447 - val_loss: 0.1657 - val_mae: 0.3046
- val_mse: 0.1657
Epoch 373/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1445 - mae: 0.2828 - mse: 0.1445 - val_loss: 0.1655 - val_mae: 0.3043
- val_mse: 0.1655
Epoch 374/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1443 - mae: 0.2825 - mse: 0.1443 - val_loss: 0.1653 - val_mae: 0.3041
- val_mse: 0.1653
Epoch 375/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1441 - mae: 0.2823 - mse: 0.1441 - val_loss: 0.1651 - val_mae: 0.3038
- val_mse: 0.1651
Epoch 376/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1439 - mae: 0.2820 - mse: 0.1439 - val_loss: 0.1649 - val_mae: 0.3035
- val_mse: 0.1649
Epoch 377/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1437 - mae: 0.2817 - mse: 0.1437 - val_loss: 0.1647 - val_mae: 0.3033
- val_mse: 0.1647
Epoch 378/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1435 - mae: 0.2815 - mse: 0.1435 - val_loss: 0.1645 - val_mae: 0.3030
- val_mse: 0.1645
Epoch 379/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1433 - mae: 0.2812 - mse: 0.1433 - val_loss: 0.1644 - val_mae: 0.3028
- val_mse: 0.1644
Epoch 380/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1431 - mae: 0.2809 - mse: 0.1431 - val_loss: 0.1642 - val_mae: 0.3025
- val_mse: 0.1642
Epoch 381/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1429 - mae: 0.2807 - mse: 0.1429 - val_loss: 0.1640 - val_mae: 0.3022
- val_mse: 0.1640
Epoch 382/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1427 - mae: 0.2804 - mse: 0.1427 - val_loss: 0.1638 - val_mae: 0.3020
- val_mse: 0.1638
Epoch 383/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1425 - mae: 0.2802 - mse: 0.1425 - val_loss: 0.1636 - val_mae: 0.3017
- val_mse: 0.1636
Epoch 384/1000
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5/5 [=====] - 0s 6ms/step - loss: 0.1423 - mae: 0.2799 - mse: 0.1423 - val_loss: 0.1634 - val_mae: 0.3014
- val_mse: 0.1634
Epoch 385/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1422 - mae: 0.2797 - mse: 0.1422 - val_loss: 0.1631 - val_mae: 0.3011
- val_mse: 0.1631
Epoch 386/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1420 - mae: 0.2794 - mse: 0.1420 - val_loss: 0.1630 - val_mae: 0.3009
- val_mse: 0.1630
Epoch 387/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1418 - mae: 0.2792 - mse: 0.1418 - val_loss: 0.1629 - val_mae: 0.3007
- val_mse: 0.1629
Epoch 388/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1416 - mae: 0.2790 - mse: 0.1416 - val_loss: 0.1627 - val_mae: 0.3005
- val_mse: 0.1627
Epoch 389/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1414 - mae: 0.2787 - mse: 0.1414 - val_loss: 0.1625 - val_mae: 0.3003
- val_mse: 0.1625
Epoch 390/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1412 - mae: 0.2784 - mse: 0.1412 - val_loss: 0.1623 - val_mae: 0.3000
- val_mse: 0.1623
Epoch 391/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1410 - mae: 0.2783 - mse: 0.1410 - val_loss: 0.1621 - val_mae: 0.2999
- val_mse: 0.1621
Epoch 392/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1408 - mae: 0.2781 - mse: 0.1408 - val_loss: 0.1619 - val_mae: 0.2997
- val_mse: 0.1619
Epoch 393/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1406 - mae: 0.2779 - mse: 0.1406 - val_loss: 0.1618 - val_mae: 0.2994
- val_mse: 0.1618
Epoch 394/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1404 - mae: 0.2777 - mse: 0.1404 - val_loss: 0.1616 - val_mae: 0.2992
- val_mse: 0.1616
Epoch 395/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1403 - mae: 0.2774 - mse: 0.1403 - val_loss: 0.1615 - val_mae: 0.2990
- val_mse: 0.1615
Epoch 396/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1401 - mae: 0.2771 - mse: 0.1401 - val_loss: 0.1613 - val_mae: 0.2987
- val_mse: 0.1613
Epoch 397/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1399 - mae: 0.2769 - mse: 0.1399 - val_loss: 0.1611 - val_mae: 0.2984
- val_mse: 0.1611
Epoch 398/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1397 - mae: 0.2767 - mse: 0.1397 - val_loss: 0.1608 - val_mae: 0.2982
- val_mse: 0.1608
Epoch 399/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1395 - mae: 0.2765 - mse: 0.1395 - val_loss: 0.1607 - val_mae: 0.2980
- val_mse: 0.1607
Epoch 400/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1394 - mae: 0.2763 - mse: 0.1394 - val_loss: 0.1606 - val_mae: 0.2978
- val_mse: 0.1606
Epoch 401/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1392 - mae: 0.2760 - mse: 0.1392 - val_loss: 0.1604 - val_mae: 0.2975
- val_mse: 0.1604
Epoch 402/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1390 - mae: 0.2758 - mse: 0.1390 - val_loss: 0.1601 - val_mae: 0.2973
- val_mse: 0.1601
Epoch 403/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1388 - mae: 0.2756 - mse: 0.1388 - val_loss: 0.1600 - val_mae: 0.2970
- val_mse: 0.1600
Epoch 404/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1387 - mae: 0.2754 - mse: 0.1387 - val_loss: 0.1598 - val_mae: 0.2968
- val_mse: 0.1598
Epoch 405/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1385 - mae: 0.2751 - mse: 0.1385 - val_loss: 0.1597 - val_mae: 0.2965
- val_mse: 0.1597
Epoch 406/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1383 - mae: 0.2748 - mse: 0.1383 - val_loss: 0.1595 - val_mae: 0.2963
- val_mse: 0.1595
Epoch 407/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1381 - mae: 0.2745 - mse: 0.1381 - val_loss: 0.1594 - val_mae: 0.2960
- val_mse: 0.1594
Epoch 408/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1380 - mae: 0.2742 - mse: 0.1380 - val_loss: 0.1592 - val_mae: 0.2958
- val_mse: 0.1592
Epoch 409/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1378 - mae: 0.2740 - mse: 0.1378 - val_loss: 0.1590 - val_mae: 0.2956
- val_mse: 0.1590
Epoch 410/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1376 - mae: 0.2738 - mse: 0.1376 - val_loss: 0.1589 - val_mae: 0.2954
- val_mse: 0.1589
Epoch 411/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1374 - mae: 0.2737 - mse: 0.1374 - val_loss: 0.1587 - val_mae: 0.2952
- val_mse: 0.1587
Epoch 412/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1373 - mae: 0.2735 - mse: 0.1373 - val_loss: 0.1585 - val_mae: 0.2950
- val_mse: 0.1585
Epoch 413/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1371 - mae: 0.2733 - mse: 0.1371 - val_loss: 0.1583 - val_mae: 0.2947
- val_mse: 0.1583
Epoch 414/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1369 - mae: 0.2730 - mse: 0.1369 - val_loss: 0.1582 - val_mae: 0.2945
- val_mse: 0.1582
Epoch 415/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1368 - mae: 0.2728 - mse: 0.1368 - val_loss: 0.1580 - val_mae: 0.2943
- val_mse: 0.1580
Epoch 416/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1366 - mae: 0.2726 - mse: 0.1366 - val_loss: 0.1578 - val_mae: 0.2940
- val_mse: 0.1578
Epoch 417/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1364 - mae: 0.2723 - mse: 0.1364 - val_loss: 0.1576 - val_mae: 0.2937
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- val_mse: 0.1576
Epoch 418/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1363 - mae: 0.2721 - mse: 0.1363 - val_loss: 0.1574 - val_mae: 0.2935
- val_mse: 0.1574
Epoch 419/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1361 - mae: 0.2719 - mse: 0.1361 - val_loss: 0.1572 - val_mae: 0.2933
- val_mse: 0.1572
Epoch 420/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1359 - mae: 0.2717 - mse: 0.1359 - val_loss: 0.1571 - val_mae: 0.2930
- val_mse: 0.1571
Epoch 421/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1358 - mae: 0.2714 - mse: 0.1358 - val_loss: 0.1570 - val_mae: 0.2928
- val_mse: 0.1570
Epoch 422/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1356 - mae: 0.2712 - mse: 0.1356 - val_loss: 0.1568 - val_mae: 0.2927
- val_mse: 0.1568
Epoch 423/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1354 - mae: 0.2711 - mse: 0.1354 - val_loss: 0.1567 - val_mae: 0.2925
- val_mse: 0.1567
Epoch 424/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1353 - mae: 0.2708 - mse: 0.1353 - val_loss: 0.1565 - val_mae: 0.2922
- val_mse: 0.1565
Epoch 425/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1351 - mae: 0.2706 - mse: 0.1351 - val_loss: 0.1563 - val_mae: 0.2919
- val_mse: 0.1563
Epoch 426/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1350 - mae: 0.2704 - mse: 0.1350 - val_loss: 0.1561 - val_mae: 0.2917
- val_mse: 0.1561
Epoch 427/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1348 - mae: 0.2701 - mse: 0.1348 - val_loss: 0.1559 - val_mae: 0.2914
- val_mse: 0.1559
Epoch 428/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1346 - mae: 0.2699 - mse: 0.1346 - val_loss: 0.1558 - val_mae: 0.2912
- val_mse: 0.1558
Epoch 429/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1345 - mae: 0.2697 - mse: 0.1345 - val_loss: 0.1557 - val_mae: 0.2910
- val_mse: 0.1557
Epoch 430/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1343 - mae: 0.2695 - mse: 0.1343 - val_loss: 0.1555 - val_mae: 0.2909
- val_mse: 0.1555
Epoch 431/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1342 - mae: 0.2693 - mse: 0.1342 - val_loss: 0.1553 - val_mae: 0.2906
- val_mse: 0.1553
Epoch 432/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1340 - mae: 0.2691 - mse: 0.1340 - val_loss: 0.1551 - val_mae: 0.2904
- val_mse: 0.1551
Epoch 433/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1339 - mae: 0.2689 - mse: 0.1339 - val_loss: 0.1549 - val_mae: 0.2901
- val_mse: 0.1549
Epoch 434/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1337 - mae: 0.2687 - mse: 0.1337 - val_loss: 0.1548 - val_mae: 0.2899
- val_mse: 0.1548
Epoch 435/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1335 - mae: 0.2685 - mse: 0.1335 - val_loss: 0.1546 - val_mae: 0.2897
- val_mse: 0.1546
Epoch 436/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1334 - mae: 0.2683 - mse: 0.1334 - val_loss: 0.1545 - val_mae: 0.2896
- val_mse: 0.1545
Epoch 437/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1332 - mae: 0.2681 - mse: 0.1332 - val_loss: 0.1543 - val_mae: 0.2893
- val_mse: 0.1543
Epoch 438/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1331 - mae: 0.2679 - mse: 0.1331 - val_loss: 0.1541 - val_mae: 0.2891
- val_mse: 0.1541
Epoch 439/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1329 - mae: 0.2677 - mse: 0.1329 - val_loss: 0.1540 - val_mae: 0.2888
- val_mse: 0.1540
Epoch 440/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1328 - mae: 0.2675 - mse: 0.1328 - val_loss: 0.1538 - val_mae: 0.2886
- val_mse: 0.1538
Epoch 441/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1326 - mae: 0.2673 - mse: 0.1326 - val_loss: 0.1536 - val_mae: 0.2883
- val_mse: 0.1536
Epoch 442/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1325 - mae: 0.2671 - mse: 0.1325 - val_loss: 0.1534 - val_mae: 0.2881
- val_mse: 0.1534
Epoch 443/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1323 - mae: 0.2669 - mse: 0.1323 - val_loss: 0.1533 - val_mae: 0.2880
- val_mse: 0.1533
Epoch 444/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1322 - mae: 0.2667 - mse: 0.1322 - val_loss: 0.1532 - val_mae: 0.2879
- val_mse: 0.1532
Epoch 445/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1320 - mae: 0.2665 - mse: 0.1320 - val_loss: 0.1530 - val_mae: 0.2877
- val_mse: 0.1530
Epoch 446/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1319 - mae: 0.2664 - mse: 0.1319 - val_loss: 0.1528 - val_mae: 0.2875
- val_mse: 0.1528
Epoch 447/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1317 - mae: 0.2662 - mse: 0.1317 - val_loss: 0.1526 - val_mae: 0.2873
- val_mse: 0.1526
Epoch 448/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1316 - mae: 0.2660 - mse: 0.1316 - val_loss: 0.1524 - val_mae: 0.2871
- val_mse: 0.1524
Epoch 449/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1314 - mae: 0.2659 - mse: 0.1314 - val_loss: 0.1522 - val_mae: 0.2869
- val_mse: 0.1522
Epoch 450/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1313 - mae: 0.2657 - mse: 0.1313 - val_loss: 0.1522 - val_mae: 0.2868
- val_mse: 0.1522
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Epoch 451/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1311 - mae: 0.2655 - mse: 0.1311 - val_loss: 0.1521 - val_mae: 0.2866
- val_mse: 0.1521
Epoch 452/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1310 - mae: 0.2653 - mse: 0.1310 - val_loss: 0.1519 - val_mae: 0.2863
- val_mse: 0.1519
Epoch 453/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1309 - mae: 0.2651 - mse: 0.1309 - val_loss: 0.1518 - val_mae: 0.2861
- val_mse: 0.1518
Epoch 454/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1307 - mae: 0.2649 - mse: 0.1307 - val_loss: 0.1515 - val_mae: 0.2858
- val_mse: 0.1515
Epoch 455/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1306 - mae: 0.2646 - mse: 0.1306 - val_loss: 0.1514 - val_mae: 0.2856
- val_mse: 0.1514
Epoch 456/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1304 - mae: 0.2644 - mse: 0.1304 - val_loss: 0.1512 - val_mae: 0.2853
- val_mse: 0.1512
Epoch 457/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1303 - mae: 0.2642 - mse: 0.1303 - val_loss: 0.1510 - val_mae: 0.2851
- val_mse: 0.1510
Epoch 458/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1301 - mae: 0.2640 - mse: 0.1301 - val_loss: 0.1509 - val_mae: 0.2848
- val_mse: 0.1509
Epoch 459/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1300 - mae: 0.2637 - mse: 0.1300 - val_loss: 0.1507 - val_mae: 0.2847
- val_mse: 0.1507
Epoch 460/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1299 - mae: 0.2636 - mse: 0.1299 - val_loss: 0.1506 - val_mae: 0.2844
- val_mse: 0.1506
Epoch 461/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1297 - mae: 0.2634 - mse: 0.1297 - val_loss: 0.1505 - val_mae: 0.2843
- val_mse: 0.1505
Epoch 462/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1296 - mae: 0.2632 - mse: 0.1296 - val_loss: 0.1503 - val_mae: 0.2841
- val_mse: 0.1503
Epoch 463/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1294 - mae: 0.2630 - mse: 0.1294 - val_loss: 0.1501 - val_mae: 0.2838
- val_mse: 0.1501
Epoch 464/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1293 - mae: 0.2628 - mse: 0.1293 - val_loss: 0.1499 - val_mae: 0.2836
- val_mse: 0.1499
Epoch 465/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1291 - mae: 0.2626 - mse: 0.1291 - val_loss: 0.1498 - val_mae: 0.2834
- val_mse: 0.1498
Epoch 466/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1290 - mae: 0.2625 - mse: 0.1290 - val_loss: 0.1496 - val_mae: 0.2833
- val_mse: 0.1496
Epoch 467/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1289 - mae: 0.2623 - mse: 0.1289 - val_loss: 0.1494 - val_mae: 0.2831
- val_mse: 0.1494
Epoch 468/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1287 - mae: 0.2622 - mse: 0.1287 - val_loss: 0.1492 - val_mae: 0.2829
- val_mse: 0.1492
Epoch 469/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1286 - mae: 0.2620 - mse: 0.1286 - val_loss: 0.1491 - val_mae: 0.2826
- val_mse: 0.1491
Epoch 470/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1285 - mae: 0.2618 - mse: 0.1285 - val_loss: 0.1489 - val_mae: 0.2824
- val_mse: 0.1489
Epoch 471/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1283 - mae: 0.2616 - mse: 0.1283 - val_loss: 0.1488 - val_mae: 0.2823
- val_mse: 0.1488
Epoch 472/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1282 - mae: 0.2615 - mse: 0.1282 - val_loss: 0.1487 - val_mae: 0.2821
- val_mse: 0.1487
Epoch 473/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1281 - mae: 0.2612 - mse: 0.1281 - val_loss: 0.1485 - val_mae: 0.2819
- val_mse: 0.1485
Epoch 474/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1279 - mae: 0.2610 - mse: 0.1279 - val_loss: 0.1484 - val_mae: 0.2816
- val_mse: 0.1484
Epoch 475/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1278 - mae: 0.2608 - mse: 0.1278 - val_loss: 0.1482 - val_mae: 0.2814
- val_mse: 0.1482
Epoch 476/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1276 - mae: 0.2606 - mse: 0.1276 - val_loss: 0.1481 - val_mae: 0.2813
- val_mse: 0.1481
Epoch 477/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1275 - mae: 0.2604 - mse: 0.1275 - val_loss: 0.1479 - val_mae: 0.2811
- val_mse: 0.1479
Epoch 478/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1274 - mae: 0.2603 - mse: 0.1274 - val_loss: 0.1478 - val_mae: 0.2810
- val_mse: 0.1478
Epoch 479/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1273 - mae: 0.2602 - mse: 0.1273 - val_loss: 0.1477 - val_mae: 0.2808
- val_mse: 0.1477
Epoch 480/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1271 - mae: 0.2601 - mse: 0.1271 - val_loss: 0.1476 - val_mae: 0.2807
- val_mse: 0.1476
Epoch 481/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1270 - mae: 0.2599 - mse: 0.1270 - val_loss: 0.1474 - val_mae: 0.2804
- val_mse: 0.1474
Epoch 482/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1269 - mae: 0.2596 - mse: 0.1269 - val_loss: 0.1472 - val_mae: 0.2801
- val_mse: 0.1472
Epoch 483/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1267 - mae: 0.2594 - mse: 0.1267 - val_loss: 0.1470 - val_mae: 0.2798
- val_mse: 0.1470
Epoch 484/1000
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5/5 [=====] - 0s 6ms/step - loss: 0.1266 - mae: 0.2592 - mse: 0.1266 - val_loss: 0.1468 - val_mae: 0.2796
- val_mse: 0.1468
Epoch 485/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1265 - mae: 0.2590 - mse: 0.1265 - val_loss: 0.1468 - val_mae: 0.2794
- val_mse: 0.1468
Epoch 486/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1264 - mae: 0.2588 - mse: 0.1264 - val_loss: 0.1465 - val_mae: 0.2791
- val_mse: 0.1465
Epoch 487/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1262 - mae: 0.2586 - mse: 0.1262 - val_loss: 0.1464 - val_mae: 0.2789
- val_mse: 0.1464
Epoch 488/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1261 - mae: 0.2584 - mse: 0.1261 - val_loss: 0.1462 - val_mae: 0.2787
- val_mse: 0.1462
Epoch 489/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1260 - mae: 0.2582 - mse: 0.1260 - val_loss: 0.1461 - val_mae: 0.2785
- val_mse: 0.1461
Epoch 490/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1258 - mae: 0.2580 - mse: 0.1258 - val_loss: 0.1460 - val_mae: 0.2784
- val_mse: 0.1460
Epoch 491/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1257 - mae: 0.2579 - mse: 0.1257 - val_loss: 0.1458 - val_mae: 0.2782
- val_mse: 0.1458
Epoch 492/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1256 - mae: 0.2577 - mse: 0.1256 - val_loss: 0.1456 - val_mae: 0.2779
- val_mse: 0.1456
Epoch 493/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1255 - mae: 0.2574 - mse: 0.1255 - val_loss: 0.1454 - val_mae: 0.2776
- val_mse: 0.1454
Epoch 494/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1253 - mae: 0.2572 - mse: 0.1253 - val_loss: 0.1452 - val_mae: 0.2774
- val_mse: 0.1452
Epoch 495/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1252 - mae: 0.2571 - mse: 0.1252 - val_loss: 0.1451 - val_mae: 0.2773
- val_mse: 0.1451
Epoch 496/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1251 - mae: 0.2569 - mse: 0.1251 - val_loss: 0.1450 - val_mae: 0.2772
- val_mse: 0.1450
Epoch 497/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1250 - mae: 0.2568 - mse: 0.1250 - val_loss: 0.1449 - val_mae: 0.2771
- val_mse: 0.1449
Epoch 498/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1248 - mae: 0.2567 - mse: 0.1248 - val_loss: 0.1448 - val_mae: 0.2769
- val_mse: 0.1448
Epoch 499/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1247 - mae: 0.2565 - mse: 0.1247 - val_loss: 0.1446 - val_mae: 0.2766
- val_mse: 0.1446
Epoch 500/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1246 - mae: 0.2563 - mse: 0.1246 - val_loss: 0.1444 - val_mae: 0.2764
- val_mse: 0.1444
Epoch 501/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1245 - mae: 0.2561 - mse: 0.1245 - val_loss: 0.1443 - val_mae: 0.2762
- val_mse: 0.1443
Epoch 502/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1243 - mae: 0.2559 - mse: 0.1243 - val_loss: 0.1441 - val_mae: 0.2760
- val_mse: 0.1441
Epoch 503/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1242 - mae: 0.2557 - mse: 0.1242 - val_loss: 0.1440 - val_mae: 0.2758
- val_mse: 0.1440
Epoch 504/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1241 - mae: 0.2555 - mse: 0.1241 - val_loss: 0.1438 - val_mae: 0.2756
- val_mse: 0.1438
Epoch 505/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1240 - mae: 0.2554 - mse: 0.1240 - val_loss: 0.1436 - val_mae: 0.2754
- val_mse: 0.1436
Epoch 506/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1239 - mae: 0.2552 - mse: 0.1239 - val_loss: 0.1434 - val_mae: 0.2752
- val_mse: 0.1434
Epoch 507/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1237 - mae: 0.2551 - mse: 0.1237 - val_loss: 0.1433 - val_mae: 0.2751
- val_mse: 0.1433
Epoch 508/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1236 - mae: 0.2550 - mse: 0.1236 - val_loss: 0.1431 - val_mae: 0.2749
- val_mse: 0.1431
Epoch 509/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1235 - mae: 0.2548 - mse: 0.1235 - val_loss: 0.1431 - val_mae: 0.2748
- val_mse: 0.1431
Epoch 510/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1234 - mae: 0.2547 - mse: 0.1234 - val_loss: 0.1429 - val_mae: 0.2746
- val_mse: 0.1429
Epoch 511/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1233 - mae: 0.2545 - mse: 0.1233 - val_loss: 0.1427 - val_mae: 0.2743
- val_mse: 0.1427
Epoch 512/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1231 - mae: 0.2543 - mse: 0.1231 - val_loss: 0.1426 - val_mae: 0.2741
- val_mse: 0.1426
Epoch 513/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1230 - mae: 0.2541 - mse: 0.1230 - val_loss: 0.1425 - val_mae: 0.2739
- val_mse: 0.1425
Epoch 514/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1229 - mae: 0.2538 - mse: 0.1229 - val_loss: 0.1422 - val_mae: 0.2735
- val_mse: 0.1422
Epoch 515/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1228 - mae: 0.2536 - mse: 0.1228 - val_loss: 0.1421 - val_mae: 0.2733
- val_mse: 0.1421
Epoch 516/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1227 - mae: 0.2534 - mse: 0.1227 - val_loss: 0.1420 - val_mae: 0.2731
- val_mse: 0.1420
Epoch 517/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1226 - mae: 0.2532 - mse: 0.1226 - val_loss: 0.1418 - val_mae: 0.2730
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- val_mse: 0.1418
Epoch 518/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1224 - mae: 0.2532 - mse: 0.1224 - val_loss: 0.1418 - val_mae: 0.2730
- val_mse: 0.1418
Epoch 519/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1223 - mae: 0.2531 - mse: 0.1223 - val_loss: 0.1417 - val_mae: 0.2729
- val_mse: 0.1417
Epoch 520/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1222 - mae: 0.2529 - mse: 0.1222 - val_loss: 0.1415 - val_mae: 0.2727
- val_mse: 0.1415
Epoch 521/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1221 - mae: 0.2528 - mse: 0.1221 - val_loss: 0.1414 - val_mae: 0.2725
- val_mse: 0.1414
Epoch 522/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1220 - mae: 0.2527 - mse: 0.1220 - val_loss: 0.1413 - val_mae: 0.2725
- val_mse: 0.1413
Epoch 523/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1219 - mae: 0.2525 - mse: 0.1219 - val_loss: 0.1411 - val_mae: 0.2723
- val_mse: 0.1411
Epoch 524/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1218 - mae: 0.2524 - mse: 0.1218 - val_loss: 0.1410 - val_mae: 0.2721
- val_mse: 0.1410
Epoch 525/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1217 - mae: 0.2522 - mse: 0.1217 - val_loss: 0.1408 - val_mae: 0.2719
- val_mse: 0.1408
Epoch 526/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1216 - mae: 0.2521 - mse: 0.1216 - val_loss: 0.1407 - val_mae: 0.2718
- val_mse: 0.1407
Epoch 527/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1214 - mae: 0.2519 - mse: 0.1214 - val_loss: 0.1406 - val_mae: 0.2716
- val_mse: 0.1406
Epoch 528/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1213 - mae: 0.2517 - mse: 0.1213 - val_loss: 0.1404 - val_mae: 0.2713
- val_mse: 0.1404
Epoch 529/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1212 - mae: 0.2515 - mse: 0.1212 - val_loss: 0.1403 - val_mae: 0.2710
- val_mse: 0.1403
Epoch 530/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1211 - mae: 0.2513 - mse: 0.1211 - val_loss: 0.1401 - val_mae: 0.2709
- val_mse: 0.1401
Epoch 531/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1210 - mae: 0.2511 - mse: 0.1210 - val_loss: 0.1400 - val_mae: 0.2708
- val_mse: 0.1400
Epoch 532/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1209 - mae: 0.2510 - mse: 0.1209 - val_loss: 0.1398 - val_mae: 0.2706
- val_mse: 0.1398
Epoch 533/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1208 - mae: 0.2509 - mse: 0.1208 - val_loss: 0.1396 - val_mae: 0.2704
- val_mse: 0.1396
Epoch 534/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1207 - mae: 0.2507 - mse: 0.1207 - val_loss: 0.1394 - val_mae: 0.2701
- val_mse: 0.1394
Epoch 535/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1206 - mae: 0.2505 - mse: 0.1206 - val_loss: 0.1393 - val_mae: 0.2700
- val_mse: 0.1393
Epoch 536/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1205 - mae: 0.2504 - mse: 0.1205 - val_loss: 0.1391 - val_mae: 0.2698
- val_mse: 0.1391
Epoch 537/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1203 - mae: 0.2502 - mse: 0.1203 - val_loss: 0.1390 - val_mae: 0.2696
- val_mse: 0.1390
Epoch 538/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1202 - mae: 0.2500 - mse: 0.1202 - val_loss: 0.1388 - val_mae: 0.2694
- val_mse: 0.1388
Epoch 539/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1201 - mae: 0.2499 - mse: 0.1201 - val_loss: 0.1388 - val_mae: 0.2693
- val_mse: 0.1388
Epoch 540/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1200 - mae: 0.2497 - mse: 0.1200 - val_loss: 0.1387 - val_mae: 0.2692
- val_mse: 0.1387
Epoch 541/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1199 - mae: 0.2497 - mse: 0.1199 - val_loss: 0.1386 - val_mae: 0.2691
- val_mse: 0.1386
Epoch 542/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1198 - mae: 0.2495 - mse: 0.1198 - val_loss: 0.1383 - val_mae: 0.2687
- val_mse: 0.1383
Epoch 543/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1197 - mae: 0.2493 - mse: 0.1197 - val_loss: 0.1382 - val_mae: 0.2686
- val_mse: 0.1382
Epoch 544/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1196 - mae: 0.2491 - mse: 0.1196 - val_loss: 0.1380 - val_mae: 0.2683
- val_mse: 0.1380
Epoch 545/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1195 - mae: 0.2489 - mse: 0.1195 - val_loss: 0.1379 - val_mae: 0.2682
- val_mse: 0.1379
Epoch 546/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1194 - mae: 0.2488 - mse: 0.1194 - val_loss: 0.1378 - val_mae: 0.2681
- val_mse: 0.1378
Epoch 547/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1193 - mae: 0.2487 - mse: 0.1193 - val_loss: 0.1376 - val_mae: 0.2679
- val_mse: 0.1376
Epoch 548/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1192 - mae: 0.2485 - mse: 0.1192 - val_loss: 0.1375 - val_mae: 0.2677
- val_mse: 0.1375
Epoch 549/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1191 - mae: 0.2483 - mse: 0.1191 - val_loss: 0.1374 - val_mae: 0.2676
- val_mse: 0.1374
Epoch 550/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1190 - mae: 0.2482 - mse: 0.1190 - val_loss: 0.1373 - val_mae: 0.2674
- val_mse: 0.1373
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Epoch 551/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1189 - mae: 0.2480 - mse: 0.1189 - val_loss: 0.1371 - val_mae: 0.2671
- val_mse: 0.1371
Epoch 552/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1188 - mae: 0.2478 - mse: 0.1188 - val_loss: 0.1370 - val_mae: 0.2669
- val_mse: 0.1370
Epoch 553/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1187 - mae: 0.2476 - mse: 0.1187 - val_loss: 0.1368 - val_mae: 0.2667
- val_mse: 0.1368
Epoch 554/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1186 - mae: 0.2475 - mse: 0.1186 - val_loss: 0.1367 - val_mae: 0.2666
- val_mse: 0.1367
Epoch 555/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1185 - mae: 0.2473 - mse: 0.1185 - val_loss: 0.1366 - val_mae: 0.2665
- val_mse: 0.1366
Epoch 556/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1184 - mae: 0.2472 - mse: 0.1184 - val_loss: 0.1365 - val_mae: 0.2663
- val_mse: 0.1365
Epoch 557/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1183 - mae: 0.2471 - mse: 0.1183 - val_loss: 0.1364 - val_mae: 0.2662
- val_mse: 0.1364
Epoch 558/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1182 - mae: 0.2470 - mse: 0.1182 - val_loss: 0.1362 - val_mae: 0.2660
- val_mse: 0.1362
Epoch 559/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1181 - mae: 0.2469 - mse: 0.1181 - val_loss: 0.1360 - val_mae: 0.2659
- val_mse: 0.1360
Epoch 560/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1180 - mae: 0.2468 - mse: 0.1180 - val_loss: 0.1359 - val_mae: 0.2658
- val_mse: 0.1359
Epoch 561/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1179 - mae: 0.2467 - mse: 0.1179 - val_loss: 0.1358 - val_mae: 0.2656
- val_mse: 0.1358
Epoch 562/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1178 - mae: 0.2465 - mse: 0.1178 - val_loss: 0.1357 - val_mae: 0.2655
- val_mse: 0.1357
Epoch 563/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1177 - mae: 0.2464 - mse: 0.1177 - val_loss: 0.1356 - val_mae: 0.2653
- val_mse: 0.1356
Epoch 564/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1176 - mae: 0.2463 - mse: 0.1176 - val_loss: 0.1355 - val_mae: 0.2652
- val_mse: 0.1355
Epoch 565/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1175 - mae: 0.2461 - mse: 0.1175 - val_loss: 0.1353 - val_mae: 0.2650
- val_mse: 0.1353
Epoch 566/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1174 - mae: 0.2459 - mse: 0.1174 - val_loss: 0.1351 - val_mae: 0.2647
- val_mse: 0.1351
Epoch 567/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1173 - mae: 0.2457 - mse: 0.1173 - val_loss: 0.1350 - val_mae: 0.2645
- val_mse: 0.1350
Epoch 568/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1172 - mae: 0.2455 - mse: 0.1172 - val_loss: 0.1349 - val_mae: 0.2644
- val_mse: 0.1349
Epoch 569/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1172 - mae: 0.2454 - mse: 0.1172 - val_loss: 0.1347 - val_mae: 0.2641
- val_mse: 0.1347
Epoch 570/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1170 - mae: 0.2453 - mse: 0.1170 - val_loss: 0.1346 - val_mae: 0.2641
- val_mse: 0.1346
Epoch 571/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1170 - mae: 0.2452 - mse: 0.1170 - val_loss: 0.1346 - val_mae: 0.2640
- val_mse: 0.1346
Epoch 572/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1169 - mae: 0.2451 - mse: 0.1169 - val_loss: 0.1345 - val_mae: 0.2638
- val_mse: 0.1345
Epoch 573/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1168 - mae: 0.2449 - mse: 0.1168 - val_loss: 0.1343 - val_mae: 0.2635
- val_mse: 0.1343
Epoch 574/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1167 - mae: 0.2447 - mse: 0.1167 - val_loss: 0.1342 - val_mae: 0.2634
- val_mse: 0.1342
Epoch 575/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1166 - mae: 0.2446 - mse: 0.1166 - val_loss: 0.1341 - val_mae: 0.2632
- val_mse: 0.1341
Epoch 576/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1165 - mae: 0.2444 - mse: 0.1165 - val_loss: 0.1340 - val_mae: 0.2631
- val_mse: 0.1340
Epoch 577/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1164 - mae: 0.2443 - mse: 0.1164 - val_loss: 0.1338 - val_mae: 0.2629
- val_mse: 0.1338
Epoch 578/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1163 - mae: 0.2442 - mse: 0.1163 - val_loss: 0.1336 - val_mae: 0.2627
- val_mse: 0.1336
Epoch 579/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1162 - mae: 0.2440 - mse: 0.1162 - val_loss: 0.1335 - val_mae: 0.2625
- val_mse: 0.1335
Epoch 580/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1161 - mae: 0.2439 - mse: 0.1161 - val_loss: 0.1334 - val_mae: 0.2624
- val_mse: 0.1334
Epoch 581/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1160 - mae: 0.2438 - mse: 0.1160 - val_loss: 0.1334 - val_mae: 0.2624
- val_mse: 0.1334
Epoch 582/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1160 - mae: 0.2437 - mse: 0.1160 - val_loss: 0.1332 - val_mae: 0.2621
- val_mse: 0.1332
Epoch 583/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1159 - mae: 0.2435 - mse: 0.1159 - val_loss: 0.1331 - val_mae: 0.2619
- val_mse: 0.1331
Epoch 584/1000
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5/5 [=====] - 0s 6ms/step - loss: 0.1158 - mae: 0.2433 - mse: 0.1158 - val_loss: 0.1329 - val_mae: 0.2617
- val_mse: 0.1329
Epoch 585/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1157 - mae: 0.2431 - mse: 0.1157 - val_loss: 0.1327 - val_mae: 0.2614
- val_mse: 0.1327
Epoch 586/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1156 - mae: 0.2430 - mse: 0.1156 - val_loss: 0.1326 - val_mae: 0.2613
- val_mse: 0.1326
Epoch 587/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1155 - mae: 0.2429 - mse: 0.1155 - val_loss: 0.1325 - val_mae: 0.2613
- val_mse: 0.1325
Epoch 588/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1154 - mae: 0.2429 - mse: 0.1154 - val_loss: 0.1324 - val_mae: 0.2613
- val_mse: 0.1324
Epoch 589/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1153 - mae: 0.2428 - mse: 0.1153 - val_loss: 0.1323 - val_mae: 0.2611
- val_mse: 0.1323
Epoch 590/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1153 - mae: 0.2426 - mse: 0.1153 - val_loss: 0.1321 - val_mae: 0.2608
- val_mse: 0.1321
Epoch 591/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1152 - mae: 0.2425 - mse: 0.1152 - val_loss: 0.1320 - val_mae: 0.2608
- val_mse: 0.1320
Epoch 592/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1151 - mae: 0.2424 - mse: 0.1151 - val_loss: 0.1319 - val_mae: 0.2605
- val_mse: 0.1319
Epoch 593/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1150 - mae: 0.2422 - mse: 0.1150 - val_loss: 0.1318 - val_mae: 0.2603
- val_mse: 0.1318
Epoch 594/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1149 - mae: 0.2421 - mse: 0.1149 - val_loss: 0.1317 - val_mae: 0.2602
- val_mse: 0.1317
Epoch 595/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1148 - mae: 0.2419 - mse: 0.1148 - val_loss: 0.1315 - val_mae: 0.2599
- val_mse: 0.1315
Epoch 596/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1147 - mae: 0.2417 - mse: 0.1147 - val_loss: 0.1314 - val_mae: 0.2597
- val_mse: 0.1314
Epoch 597/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1147 - mae: 0.2416 - mse: 0.1147 - val_loss: 0.1313 - val_mae: 0.2597
- val_mse: 0.1313
Epoch 598/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1146 - mae: 0.2416 - mse: 0.1146 - val_loss: 0.1312 - val_mae: 0.2596
- val_mse: 0.1312
Epoch 599/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1145 - mae: 0.2415 - mse: 0.1145 - val_loss: 0.1311 - val_mae: 0.2595
- val_mse: 0.1311
Epoch 600/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1144 - mae: 0.2414 - mse: 0.1144 - val_loss: 0.1310 - val_mae: 0.2595
- val_mse: 0.1310
Epoch 601/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1143 - mae: 0.2414 - mse: 0.1143 - val_loss: 0.1310 - val_mae: 0.2594
- val_mse: 0.1310
Epoch 602/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1143 - mae: 0.2413 - mse: 0.1143 - val_loss: 0.1308 - val_mae: 0.2593
- val_mse: 0.1308
Epoch 603/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1142 - mae: 0.2411 - mse: 0.1142 - val_loss: 0.1306 - val_mae: 0.2590
- val_mse: 0.1306
Epoch 604/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1141 - mae: 0.2410 - mse: 0.1141 - val_loss: 0.1305 - val_mae: 0.2589
- val_mse: 0.1305
Epoch 605/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1140 - mae: 0.2408 - mse: 0.1140 - val_loss: 0.1303 - val_mae: 0.2586
- val_mse: 0.1303
Epoch 606/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1139 - mae: 0.2406 - mse: 0.1139 - val_loss: 0.1301 - val_mae: 0.2582
- val_mse: 0.1301
Epoch 607/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1139 - mae: 0.2403 - mse: 0.1139 - val_loss: 0.1300 - val_mae: 0.2581
- val_mse: 0.1300
Epoch 608/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1138 - mae: 0.2402 - mse: 0.1138 - val_loss: 0.1300 - val_mae: 0.2581
- val_mse: 0.1300
Epoch 609/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1137 - mae: 0.2402 - mse: 0.1137 - val_loss: 0.1299 - val_mae: 0.2580
- val_mse: 0.1299
Epoch 610/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1136 - mae: 0.2400 - mse: 0.1136 - val_loss: 0.1297 - val_mae: 0.2577
- val_mse: 0.1297
Epoch 611/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1135 - mae: 0.2398 - mse: 0.1135 - val_loss: 0.1295 - val_mae: 0.2574
- val_mse: 0.1295
Epoch 612/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1135 - mae: 0.2397 - mse: 0.1135 - val_loss: 0.1294 - val_mae: 0.2574
- val_mse: 0.1294
Epoch 613/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1134 - mae: 0.2397 - mse: 0.1134 - val_loss: 0.1293 - val_mae: 0.2574
- val_mse: 0.1293
Epoch 614/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1133 - mae: 0.2397 - mse: 0.1133 - val_loss: 0.1293 - val_mae: 0.2575
- val_mse: 0.1293
Epoch 615/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1132 - mae: 0.2398 - mse: 0.1132 - val_loss: 0.1293 - val_mae: 0.2575
- val_mse: 0.1293
Epoch 616/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1131 - mae: 0.2396 - mse: 0.1131 - val_loss: 0.1291 - val_mae: 0.2572
- val_mse: 0.1291
Epoch 617/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1131 - mae: 0.2394 - mse: 0.1131 - val_loss: 0.1290 - val_mae: 0.2570
```

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- val_mse: 0.1290
Epoch 618/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1130 - mae: 0.2393 - mse: 0.1130 - val_loss: 0.1289 - val_mae: 0.2568
- val_mse: 0.1289
Epoch 619/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1129 - mae: 0.2391 - mse: 0.1129 - val_loss: 0.1287 - val_mae: 0.2566
- val_mse: 0.1287
Epoch 620/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1129 - mae: 0.2391 - mse: 0.1129 - val_loss: 0.1285 - val_mae: 0.2565
- val_mse: 0.1285
Epoch 621/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1128 - mae: 0.2389 - mse: 0.1128 - val_loss: 0.1285 - val_mae: 0.2565
- val_mse: 0.1285
Epoch 622/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1127 - mae: 0.2389 - mse: 0.1127 - val_loss: 0.1285 - val_mae: 0.2564
- val_mse: 0.1285
Epoch 623/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1126 - mae: 0.2388 - mse: 0.1126 - val_loss: 0.1284 - val_mae: 0.2563
- val_mse: 0.1284
Epoch 624/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1125 - mae: 0.2387 - mse: 0.1125 - val_loss: 0.1283 - val_mae: 0.2561
- val_mse: 0.1283
Epoch 625/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1125 - mae: 0.2385 - mse: 0.1125 - val_loss: 0.1281 - val_mae: 0.2559
- val_mse: 0.1281
Epoch 626/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1124 - mae: 0.2384 - mse: 0.1124 - val_loss: 0.1280 - val_mae: 0.2558
- val_mse: 0.1280
Epoch 627/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1123 - mae: 0.2383 - mse: 0.1123 - val_loss: 0.1279 - val_mae: 0.2557
- val_mse: 0.1279
Epoch 628/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1122 - mae: 0.2382 - mse: 0.1122 - val_loss: 0.1278 - val_mae: 0.2554
- val_mse: 0.1278
Epoch 629/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1122 - mae: 0.2380 - mse: 0.1122 - val_loss: 0.1276 - val_mae: 0.2552
- val_mse: 0.1276
Epoch 630/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1121 - mae: 0.2378 - mse: 0.1121 - val_loss: 0.1276 - val_mae: 0.2551
- val_mse: 0.1276
Epoch 631/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1120 - mae: 0.2377 - mse: 0.1120 - val_loss: 0.1275 - val_mae: 0.2550
- val_mse: 0.1275
Epoch 632/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1119 - mae: 0.2376 - mse: 0.1119 - val_loss: 0.1274 - val_mae: 0.2549
- val_mse: 0.1274
Epoch 633/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1119 - mae: 0.2376 - mse: 0.1119 - val_loss: 0.1273 - val_mae: 0.2548
- val_mse: 0.1273
Epoch 634/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1118 - mae: 0.2375 - mse: 0.1118 - val_loss: 0.1271 - val_mae: 0.2547
- val_mse: 0.1271
Epoch 635/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1117 - mae: 0.2374 - mse: 0.1117 - val_loss: 0.1271 - val_mae: 0.2546
- val_mse: 0.1271
Epoch 636/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1117 - mae: 0.2373 - mse: 0.1117 - val_loss: 0.1269 - val_mae: 0.2544
- val_mse: 0.1269
Epoch 637/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1116 - mae: 0.2372 - mse: 0.1116 - val_loss: 0.1268 - val_mae: 0.2543
- val_mse: 0.1268
Epoch 638/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1115 - mae: 0.2371 - mse: 0.1115 - val_loss: 0.1268 - val_mae: 0.2543
- val_mse: 0.1268
Epoch 639/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1115 - mae: 0.2370 - mse: 0.1115 - val_loss: 0.1267 - val_mae: 0.2541
- val_mse: 0.1267
Epoch 640/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1114 - mae: 0.2369 - mse: 0.1114 - val_loss: 0.1266 - val_mae: 0.2541
- val_mse: 0.1266
Epoch 641/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1113 - mae: 0.2368 - mse: 0.1113 - val_loss: 0.1264 - val_mae: 0.2538
- val_mse: 0.1264
Epoch 642/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1113 - mae: 0.2367 - mse: 0.1113 - val_loss: 0.1263 - val_mae: 0.2536
- val_mse: 0.1263
Epoch 643/1000
5/5 [=====] - ETA: 0s - loss: 0.1092 - mae: 0.2395 - mse: 0.109 - 0s 6ms/step - loss: 0.1112 - mae: 0.236
6 - mse: 0.1112 - val_loss: 0.1262 - val_mae: 0.2535 - val_mse: 0.1262
Epoch 644/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1111 - mae: 0.2364 - mse: 0.1111 - val_loss: 0.1262 - val_mae: 0.2535
- val_mse: 0.1262
Epoch 645/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1110 - mae: 0.2364 - mse: 0.1110 - val_loss: 0.1260 - val_mae: 0.2533
- val_mse: 0.1260
Epoch 646/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1110 - mae: 0.2363 - mse: 0.1110 - val_loss: 0.1260 - val_mae: 0.2533
- val_mse: 0.1260
Epoch 647/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1109 - mae: 0.2363 - mse: 0.1109 - val_loss: 0.1259 - val_mae: 0.2532
- val_mse: 0.1259
Epoch 648/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1108 - mae: 0.2361 - mse: 0.1108 - val_loss: 0.1257 - val_mae: 0.2530
- val_mse: 0.1257
Epoch 649/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1108 - mae: 0.2359 - mse: 0.1108 - val_loss: 0.1256 - val_mae: 0.2528
- val_mse: 0.1256
Epoch 650/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1107 - mae: 0.2358 - mse: 0.1107 - val_loss: 0.1255 - val_mae: 0.2527
- val_mse: 0.1255
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Epoch 651/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1106 - mae: 0.2357 - mse: 0.1106 - val_loss: 0.1254 - val_mae: 0.2525
- val_mse: 0.1254
Epoch 652/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1106 - mae: 0.2356 - mse: 0.1106 - val_loss: 0.1253 - val_mae: 0.2524
- val_mse: 0.1253
Epoch 653/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1105 - mae: 0.2355 - mse: 0.1105 - val_loss: 0.1252 - val_mae: 0.2523
- val_mse: 0.1252
Epoch 654/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1105 - mae: 0.2355 - mse: 0.1105 - val_loss: 0.1251 - val_mae: 0.2522
- val_mse: 0.1251
Epoch 655/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1104 - mae: 0.2353 - mse: 0.1104 - val_loss: 0.1249 - val_mae: 0.2519
- val_mse: 0.1249
Epoch 656/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1103 - mae: 0.2352 - mse: 0.1103 - val_loss: 0.1249 - val_mae: 0.2519
- val_mse: 0.1249
Epoch 657/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1102 - mae: 0.2351 - mse: 0.1102 - val_loss: 0.1248 - val_mae: 0.2519
- val_mse: 0.1248
Epoch 658/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1102 - mae: 0.2351 - mse: 0.1102 - val_loss: 0.1248 - val_mae: 0.2518
- val_mse: 0.1248
Epoch 659/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1101 - mae: 0.2350 - mse: 0.1101 - val_loss: 0.1247 - val_mae: 0.2517
- val_mse: 0.1247
Epoch 660/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1100 - mae: 0.2349 - mse: 0.1100 - val_loss: 0.1246 - val_mae: 0.2515
- val_mse: 0.1246
Epoch 661/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1100 - mae: 0.2348 - mse: 0.1100 - val_loss: 0.1244 - val_mae: 0.2513
- val_mse: 0.1244
Epoch 662/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1099 - mae: 0.2346 - mse: 0.1099 - val_loss: 0.1244 - val_mae: 0.2512
- val_mse: 0.1244
Epoch 663/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1099 - mae: 0.2346 - mse: 0.1099 - val_loss: 0.1243 - val_mae: 0.2511
- val_mse: 0.1243
Epoch 664/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1098 - mae: 0.2345 - mse: 0.1098 - val_loss: 0.1242 - val_mae: 0.2510
- val_mse: 0.1242
Epoch 665/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1097 - mae: 0.2344 - mse: 0.1097 - val_loss: 0.1241 - val_mae: 0.2509
- val_mse: 0.1241
Epoch 666/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1097 - mae: 0.2343 - mse: 0.1097 - val_loss: 0.1240 - val_mae: 0.2508
- val_mse: 0.1240
Epoch 667/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1096 - mae: 0.2342 - mse: 0.1096 - val_loss: 0.1239 - val_mae: 0.2507
- val_mse: 0.1239
Epoch 668/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1095 - mae: 0.2342 - mse: 0.1095 - val_loss: 0.1238 - val_mae: 0.2507
- val_mse: 0.1238
Epoch 669/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1095 - mae: 0.2342 - mse: 0.1095 - val_loss: 0.1237 - val_mae: 0.2507
- val_mse: 0.1237
Epoch 670/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1094 - mae: 0.2342 - mse: 0.1094 - val_loss: 0.1236 - val_mae: 0.2507
- val_mse: 0.1236
Epoch 671/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1094 - mae: 0.2341 - mse: 0.1094 - val_loss: 0.1235 - val_mae: 0.2505
- val_mse: 0.1235
Epoch 672/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1093 - mae: 0.2340 - mse: 0.1093 - val_loss: 0.1234 - val_mae: 0.2504
- val_mse: 0.1234
Epoch 673/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1093 - mae: 0.2339 - mse: 0.1093 - val_loss: 0.1232 - val_mae: 0.2502
- val_mse: 0.1232
Epoch 674/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1092 - mae: 0.2338 - mse: 0.1092 - val_loss: 0.1232 - val_mae: 0.2502
- val_mse: 0.1232
Epoch 675/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1091 - mae: 0.2338 - mse: 0.1091 - val_loss: 0.1232 - val_mae: 0.2502
- val_mse: 0.1232
Epoch 676/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1091 - mae: 0.2338 - mse: 0.1091 - val_loss: 0.1231 - val_mae: 0.2501
- val_mse: 0.1231
Epoch 677/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1090 - mae: 0.2336 - mse: 0.1090 - val_loss: 0.1229 - val_mae: 0.2499
- val_mse: 0.1229
Epoch 678/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1089 - mae: 0.2334 - mse: 0.1089 - val_loss: 0.1227 - val_mae: 0.2496
- val_mse: 0.1227
Epoch 679/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1089 - mae: 0.2333 - mse: 0.1089 - val_loss: 0.1227 - val_mae: 0.2496
- val_mse: 0.1227
Epoch 680/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1088 - mae: 0.2333 - mse: 0.1088 - val_loss: 0.1226 - val_mae: 0.2495
- val_mse: 0.1226
Epoch 681/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1088 - mae: 0.2332 - mse: 0.1088 - val_loss: 0.1225 - val_mae: 0.2496
- val_mse: 0.1225
Epoch 682/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1087 - mae: 0.2333 - mse: 0.1087 - val_loss: 0.1225 - val_mae: 0.2495
- val_mse: 0.1225
Epoch 683/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1087 - mae: 0.2332 - mse: 0.1087 - val_loss: 0.1224 - val_mae: 0.2494
- val_mse: 0.1224
Epoch 684/1000
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5/5 [=====] - 0s 6ms/step - loss: 0.1086 - mae: 0.2331 - mse: 0.1086 - val_loss: 0.1223 - val_mae: 0.2492
- val_mse: 0.1223
Epoch 685/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1085 - mae: 0.2330 - mse: 0.1085 - val_loss: 0.1221 - val_mae: 0.2491
- val_mse: 0.1221
Epoch 686/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1085 - mae: 0.2328 - mse: 0.1085 - val_loss: 0.1220 - val_mae: 0.2489
- val_mse: 0.1220
Epoch 687/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1084 - mae: 0.2327 - mse: 0.1084 - val_loss: 0.1220 - val_mae: 0.2489
- val_mse: 0.1220
Epoch 688/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1083 - mae: 0.2327 - mse: 0.1083 - val_loss: 0.1219 - val_mae: 0.2487
- val_mse: 0.1219
Epoch 689/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1083 - mae: 0.2326 - mse: 0.1083 - val_loss: 0.1218 - val_mae: 0.2487
- val_mse: 0.1218
Epoch 690/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1082 - mae: 0.2325 - mse: 0.1082 - val_loss: 0.1217 - val_mae: 0.2486
- val_mse: 0.1217
Epoch 691/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1082 - mae: 0.2325 - mse: 0.1082 - val_loss: 0.1217 - val_mae: 0.2486
- val_mse: 0.1217
Epoch 692/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1081 - mae: 0.2325 - mse: 0.1081 - val_loss: 0.1216 - val_mae: 0.2485
- val_mse: 0.1216
Epoch 693/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1081 - mae: 0.2324 - mse: 0.1081 - val_loss: 0.1215 - val_mae: 0.2484
- val_mse: 0.1215
Epoch 694/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1080 - mae: 0.2323 - mse: 0.1080 - val_loss: 0.1214 - val_mae: 0.2482
- val_mse: 0.1214
Epoch 695/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1080 - mae: 0.2322 - mse: 0.1080 - val_loss: 0.1213 - val_mae: 0.2481
- val_mse: 0.1213
Epoch 696/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1079 - mae: 0.2321 - mse: 0.1079 - val_loss: 0.1212 - val_mae: 0.2481
- val_mse: 0.1212
Epoch 697/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1079 - mae: 0.2320 - mse: 0.1079 - val_loss: 0.1212 - val_mae: 0.2480
- val_mse: 0.1212
Epoch 698/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1078 - mae: 0.2319 - mse: 0.1078 - val_loss: 0.1210 - val_mae: 0.2478
- val_mse: 0.1210
Epoch 699/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1078 - mae: 0.2318 - mse: 0.1078 - val_loss: 0.1210 - val_mae: 0.2478
- val_mse: 0.1210
Epoch 700/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1077 - mae: 0.2318 - mse: 0.1077 - val_loss: 0.1208 - val_mae: 0.2477
- val_mse: 0.1208
Epoch 701/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1076 - mae: 0.2317 - mse: 0.1076 - val_loss: 0.1207 - val_mae: 0.2476
- val_mse: 0.1207
Epoch 702/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1076 - mae: 0.2317 - mse: 0.1076 - val_loss: 0.1207 - val_mae: 0.2476
- val_mse: 0.1207
Epoch 703/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1075 - mae: 0.2316 - mse: 0.1075 - val_loss: 0.1206 - val_mae: 0.2474
- val_mse: 0.1206
Epoch 704/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1075 - mae: 0.2315 - mse: 0.1075 - val_loss: 0.1205 - val_mae: 0.2472
- val_mse: 0.1205
Epoch 705/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1074 - mae: 0.2313 - mse: 0.1074 - val_loss: 0.1204 - val_mae: 0.2471
- val_mse: 0.1204
Epoch 706/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1074 - mae: 0.2313 - mse: 0.1074 - val_loss: 0.1204 - val_mae: 0.2472
- val_mse: 0.1204
Epoch 707/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1073 - mae: 0.2314 - mse: 0.1073 - val_loss: 0.1204 - val_mae: 0.2472
- val_mse: 0.1204
Epoch 708/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1073 - mae: 0.2313 - mse: 0.1073 - val_loss: 0.1202 - val_mae: 0.2470
- val_mse: 0.1202
Epoch 709/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1072 - mae: 0.2311 - mse: 0.1072 - val_loss: 0.1201 - val_mae: 0.2468
- val_mse: 0.1201
Epoch 710/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1072 - mae: 0.2310 - mse: 0.1072 - val_loss: 0.1200 - val_mae: 0.2468
- val_mse: 0.1200
Epoch 711/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1071 - mae: 0.2310 - mse: 0.1071 - val_loss: 0.1200 - val_mae: 0.2468
- val_mse: 0.1200
Epoch 712/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1071 - mae: 0.2310 - mse: 0.1071 - val_loss: 0.1198 - val_mae: 0.2467
- val_mse: 0.1198
Epoch 713/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1070 - mae: 0.2309 - mse: 0.1070 - val_loss: 0.1197 - val_mae: 0.2466
- val_mse: 0.1197
Epoch 714/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1070 - mae: 0.2309 - mse: 0.1070 - val_loss: 0.1197 - val_mae: 0.2466
- val_mse: 0.1197
Epoch 715/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1069 - mae: 0.2308 - mse: 0.1069 - val_loss: 0.1196 - val_mae: 0.2465
- val_mse: 0.1196
Epoch 716/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1069 - mae: 0.2307 - mse: 0.1069 - val_loss: 0.1195 - val_mae: 0.2463
- val_mse: 0.1195
Epoch 717/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1068 - mae: 0.2306 - mse: 0.1068 - val_loss: 0.1195 - val_mae: 0.2463
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- val_mse: 0.1195
Epoch 718/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1068 - mae: 0.2306 - mse: 0.1068 - val_loss: 0.1194 - val_mae: 0.2463
- val_mse: 0.1194
Epoch 719/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1067 - mae: 0.2305 - mse: 0.1067 - val_loss: 0.1193 - val_mae: 0.2461
- val_mse: 0.1193
Epoch 720/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1066 - mae: 0.2304 - mse: 0.1066 - val_loss: 0.1193 - val_mae: 0.2460
- val_mse: 0.1193
Epoch 721/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1066 - mae: 0.2302 - mse: 0.1066 - val_loss: 0.1191 - val_mae: 0.2458
- val_mse: 0.1191
Epoch 722/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1066 - mae: 0.2302 - mse: 0.1066 - val_loss: 0.1191 - val_mae: 0.2457
- val_mse: 0.1191
Epoch 723/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1065 - mae: 0.2301 - mse: 0.1065 - val_loss: 0.1190 - val_mae: 0.2456
- val_mse: 0.1190
Epoch 724/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1065 - mae: 0.2301 - mse: 0.1065 - val_loss: 0.1189 - val_mae: 0.2456
- val_mse: 0.1189
Epoch 725/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1064 - mae: 0.2301 - mse: 0.1064 - val_loss: 0.1189 - val_mae: 0.2456
- val_mse: 0.1189
Epoch 726/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1063 - mae: 0.2300 - mse: 0.1063 - val_loss: 0.1188 - val_mae: 0.2455
- val_mse: 0.1188
Epoch 727/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1063 - mae: 0.2300 - mse: 0.1063 - val_loss: 0.1186 - val_mae: 0.2455
- val_mse: 0.1186
Epoch 728/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1063 - mae: 0.2299 - mse: 0.1063 - val_loss: 0.1186 - val_mae: 0.2454
- val_mse: 0.1186
Epoch 729/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1062 - mae: 0.2298 - mse: 0.1062 - val_loss: 0.1185 - val_mae: 0.2453
- val_mse: 0.1185
Epoch 730/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1062 - mae: 0.2298 - mse: 0.1062 - val_loss: 0.1185 - val_mae: 0.2452
- val_mse: 0.1185
Epoch 731/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1061 - mae: 0.2297 - mse: 0.1061 - val_loss: 0.1184 - val_mae: 0.2452
- val_mse: 0.1184
Epoch 732/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1061 - mae: 0.2297 - mse: 0.1061 - val_loss: 0.1183 - val_mae: 0.2451
- val_mse: 0.1183
Epoch 733/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1060 - mae: 0.2296 - mse: 0.1060 - val_loss: 0.1183 - val_mae: 0.2450
- val_mse: 0.1183
Epoch 734/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1060 - mae: 0.2297 - mse: 0.1060 - val_loss: 0.1183 - val_mae: 0.2450
- val_mse: 0.1183
Epoch 735/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1059 - mae: 0.2295 - mse: 0.1059 - val_loss: 0.1181 - val_mae: 0.2449
- val_mse: 0.1181
Epoch 736/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1059 - mae: 0.2295 - mse: 0.1059 - val_loss: 0.1179 - val_mae: 0.2448
- val_mse: 0.1179
Epoch 737/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1058 - mae: 0.2295 - mse: 0.1058 - val_loss: 0.1179 - val_mae: 0.2448
- val_mse: 0.1179
Epoch 738/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1058 - mae: 0.2294 - mse: 0.1058 - val_loss: 0.1178 - val_mae: 0.2447
- val_mse: 0.1178
Epoch 739/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1057 - mae: 0.2294 - mse: 0.1057 - val_loss: 0.1178 - val_mae: 0.2447
- val_mse: 0.1178
Epoch 740/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1057 - mae: 0.2294 - mse: 0.1057 - val_loss: 0.1177 - val_mae: 0.2447
- val_mse: 0.1177
Epoch 741/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1056 - mae: 0.2294 - mse: 0.1056 - val_loss: 0.1176 - val_mae: 0.2446
- val_mse: 0.1176
Epoch 742/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1056 - mae: 0.2292 - mse: 0.1056 - val_loss: 0.1175 - val_mae: 0.2444
- val_mse: 0.1175
Epoch 743/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1055 - mae: 0.2291 - mse: 0.1055 - val_loss: 0.1174 - val_mae: 0.2443
- val_mse: 0.1174
Epoch 744/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1055 - mae: 0.2291 - mse: 0.1055 - val_loss: 0.1173 - val_mae: 0.2443
- val_mse: 0.1173
Epoch 745/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1054 - mae: 0.2290 - mse: 0.1054 - val_loss: 0.1173 - val_mae: 0.2441
- val_mse: 0.1173
Epoch 746/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1054 - mae: 0.2289 - mse: 0.1054 - val_loss: 0.1173 - val_mae: 0.2441
- val_mse: 0.1173
Epoch 747/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1054 - mae: 0.2288 - mse: 0.1054 - val_loss: 0.1172 - val_mae: 0.2440
- val_mse: 0.1172
Epoch 748/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1053 - mae: 0.2288 - mse: 0.1053 - val_loss: 0.1171 - val_mae: 0.2439
- val_mse: 0.1171
Epoch 749/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1053 - mae: 0.2287 - mse: 0.1053 - val_loss: 0.1171 - val_mae: 0.2438
- val_mse: 0.1171
Epoch 750/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1052 - mae: 0.2286 - mse: 0.1052 - val_loss: 0.1170 - val_mae: 0.2437
- val_mse: 0.1170
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Epoch 751/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1052 - mae: 0.2285 - mse: 0.1052 - val_loss: 0.1169 - val_mae: 0.2437
- val_mse: 0.1169
Epoch 752/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1051 - mae: 0.2285 - mse: 0.1051 - val_loss: 0.1168 - val_mae: 0.2436
- val_mse: 0.1168
Epoch 753/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1051 - mae: 0.2285 - mse: 0.1051 - val_loss: 0.1167 - val_mae: 0.2435
- val_mse: 0.1167
Epoch 754/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1050 - mae: 0.2284 - mse: 0.1050 - val_loss: 0.1166 - val_mae: 0.2434
- val_mse: 0.1166
Epoch 755/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1050 - mae: 0.2283 - mse: 0.1050 - val_loss: 0.1166 - val_mae: 0.2434
- val_mse: 0.1166
Epoch 756/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1049 - mae: 0.2282 - mse: 0.1049 - val_loss: 0.1165 - val_mae: 0.2433
- val_mse: 0.1165
Epoch 757/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1049 - mae: 0.2282 - mse: 0.1049 - val_loss: 0.1165 - val_mae: 0.2431
- val_mse: 0.1165
Epoch 758/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1049 - mae: 0.2280 - mse: 0.1049 - val_loss: 0.1164 - val_mae: 0.2431
- val_mse: 0.1164
Epoch 759/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1048 - mae: 0.2280 - mse: 0.1048 - val_loss: 0.1163 - val_mae: 0.2430
- val_mse: 0.1163
Epoch 760/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1048 - mae: 0.2280 - mse: 0.1048 - val_loss: 0.1162 - val_mae: 0.2430
- val_mse: 0.1162
Epoch 761/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1047 - mae: 0.2280 - mse: 0.1047 - val_loss: 0.1161 - val_mae: 0.2430
- val_mse: 0.1161
Epoch 762/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1047 - mae: 0.2281 - mse: 0.1047 - val_loss: 0.1162 - val_mae: 0.2430
- val_mse: 0.1162
Epoch 763/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1046 - mae: 0.2280 - mse: 0.1046 - val_loss: 0.1160 - val_mae: 0.2429
- val_mse: 0.1160
Epoch 764/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1046 - mae: 0.2279 - mse: 0.1046 - val_loss: 0.1159 - val_mae: 0.2428
- val_mse: 0.1159
Epoch 765/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1046 - mae: 0.2279 - mse: 0.1046 - val_loss: 0.1159 - val_mae: 0.2427
- val_mse: 0.1159
Epoch 766/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1045 - mae: 0.2278 - mse: 0.1045 - val_loss: 0.1158 - val_mae: 0.2425
- val_mse: 0.1158
Epoch 767/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1045 - mae: 0.2276 - mse: 0.1045 - val_loss: 0.1158 - val_mae: 0.2425
- val_mse: 0.1158
Epoch 768/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1044 - mae: 0.2276 - mse: 0.1044 - val_loss: 0.1157 - val_mae: 0.2424
- val_mse: 0.1157
Epoch 769/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1044 - mae: 0.2275 - mse: 0.1044 - val_loss: 0.1157 - val_mae: 0.2424
- val_mse: 0.1157
Epoch 770/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1043 - mae: 0.2275 - mse: 0.1043 - val_loss: 0.1156 - val_mae: 0.2423
- val_mse: 0.1156
Epoch 771/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1043 - mae: 0.2274 - mse: 0.1043 - val_loss: 0.1155 - val_mae: 0.2423
- val_mse: 0.1155
Epoch 772/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1043 - mae: 0.2274 - mse: 0.1043 - val_loss: 0.1154 - val_mae: 0.2422
- val_mse: 0.1154
Epoch 773/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1042 - mae: 0.2273 - mse: 0.1042 - val_loss: 0.1154 - val_mae: 0.2421
- val_mse: 0.1154
Epoch 774/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1042 - mae: 0.2273 - mse: 0.1042 - val_loss: 0.1153 - val_mae: 0.2420
- val_mse: 0.1153
Epoch 775/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1041 - mae: 0.2273 - mse: 0.1041 - val_loss: 0.1152 - val_mae: 0.2420
- val_mse: 0.1152
Epoch 776/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1041 - mae: 0.2272 - mse: 0.1041 - val_loss: 0.1151 - val_mae: 0.2419
- val_mse: 0.1151
Epoch 777/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1040 - mae: 0.2271 - mse: 0.1040 - val_loss: 0.1151 - val_mae: 0.2418
- val_mse: 0.1151
Epoch 778/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1040 - mae: 0.2270 - mse: 0.1040 - val_loss: 0.1150 - val_mae: 0.2417
- val_mse: 0.1150
Epoch 779/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1040 - mae: 0.2269 - mse: 0.1040 - val_loss: 0.1150 - val_mae: 0.2417
- val_mse: 0.1150
Epoch 780/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1039 - mae: 0.2269 - mse: 0.1039 - val_loss: 0.1149 - val_mae: 0.2416
- val_mse: 0.1149
Epoch 781/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1039 - mae: 0.2269 - mse: 0.1039 - val_loss: 0.1148 - val_mae: 0.2416
- val_mse: 0.1148
Epoch 782/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1038 - mae: 0.2269 - mse: 0.1038 - val_loss: 0.1147 - val_mae: 0.2415
- val_mse: 0.1147
Epoch 783/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1038 - mae: 0.2268 - mse: 0.1038 - val_loss: 0.1146 - val_mae: 0.2415
- val_mse: 0.1146
Epoch 784/1000
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5/5 [=====] - 0s 6ms/step - loss: 0.1038 - mae: 0.2268 - mse: 0.1038 - val_loss: 0.1146 - val_mae: 0.2415
- val_mse: 0.1146
Epoch 785/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1037 - mae: 0.2268 - mse: 0.1037 - val_loss: 0.1146 - val_mae: 0.2414
- val_mse: 0.1146
Epoch 786/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1037 - mae: 0.2267 - mse: 0.1037 - val_loss: 0.1145 - val_mae: 0.2413
- val_mse: 0.1145
Epoch 787/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1036 - mae: 0.2266 - mse: 0.1036 - val_loss: 0.1144 - val_mae: 0.2412
- val_mse: 0.1144
Epoch 788/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1036 - mae: 0.2265 - mse: 0.1036 - val_loss: 0.1143 - val_mae: 0.2411
- val_mse: 0.1143
Epoch 789/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1035 - mae: 0.2264 - mse: 0.1035 - val_loss: 0.1143 - val_mae: 0.2410
- val_mse: 0.1143
Epoch 790/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1035 - mae: 0.2264 - mse: 0.1035 - val_loss: 0.1142 - val_mae: 0.2410
- val_mse: 0.1142
Epoch 791/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1035 - mae: 0.2263 - mse: 0.1035 - val_loss: 0.1141 - val_mae: 0.2409
- val_mse: 0.1141
Epoch 792/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1034 - mae: 0.2263 - mse: 0.1034 - val_loss: 0.1140 - val_mae: 0.2408
- val_mse: 0.1140
Epoch 793/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1034 - mae: 0.2263 - mse: 0.1034 - val_loss: 0.1140 - val_mae: 0.2408
- val_mse: 0.1140
Epoch 794/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1033 - mae: 0.2263 - mse: 0.1033 - val_loss: 0.1140 - val_mae: 0.2407
- val_mse: 0.1140
Epoch 795/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1033 - mae: 0.2262 - mse: 0.1033 - val_loss: 0.1139 - val_mae: 0.2407
- val_mse: 0.1139
Epoch 796/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1033 - mae: 0.2261 - mse: 0.1033 - val_loss: 0.1139 - val_mae: 0.2406
- val_mse: 0.1139
Epoch 797/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1033 - mae: 0.2262 - mse: 0.1033 - val_loss: 0.1137 - val_mae: 0.2406
- val_mse: 0.1137
Epoch 798/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1032 - mae: 0.2261 - mse: 0.1032 - val_loss: 0.1137 - val_mae: 0.2405
- val_mse: 0.1137
Epoch 799/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1031 - mae: 0.2261 - mse: 0.1031 - val_loss: 0.1136 - val_mae: 0.2405
- val_mse: 0.1136
Epoch 800/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1031 - mae: 0.2261 - mse: 0.1031 - val_loss: 0.1135 - val_mae: 0.2404
- val_mse: 0.1135
Epoch 801/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1031 - mae: 0.2260 - mse: 0.1031 - val_loss: 0.1135 - val_mae: 0.2404
- val_mse: 0.1135
Epoch 802/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1030 - mae: 0.2260 - mse: 0.1030 - val_loss: 0.1134 - val_mae: 0.2403
- val_mse: 0.1134
Epoch 803/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1030 - mae: 0.2259 - mse: 0.1030 - val_loss: 0.1133 - val_mae: 0.2402
- val_mse: 0.1133
Epoch 804/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1030 - mae: 0.2259 - mse: 0.1030 - val_loss: 0.1132 - val_mae: 0.2402
- val_mse: 0.1132
Epoch 805/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1029 - mae: 0.2259 - mse: 0.1029 - val_loss: 0.1131 - val_mae: 0.2402
- val_mse: 0.1131
Epoch 806/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1029 - mae: 0.2258 - mse: 0.1029 - val_loss: 0.1131 - val_mae: 0.2400
- val_mse: 0.1131
Epoch 807/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1028 - mae: 0.2257 - mse: 0.1028 - val_loss: 0.1131 - val_mae: 0.2400
- val_mse: 0.1131
Epoch 808/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1028 - mae: 0.2256 - mse: 0.1028 - val_loss: 0.1131 - val_mae: 0.2399
- val_mse: 0.1131
Epoch 809/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1028 - mae: 0.2256 - mse: 0.1028 - val_loss: 0.1130 - val_mae: 0.2399
- val_mse: 0.1130
Epoch 810/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1027 - mae: 0.2255 - mse: 0.1027 - val_loss: 0.1129 - val_mae: 0.2398
- val_mse: 0.1129
Epoch 811/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1027 - mae: 0.2255 - mse: 0.1027 - val_loss: 0.1128 - val_mae: 0.2398
- val_mse: 0.1128
Epoch 812/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1026 - mae: 0.2254 - mse: 0.1026 - val_loss: 0.1128 - val_mae: 0.2397
- val_mse: 0.1128
Epoch 813/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1026 - mae: 0.2254 - mse: 0.1026 - val_loss: 0.1127 - val_mae: 0.2397
- val_mse: 0.1127
Epoch 814/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1025 - mae: 0.2253 - mse: 0.1025 - val_loss: 0.1127 - val_mae: 0.2396
- val_mse: 0.1127
Epoch 815/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1025 - mae: 0.2253 - mse: 0.1025 - val_loss: 0.1126 - val_mae: 0.2395
- val_mse: 0.1126
Epoch 816/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1025 - mae: 0.2252 - mse: 0.1025 - val_loss: 0.1126 - val_mae: 0.2394
- val_mse: 0.1126
Epoch 817/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1024 - mae: 0.2251 - mse: 0.1024 - val_loss: 0.1125 - val_mae: 0.2394
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- val_mse: 0.1125
Epoch 818/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1024 - mae: 0.2251 - mse: 0.1024 - val_loss: 0.1125 - val_mae: 0.2393
- val_mse: 0.1125
Epoch 819/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1024 - mae: 0.2250 - mse: 0.1024 - val_loss: 0.1124 - val_mae: 0.2393
- val_mse: 0.1124
Epoch 820/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1023 - mae: 0.2249 - mse: 0.1023 - val_loss: 0.1123 - val_mae: 0.2392
- val_mse: 0.1123
Epoch 821/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1023 - mae: 0.2249 - mse: 0.1023 - val_loss: 0.1122 - val_mae: 0.2392
- val_mse: 0.1122
Epoch 822/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1023 - mae: 0.2249 - mse: 0.1023 - val_loss: 0.1122 - val_mae: 0.2391
- val_mse: 0.1122
Epoch 823/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1022 - mae: 0.2248 - mse: 0.1022 - val_loss: 0.1122 - val_mae: 0.2390
- val_mse: 0.1122
Epoch 824/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1022 - mae: 0.2248 - mse: 0.1022 - val_loss: 0.1121 - val_mae: 0.2390
- val_mse: 0.1121
Epoch 825/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1021 - mae: 0.2247 - mse: 0.1021 - val_loss: 0.1121 - val_mae: 0.2389
- val_mse: 0.1121
Epoch 826/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1021 - mae: 0.2246 - mse: 0.1021 - val_loss: 0.1120 - val_mae: 0.2388
- val_mse: 0.1120
Epoch 827/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1021 - mae: 0.2245 - mse: 0.1021 - val_loss: 0.1120 - val_mae: 0.2388
- val_mse: 0.1120
Epoch 828/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1020 - mae: 0.2245 - mse: 0.1020 - val_loss: 0.1119 - val_mae: 0.2386
- val_mse: 0.1119
Epoch 829/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1020 - mae: 0.2244 - mse: 0.1020 - val_loss: 0.1118 - val_mae: 0.2386
- val_mse: 0.1118
Epoch 830/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1020 - mae: 0.2245 - mse: 0.1020 - val_loss: 0.1117 - val_mae: 0.2386
- val_mse: 0.1117
Epoch 831/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1019 - mae: 0.2244 - mse: 0.1019 - val_loss: 0.1117 - val_mae: 0.2386
- val_mse: 0.1117
Epoch 832/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1019 - mae: 0.2243 - mse: 0.1019 - val_loss: 0.1117 - val_mae: 0.2386
- val_mse: 0.1117
Epoch 833/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1019 - mae: 0.2243 - mse: 0.1019 - val_loss: 0.1116 - val_mae: 0.2384
- val_mse: 0.1116
Epoch 834/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1018 - mae: 0.2243 - mse: 0.1018 - val_loss: 0.1115 - val_mae: 0.2385
- val_mse: 0.1115
Epoch 835/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1018 - mae: 0.2244 - mse: 0.1018 - val_loss: 0.1114 - val_mae: 0.2385
- val_mse: 0.1114
Epoch 836/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1018 - mae: 0.2244 - mse: 0.1018 - val_loss: 0.1113 - val_mae: 0.2384
- val_mse: 0.1113
Epoch 837/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1017 - mae: 0.2241 - mse: 0.1017 - val_loss: 0.1114 - val_mae: 0.2382
- val_mse: 0.1114
Epoch 838/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1017 - mae: 0.2239 - mse: 0.1017 - val_loss: 0.1114 - val_mae: 0.2381
- val_mse: 0.1114
Epoch 839/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1016 - mae: 0.2238 - mse: 0.1016 - val_loss: 0.1113 - val_mae: 0.2380
- val_mse: 0.1113
Epoch 840/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1016 - mae: 0.2238 - mse: 0.1016 - val_loss: 0.1112 - val_mae: 0.2379
- val_mse: 0.1112
Epoch 841/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1016 - mae: 0.2238 - mse: 0.1016 - val_loss: 0.1112 - val_mae: 0.2378
- val_mse: 0.1112
Epoch 842/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1015 - mae: 0.2237 - mse: 0.1015 - val_loss: 0.1111 - val_mae: 0.2378
- val_mse: 0.1111
Epoch 843/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1015 - mae: 0.2237 - mse: 0.1015 - val_loss: 0.1110 - val_mae: 0.2377
- val_mse: 0.1110
Epoch 844/1000
5/5 [=====] - 0s 7ms/step - loss: 0.1014 - mae: 0.2236 - mse: 0.1014 - val_loss: 0.1109 - val_mae: 0.2377
- val_mse: 0.1109
Epoch 845/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1014 - mae: 0.2237 - mse: 0.1014 - val_loss: 0.1109 - val_mae: 0.2377
- val_mse: 0.1109
Epoch 846/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1014 - mae: 0.2237 - mse: 0.1014 - val_loss: 0.1109 - val_mae: 0.2377
- val_mse: 0.1109
Epoch 847/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1014 - mae: 0.2237 - mse: 0.1014 - val_loss: 0.1109 - val_mae: 0.2377
- val_mse: 0.1109
Epoch 848/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1013 - mae: 0.2236 - mse: 0.1013 - val_loss: 0.1108 - val_mae: 0.2376
- val_mse: 0.1108
Epoch 849/1000
5/5 [=====] - 0s 6ms/step - loss: 0.1013 - mae: 0.2236 - mse: 0.1013 - val_loss: 0.1107 - val_mae: 0.2375
- val_mse: 0.1107
Epoch 850/1000
5/5 [=====] - 0s 5ms/step - loss: 0.1012 - mae: 0.2235 - mse: 0.1012 - val_loss: 0.1106 - val_mae: 0.2374
- val_mse: 0.1106
```

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localhost:8888/nbconvert/html/Analise-dados-sensores.ipynb?download=false

```
- val_mse: 0.1071
Epoch 918/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0989 - mae: 0.2205 - mse: 0.0989 - val_loss: 0.1070 - val_mae: 0.2338
- val_mse: 0.1070
Epoch 919/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0989 - mae: 0.2205 - mse: 0.0989 - val_loss: 0.1070 - val_mae: 0.2338
- val_mse: 0.1070
Epoch 920/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0989 - mae: 0.2205 - mse: 0.0989 - val_loss: 0.1070 - val_mae: 0.2337
- val_mse: 0.1070
Epoch 921/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0989 - mae: 0.2205 - mse: 0.0989 - val_loss: 0.1069 - val_mae: 0.2338
- val_mse: 0.1069
Epoch 922/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0988 - mae: 0.2205 - mse: 0.0988 - val_loss: 0.1069 - val_mae: 0.2337
- val_mse: 0.1069
Epoch 923/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0988 - mae: 0.2204 - mse: 0.0988 - val_loss: 0.1068 - val_mae: 0.2337
- val_mse: 0.1068
Epoch 924/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0987 - mae: 0.2203 - mse: 0.0987 - val_loss: 0.1068 - val_mae: 0.2335
- val_mse: 0.1068
Epoch 925/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0987 - mae: 0.2202 - mse: 0.0987 - val_loss: 0.1068 - val_mae: 0.2334
- val_mse: 0.1068
Epoch 926/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0987 - mae: 0.2201 - mse: 0.0987 - val_loss: 0.1067 - val_mae: 0.2333
- val_mse: 0.1067
Epoch 927/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0986 - mae: 0.2200 - mse: 0.0986 - val_loss: 0.1067 - val_mae: 0.2333
- val_mse: 0.1067
Epoch 928/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0986 - mae: 0.2201 - mse: 0.0986 - val_loss: 0.1066 - val_mae: 0.2334
- val_mse: 0.1066
Epoch 929/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0986 - mae: 0.2202 - mse: 0.0986 - val_loss: 0.1065 - val_mae: 0.2334
- val_mse: 0.1065
Epoch 930/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0986 - mae: 0.2202 - mse: 0.0986 - val_loss: 0.1065 - val_mae: 0.2333
- val_mse: 0.1065
Epoch 931/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0985 - mae: 0.2201 - mse: 0.0985 - val_loss: 0.1064 - val_mae: 0.2332
- val_mse: 0.1064
Epoch 932/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0985 - mae: 0.2200 - mse: 0.0985 - val_loss: 0.1064 - val_mae: 0.2331
- val_mse: 0.1064
Epoch 933/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0985 - mae: 0.2198 - mse: 0.0985 - val_loss: 0.1063 - val_mae: 0.2330
- val_mse: 0.1063
Epoch 934/1000
5/5 [=====] - 0s 7ms/step - loss: 0.0984 - mae: 0.2197 - mse: 0.0984 - val_loss: 0.1063 - val_mae: 0.2329
- val_mse: 0.1063
Epoch 935/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0984 - mae: 0.2197 - mse: 0.0984 - val_loss: 0.1062 - val_mae: 0.2329
- val_mse: 0.1062
Epoch 936/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0984 - mae: 0.2197 - mse: 0.0984 - val_loss: 0.1062 - val_mae: 0.2329
- val_mse: 0.1062
Epoch 937/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0984 - mae: 0.2197 - mse: 0.0984 - val_loss: 0.1062 - val_mae: 0.2329
- val_mse: 0.1062
Epoch 938/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0983 - mae: 0.2196 - mse: 0.0983 - val_loss: 0.1062 - val_mae: 0.2328
- val_mse: 0.1062
Epoch 939/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0983 - mae: 0.2196 - mse: 0.0983 - val_loss: 0.1062 - val_mae: 0.2328
- val_mse: 0.1062
Epoch 940/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0983 - mae: 0.2196 - mse: 0.0983 - val_loss: 0.1060 - val_mae: 0.2328
- val_mse: 0.1060
Epoch 941/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0982 - mae: 0.2196 - mse: 0.0982 - val_loss: 0.1060 - val_mae: 0.2330
- val_mse: 0.1060
Epoch 942/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0982 - mae: 0.2198 - mse: 0.0982 - val_loss: 0.1059 - val_mae: 0.2329
- val_mse: 0.1059
Epoch 943/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0981 - mae: 0.2195 - mse: 0.0981 - val_loss: 0.1059 - val_mae: 0.2327
- val_mse: 0.1059
Epoch 944/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0981 - mae: 0.2195 - mse: 0.0981 - val_loss: 0.1059 - val_mae: 0.2326
- val_mse: 0.1059
Epoch 945/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0981 - mae: 0.2195 - mse: 0.0981 - val_loss: 0.1058 - val_mae: 0.2326
- val_mse: 0.1058
Epoch 946/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0981 - mae: 0.2194 - mse: 0.0981 - val_loss: 0.1058 - val_mae: 0.2325
- val_mse: 0.1058
Epoch 947/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0980 - mae: 0.2193 - mse: 0.0980 - val_loss: 0.1057 - val_mae: 0.2324
- val_mse: 0.1057
Epoch 948/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0980 - mae: 0.2192 - mse: 0.0980 - val_loss: 0.1057 - val_mae: 0.2324
- val_mse: 0.1057
Epoch 949/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0980 - mae: 0.2192 - mse: 0.0980 - val_loss: 0.1056 - val_mae: 0.2323
- val_mse: 0.1056
Epoch 950/1000
5/5 [=====] - 0s 10ms/step - loss: 0.0979 - mae: 0.2191 - mse: 0.0979 - val_loss: 0.1056 - val_mae: 0.232
2 - val_mse: 0.1056
```

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```

5/5 [=====] - 0s 6ms/step - loss: 0.0969 - mae: 0.2180 - mse: 0.0969 - val_loss: 0.1041 - val_mae: 0.2309
- val_mse: 0.1041
Epoch 985/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0969 - mae: 0.2180 - mse: 0.0969 - val_loss: 0.1040 - val_mae: 0.2310
- val_mse: 0.1040
Epoch 986/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0969 - mae: 0.2180 - mse: 0.0969 - val_loss: 0.1040 - val_mae: 0.2310
- val_mse: 0.1040
Epoch 987/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0969 - mae: 0.2180 - mse: 0.0969 - val_loss: 0.1040 - val_mae: 0.2311
- val_mse: 0.1040
Epoch 988/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0969 - mae: 0.2178 - mse: 0.0969 - val_loss: 0.1040 - val_mae: 0.2306
- val_mse: 0.1040
Epoch 989/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0968 - mae: 0.2176 - mse: 0.0968 - val_loss: 0.1039 - val_mae: 0.2307
- val_mse: 0.1039
Epoch 990/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0968 - mae: 0.2176 - mse: 0.0968 - val_loss: 0.1038 - val_mae: 0.2306
- val_mse: 0.1038
Epoch 991/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0967 - mae: 0.2177 - mse: 0.0967 - val_loss: 0.1038 - val_mae: 0.2307
- val_mse: 0.1038
Epoch 992/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0967 - mae: 0.2177 - mse: 0.0967 - val_loss: 0.1038 - val_mae: 0.2306
- val_mse: 0.1038
Epoch 993/1000
5/5 [=====] - 0s 7ms/step - loss: 0.0967 - mae: 0.2176 - mse: 0.0967 - val_loss: 0.1037 - val_mae: 0.2305
- val_mse: 0.1037
Epoch 994/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0967 - mae: 0.2176 - mse: 0.0967 - val_loss: 0.1037 - val_mae: 0.2307
- val_mse: 0.1037
Epoch 995/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0966 - mae: 0.2177 - mse: 0.0966 - val_loss: 0.1036 - val_mae: 0.2308
- val_mse: 0.1036
Epoch 996/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0966 - mae: 0.2176 - mse: 0.0966 - val_loss: 0.1036 - val_mae: 0.2305
- val_mse: 0.1036
Epoch 997/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0966 - mae: 0.2176 - mse: 0.0966 - val_loss: 0.1036 - val_mae: 0.2304
- val_mse: 0.1036
Epoch 998/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0966 - mae: 0.2175 - mse: 0.0966 - val_loss: 0.1035 - val_mae: 0.2305
- val_mse: 0.1035
Epoch 999/1000
5/5 [=====] - 0s 6ms/step - loss: 0.0965 - mae: 0.2176 - mse: 0.0965 - val_loss: 0.1035 - val_mae: 0.2306
- val_mse: 0.1035
Epoch 1000/1000
5/5 [=====] - 0s 5ms/step - loss: 0.0965 - mae: 0.2176 - mse: 0.0965 - val_loss: 0.1034 - val_mae: 0.2304
- val_mse: 0.1034

```

Visualização do treinamento

In [50]:

```

def plot_history(history):
    hist = pd.DataFrame(history.history)
    hist['epoch'] = history.epoch

    plt.figure()
    plt.xlabel('Epoch')
    plt.ylabel('Mean Abs Error [MPG]')
    plt.plot(hist['epoch'], hist['mae'],
             label='Train Error')
    plt.plot(hist['epoch'], hist['val_mae'],
             label='Val Error')
    plt.ylim([0.00, 3.01])
    plt.legend()

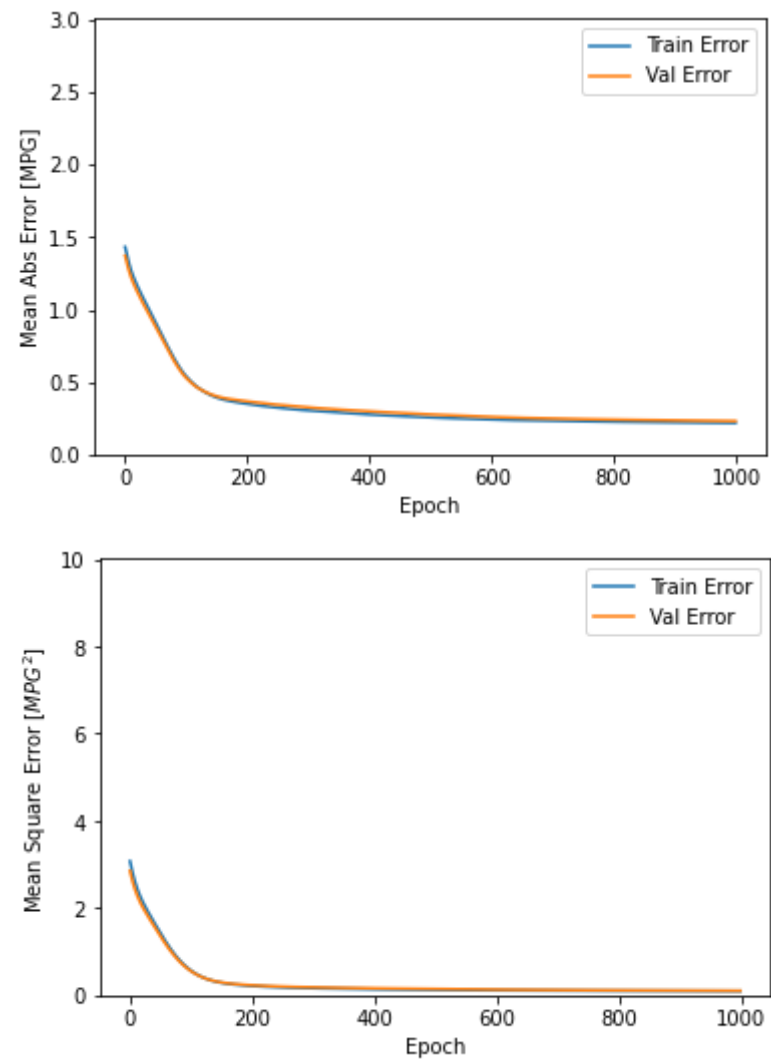
    plt.figure()
    plt.xlabel('Epoch')
    plt.ylabel('Mean Square Error [MPG^2]')
    plt.plot(hist['epoch'], hist['mse'],
             label='Train Error')
    plt.plot(hist['epoch'], hist['val_mse'],
             label='Val Error')
    plt.ylim([0.00, 10.01])
    plt.legend()
    plt.show()

```

Exportar modelo

In [71]:

```
plot_history(history)
```

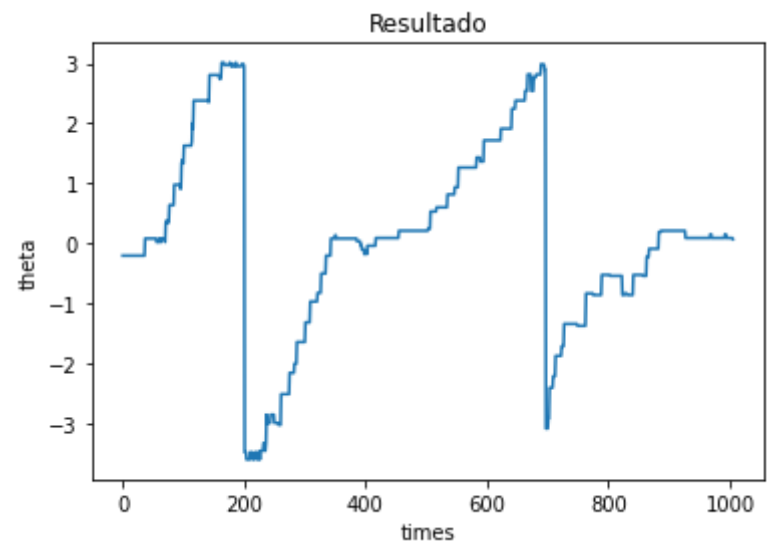


Testar modelo

```
In [24]: d_test = pd.read_csv("dataset_teste.csv")
d_test = d_test.astype('float32')
```

```
In [72]: y_pred = model.predict(d_test)

visualizar(y_pred)
```



Exportar para tfLite

```
In [73]: converter = tf.lite.TFLiteConverter.from_keras_model(model)
tflite_model = converter.convert()

# Save the model.
with open('regressor.tflite', 'wb') as f:
    f.write(tflite_model)
```

INFO:tensorflow:Assets written to: C:\Users\Joelp\AppData\Local\Temp\tmpeyfsx4zk\assets
INFO:tensorflow:Assets written to: C:\Users\Joelp\AppData\Local\Temp\tmpeyfsx4zk\assets

Testar modelo exportado

```
In [25]: d_test_shape = np.shape(d_test)
```

```
In [35]: interpreter = tf.lite.Interpreter(model_path="regressor.tflite")
interpreter.resize_tensor_input(0, [d_test_shape[0],d_test_shape[1]])
interpreter.allocate_tensors()

inputs = interpreter.tensor(interpreter.get_input_details()[0]['index'])
outputs = interpreter.tensor(interpreter.get_output_details()[0]['index'])

interpreter.set_tensor(0,d_test)
interpreter.invoke()

y_pred = outputs()
```

```
In [36]: visualizar(y_pred)
```

