

MLP with Horovod

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blob:https://web.whatsapp.com/82e0a332-5144-4ba9-8532-f3856b7791e2kennyli@LAPTOP-0TFTFNMR:/mnt/c/horovod$ python3
with_Horovod.py
2021-11-18 10:36:13.031470: W
tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic
library 'libcudart.so.11.0'; dlerror: libcudart.so.11.0: cannot open shared object file: No
such file or directory
2021-11-18 10:36:13.031534: I tensorflow/stream_executor/cuda/cudart_stub.cc:29]
Ignore above cudart dlerror if you do not have a GPU set up on your machine.
2021-11-18 10:36:25.504866: W
tensorflow/stream_executor/platform/default/dso_loader.cc:64] Could not load dynamic
library 'libcuda.so.1'; dlerror: libcuda.so.1: cannot open shared object file: No such file or
directory
2021-11-18 10:36:25.504911: W tensorflow/stream_executor/cuda/cuda_driver.cc:269]
failed call to cuInit: UNKNOWN ERROR (303)
2021-11-18 10:36:25.504986: I
tensorflow/stream_executor/cuda/cuda_diagnostics.cc:156] kernel driver does not
appear to be running on this host (LAPTOP-0TFTFNMR): /proc/driver/nvidia/version
does not exist
2021-11-18 10:36:25.505259: I tensorflow/core/platform/cpu_feature_guard.cc:142] This
TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to
use the following CPU instructions in performance-critical operations: AVX2 FMA
To enable them in other operations, rebuild TensorFlow with the appropriate compiler
flags.
/home/kennyli/.local/lib/python3.8/site-packages/horovod/_keras/callbacks.py:58:
UserWarning: Some callbacks may not have access to the averaged metrics, see
https://github.com/horovod/horovod/issues/2440
warnings.warn(
2021-11-18 10:36:25.541830: I tensorflow/core/profiler/lib/profiler_session.cc:131]
Profiler session initializing.
2021-11-18 10:36:25.541953: I tensorflow/core/profiler/lib/profiler_session.cc:146]
Profiler session started.
```

2021-11-18 10:36:25.542122: I tensorflow/core/profiler/lib/profiler_session.cc:164] Profiler session tear down.

2021-11-18 10:36:25.601442: I tensorflow/compiler/mlir/mlir_graph_optimization_pass.cc:185] None of the MLIR Optimization Passes are enabled (registered 2)

Epoch 1/50

1/500 [.....] - ETA: 10:56 - loss: 0.1331 - mean_absolute_error: 0.3405 - mean_squared_error: 0.1331 - root_mean_squared_error: 0.3648

2021-11-18 10:36:27.099656: I tensorflow/core/profiler/lib/profiler_session.cc:131] Profiler session initializing.

2021-11-18 10:36:27.099721: I tensorflow/core/profiler/lib/profiler_session.cc:146] Profiler session started.

2/500 [.....] - ETA: 1:26 - loss: 0.1223 - mean_absolute_error: 0.3243 - mean_squared_error: 0.1223 - root_mean_squared_error: 0.3498

2021-11-18 10:36:27.104481: I tensorflow/core/profiler/lib/profiler_session.cc:66] Profiler session collecting data.

2021-11-18 10:36:27.105452: I tensorflow/core/profiler/lib/profiler_session.cc:164] Profiler session tear down.

2021-11-18 10:36:27.123037: I tensorflow/core/profiler/rpc/client/save_profile.cc:136] Creating directory: logs/train/plugins/profile/2021_11_18_10_36_27

2021-11-18 10:36:27.130116: I tensorflow/core/profiler/rpc/client/save_profile.cc:142] Dumped gzipped tool data for trace.json.gz to logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-0TFTFNMR.trace.json.gz

2021-11-18 10:36:27.141504: I tensorflow/core/profiler/rpc/client/save_profile.cc:136] Creating directory: logs/train/plugins/profile/2021_11_18_10_36_27

2021-11-18 10:36:27.147440: I tensorflow/core/profiler/rpc/client/save_profile.cc:142] Dumped gzipped tool data for memory_profile.json.gz to logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-0TFTFNMR.memory_profile.json.gz

2021-11-18 10:36:27.184751: I tensorflow/core/profiler/rpc/client/capture_profile.cc:251] Creating directory: logs/train/plugins/profile/2021_11_18_10_36_27

Dumped tool data for xplane.pb to logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-0TFTFNMR.xplane.pb

Dumped tool data for overview_page.pb to logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-

0TFTFNMR.overview_page.pb

Dumped tool data for input_pipeline.pb to

logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-0TFTFNMR.input_pipeline.pb

Dumped tool data for tensorflow_stats.pb to

logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-

0TFTFNMR.tensorflow_stats.pb

Dumped tool data for kernel_stats.pb to

logs/train/plugins/profile/2021_11_18_10_36_27/LAPTOP-0TFTFNMR.kernel_stats.pb

3/500 [.....] - ETA: 1:04 - loss: 0.1139 - mean_absolute_error: 0.3154 -
mean_squared_error: 0.1139 - root_mean_squared_error:

0.3375WARNING:tensorflow:Callback method `on_train_batch_end` is slow compared to
the batch time (batch time: 0.0021s vs `on_train_batch_end` time: 0.0423s). Check your
callbacks.

22/500 [>.....] - ETA: 7s - loss: 0.0660 - mean_absolute_error: 0.2252 -

mean_squared_error: 0. 45/500 [=>.....] - ETA: 3s - loss: 0.0403 -

mean_absolute_error: 0.1601 - mean_squared_error: 0. 69/500 [==>.....]

- ETA: 2s - loss: 0.0292 - mean_absolute_error: 0.1277 - mean_squared_error: 0.

93/500 [====>.....] - ETA: 2s - loss: 0.0229 - mean_absolute_error: 0.1085

- mean_squared_error: 0.116/500 [====>.....] - ETA: 1s - loss: 0.0191 -

mean_absolute_error: 0.0963 - mean_squared_error: 0.138/500

[=====>.....] - ETA: 1s - loss: 0.0166 - mean_absolute_error: 0.0874 -

mean_squared_error: 0.161/500 [=====>.....] - ETA: 1s - loss: 0.0145 -

mean_absolute_error: 0.0800 - mean_squared_error: 0.182/500

[=====>.....] - ETA: 1s - loss: 0.0131 - mean_absolute_error: 0.0745 -

mean_squared_error: 0.203/500 [=====>.....] - ETA: 1s - loss: 0.0119 -

mean_absolute_error: 0.0700 - mean_squared_error: 0.224/500

[=====>.....] - ETA: 0s - loss: 0.0109 - mean_absolute_error: 0.0662 -

mean_squared_error: 0.245/500 [=====>.....] - ETA: 0s - loss: 0.0101

- mean_absolute_error: 0.0630 - mean_squared_error: 0.266/500

[=====>.....] - ETA: 0s - loss: 0.0094 - mean_absolute_error: 0.0602 -

mean_squared_error: 0.288/500 [=====>.....] - ETA: 0s - loss:

0.0088 - mean_absolute_error: 0.0578 - mean_squared_error: 0.310/500

[=====>.....] - ETA: 0s - loss: 0.0083 - mean_absolute_error:

0.0555 - mean_squared_error: 0.332/500 [=====>.....] - ETA: 0s -

loss: 0.0078 - mean_absolute_error: 0.0535 - mean_squared_error: 0.354/500

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[=====>.....] - ETA: 0s - loss: 0.0074 - mean_absolute_error:
0.0518 - mean_squared_error: 0.376/500 [=====>.....] - ETA: 0s
- loss: 0.0071 - mean_absolute_error: 0.0503 - mean_squared_error: 0.398/500
[=====>.....] - ETA: 0s - loss: 0.0067 - mean_absolute_error:
0.0489 - mean_squared_error: 0.420/500 [=====>.....] - ETA:
0s - loss: 0.0064 - mean_absolute_error: 0.0476 - mean_squared_error: 0.442/500
[=====>....] - ETA: 0s - loss: 0.0062 - mean_absolute_error:
0.0463 - mean_squared_error: 0.464/500 [=====>...] - ETA:
0s - loss: 0.0059 - mean_absolute_error: 0.0452 - mean_squared_error: 0.486/500
[=====>.] - ETA: 0s - loss: 0.0057 -
mean_absolute_error: 0.0441 - mean_squared_error: 0.500/500
[=====>] - 3s 3ms/step - loss: 0.0055 -
mean_absolute_error: 0.0435 - mean_squared_error: 0.0055 -
root_mean_squared_error: 0.0745 - val_loss: 7.2004e-04 - val_mean_absolute_error:
0.0221 - val_mean_squared_error: 7.2004e-04 - val_root_mean_squared_error: 0.0268
Epoch 2/50
1/500 [.....] - ETA: 1s - loss: 5.4772e-04 - mean_absolute_error: 0.0191 -
mean_squared_error 23/500 [>.....] - ETA: 1s - loss: 9.3581e-04 -
mean_absolute_error: 0.0222 - mean_squared_error 44/500 [=>.....] -
ETA: 1s - loss: 8.4617e-04 - mean_absolute_error: 0.0213 - mean_squared_error
66/500 [==>.....] - ETA: 1s - loss: 8.5087e-04 - mean_absolute_error:
0.0212 - mean_squared_error 87/500 [===>.....] - ETA: 0s - loss: 9.1070e-
04 - mean_absolute_error: 0.0218 - mean_squared_error108/500
[=====>.....] - ETA: 0s - loss: 8.8703e-04 - mean_absolute_error: 0.0216 -
mean_squared_error131/500 [=====>.....] - ETA: 0s - loss: 8.5222e-04 -
mean_absolute_error: 0.0212 - mean_squared_error152/500 [=====>.....]
- ETA: 0s - loss: 8.4066e-04 - mean_absolute_error: 0.0209 -
mean_squared_error174/500 [=====>.....] - ETA: 0s - loss: 8.2710e-04 -
mean_absolute_error: 0.0208 - mean_squared_error195/500
[=====>.....] - ETA: 0s - loss: 8.1579e-04 - mean_absolute_error: 0.0206
- mean_squared_error217/500 [=====>.....] - ETA: 0s - loss: 7.9074e-
04 - mean_absolute_error: 0.0203 - mean_squared_error239/500
[=====>.....] - ETA: 0s - loss: 7.7461e-04 - mean_absolute_error:
0.0201 - mean_squared_error261/500 [=====>.....] - ETA: 0s - loss:
7.6783e-04 - mean_absolute_error: 0.0200 - mean_squared_error282/500
[=====>.....] - ETA: 0s - loss: 7.4949e-04 - mean_absolute_error:

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0.0198 - mean_squared_error304/500 [=====>.....] - ETA: 0s - loss:
7.3753e-04 - mean_absolute_error: 0.0196 - mean_squared_error325/500
[=====>.....] - ETA: 0s - loss: 7.2818e-04 - mean_absolute_error:
0.0195 - mean_squared_error344/500 [=====>.....] - ETA: 0s -
loss: 7.1948e-04 - mean_absolute_error: 0.0194 - mean_squared_error364/500
[=====>.....] - ETA: 0s - loss: 7.1219e-04 - mean_absolute_error:
0.0192 - mean_squared_error385/500 [=====>.....] - ETA: 0s -
loss: 7.0815e-04 - mean_absolute_error: 0.0192 - mean_squared_error407/500
[=====>.....] - ETA: 0s - loss: 6.9987e-04 -
mean_absolute_error: 0.0191 - mean_squared_error429/500
[=====>.....] - ETA: 0s - loss: 6.9413e-04 -
mean_absolute_error: 0.0190 - mean_squared_error451/500
[=====>...] - ETA: 0s - loss: 6.8720e-04 -
mean_absolute_error: 0.0189 - mean_squared_error472/500
[=====>..] - ETA: 0s - loss: 6.8298e-04 -
mean_absolute_error: 0.0188 - mean_squared_error493/500
[=====>.] - ETA: 0s - loss: 6.7697e-04 -
mean_absolute_error: 0.0187 - mean_squared_error500/500
[=====] - 1s 3ms/step - loss: 6.7547e-04 -
mean_absolute_error: 0.0187 - mean_squared_error: 6.7547e-04 -
root_mean_squared_error: 0.0260 - val_loss: 2.9401e-04 - val_mean_absolute_error:
0.0135 - val_mean_squared_error: 2.9401e-04 - val_root_mean_squared_error: 0.0171
Epoch 3/50
1/500 [.....] - ETA: 1s - loss: 4.1570e-04 - mean_absolute_error: 0.0162 -
mean_squared_error 19/500 [>.....] - ETA: 1s - loss: 5.4954e-04 -
mean_absolute_error: 0.0164 - mean_squared_error 39/500 [=>.....] -
ETA: 1s - loss: 5.1946e-04 - mean_absolute_error: 0.0161 - mean_squared_error
61/500 [==>.....] - ETA: 1s - loss: 5.2892e-04 - mean_absolute_error:
0.0162 - mean_squared_error 82/500 [===>.....] - ETA: 1s - loss: 5.1517e-
04 - mean_absolute_error: 0.0162 - mean_squared_error103/500
[=====>.....] - ETA: 0s - loss: 5.1164e-04 - mean_absolute_error: 0.0161 -
mean_squared_error125/500 [=====>.....] - ETA: 0s - loss: 5.0640e-04 -
mean_absolute_error: 0.0161 - mean_squared_error146/500 [=====>.....]
- ETA: 0s - loss: 5.0434e-04 - mean_absolute_error: 0.0161 -
mean_squared_error168/500 [=====>.....] - ETA: 0s - loss: 5.1374e-04 -
mean_absolute_error: 0.0163 - mean_squared_error190/500

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[=====>.....] - ETA: 0s - loss: 5.1887e-04 - mean_absolute_error: 0.0163
- mean_squared_error211/500 [=====>.....] - ETA: 0s - loss: 5.1261e-04
- mean_absolute_error: 0.0163 - mean_squared_error230/500
[=====>.....] - ETA: 0s - loss: 5.0606e-04 - mean_absolute_error:
0.0162 - mean_squared_error251/500 [=====>.....] - ETA: 0s - loss:
5.0602e-04 - mean_absolute_error: 0.0162 - mean_squared_error272/500
[=====>.....] - ETA: 0s - loss: 5.0542e-04 - mean_absolute_error:
0.0162 - mean_squared_error293/500 [=====>.....] - ETA: 0s - loss:
5.0453e-04 - mean_absolute_error: 0.0162 - mean_squared_error314/500
[=====>.....] - ETA: 0s - loss: 4.9986e-04 - mean_absolute_error:
0.0161 - mean_squared_error335/500 [=====>.....] - ETA: 0s -
loss: 4.9909e-04 - mean_absolute_error: 0.0161 - mean_squared_error357/500
[=====>.....] - ETA: 0s - loss: 5.0525e-04 - mean_absolute_error:
0.0162 - mean_squared_error379/500 [=====>.....] - ETA: 0s -
loss: 5.0187e-04 - mean_absolute_error: 0.0161 - mean_squared_error400/500
[=====>.....] - ETA: 0s - loss: 5.0083e-04 -
mean_absolute_error: 0.0161 - mean_squared_error422/500
[=====>.....] - ETA: 0s - loss: 4.9929e-04 -
mean_absolute_error: 0.0160 - mean_squared_error443/500
[=====>....] - ETA: 0s - loss: 4.9800e-04 -
mean_absolute_error: 0.0160 - mean_squared_error464/500
[=====>...] - ETA: 0s - loss: 4.9728e-04 -
mean_absolute_error: 0.0160 - mean_squared_error484/500
[=====>.] - ETA: 0s - loss: 4.9662e-04 -
mean_absolute_error: 0.0160 - mean_squared_error500/500
[=====] - 1s 3ms/step - loss: 4.9475e-04 -
mean_absolute_error: 0.0160 - mean_squared_error: 4.9475e-04 -
root_mean_squared_error: 0.0222 - val_loss: 2.5243e-04 - val_mean_absolute_error:
0.0120 - val_mean_squared_error: 2.5243e-04 - val_root_mean_squared_error: 0.0159

Epoch 3: finished gradual learning rate warmup to 0.001.
Epoch 4/50
1/500 [.....] - ETA: 1s - loss: 8.4499e-04 - mean_absolute_error: 0.0198 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 4.6547e-04 -
mean_absolute_error: 0.0154 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 4.4815e-04 - mean_absolute_error: 0.0152 - mean_squared_error

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75/500 [==>.....] - ETA: 0s - loss: 4.4693e-04 - mean_absolute_error: 0.0152 - mean_squared_error100/500 [====>.....] - ETA: 0s - loss: 4.4252e-04 - mean_absolute_error: 0.0151 - mean_squared_error124/500 [=====>.....] - ETA: 0s - loss: 4.3562e-04 - mean_absolute_error: 0.0150 - mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 4.2892e-04 - mean_absolute_error: 0.0150 - mean_squared_error174/500 [=====>.....] - ETA: 0s - loss: 4.1755e-04 - mean_absolute_error: 0.0148 - mean_squared_error198/500 [=====>.....] - ETA: 0s - loss: 4.1541e-04 - mean_absolute_error: 0.0148 - mean_squared_error223/500 [=====>.....] - ETA: 0s - loss: 4.1287e-04 - mean_absolute_error: 0.0147 - mean_squared_error247/500 [=====>.....] - ETA: 0s - loss: 4.1890e-04 - mean_absolute_error: 0.0148 - mean_squared_error272/500 [=====>.....] - ETA: 0s - loss: 4.2005e-04 - mean_absolute_error: 0.0148 - mean_squared_error297/500 [=====>.....] - ETA: 0s - loss: 4.1837e-04 - mean_absolute_error: 0.0148 - mean_squared_error322/500 [=====>.....] - ETA: 0s - loss: 4.2765e-04 - mean_absolute_error: 0.0149 - mean_squared_error346/500 [=====>.....] - ETA: 0s - loss: 4.2914e-04 - mean_absolute_error: 0.0149 - mean_squared_error371/500 [=====>.....] - ETA: 0s - loss: 4.3192e-04 - mean_absolute_error: 0.0149 - mean_squared_error396/500 [=====>.....] - ETA: 0s - loss: 4.3200e-04 - mean_absolute_error: 0.0149 - mean_squared_error421/500 [=====>.....] - ETA: 0s - loss: 4.2608e-04 - mean_absolute_error: 0.0148 - mean_squared_error446/500 [=====>.....] - ETA: 0s - loss: 4.2218e-04 - mean_absolute_error: 0.0147 - mean_squared_error471/500 [=====>.....] - ETA: 0s - loss: 4.1770e-04 - mean_absolute_error: 0.0147 - mean_squared_error495/500 [=====>.....] - ETA: 0s - loss: 4.1532e-04 - mean_absolute_error: 0.0146 - mean_squared_error500/500 [=====>.....] - 1s 2ms/step - loss: 4.1461e-04 - mean_absolute_error: 0.0146 - mean_squared_error: 4.1461e-04 - root_mean_squared_error: 0.0204 - val_loss: 4.0117e-04 - val_mean_absolute_error: 0.0171 - val_mean_squared_error: 4.0117e-04 - val_root_mean_squared_error: 0.0200
 Epoch 5/50
 1/500 [.....] - ETA: 1s - loss: 3.6593e-04 - mean_absolute_error: 0.0137 - mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 4.0017e-04 -

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mean_absolute_error: 0.0142 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 3.8257e-04 - mean_absolute_error: 0.0142 - mean_squared_error
74/500 [==>.....] - ETA: 0s - loss: 3.8134e-04 - mean_absolute_error:
0.0141 - mean_squared_error 99/500 [====>.....] - ETA: 0s - loss: 4.0849e-
04 - mean_absolute_error: 0.0146 - mean_squared_error124/500
[=====>.....] - ETA: 0s - loss: 4.0763e-04 - mean_absolute_error: 0.0146 -
mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 4.1368e-04 -
mean_absolute_error: 0.0145 - mean_squared_error174/500
[=====>.....] - ETA: 0s - loss: 4.0530e-04 - mean_absolute_error: 0.0144
- mean_squared_error197/500 [=====>.....] - ETA: 0s - loss: 4.1051e-04
- mean_absolute_error: 0.0145 - mean_squared_error222/500
[=====>.....] - ETA: 0s - loss: 4.1487e-04 - mean_absolute_error:
0.0146 - mean_squared_error247/500 [=====>.....] - ETA: 0s - loss:
4.1817e-04 - mean_absolute_error: 0.0146 - mean_squared_error274/500
[=====>.....] - ETA: 0s - loss: 4.1120e-04 - mean_absolute_error:
0.0145 - mean_squared_error299/500 [=====>.....] - ETA: 0s - loss:
4.0476e-04 - mean_absolute_error: 0.0144 - mean_squared_error323/500
[=====>.....] - ETA: 0s - loss: 3.9767e-04 - mean_absolute_error:
0.0143 - mean_squared_error349/500 [=====>.....] - ETA: 0s -
loss: 3.9827e-04 - mean_absolute_error: 0.0143 - mean_squared_error374/500
[=====>.....] - ETA: 0s - loss: 4.0035e-04 - mean_absolute_error:
0.0143 - mean_squared_error399/500 [=====>.....] - ETA: 0s -
loss: 3.9757e-04 - mean_absolute_error: 0.0143 - mean_squared_error424/500
[=====>.....] - ETA: 0s - loss: 3.9474e-04 -
mean_absolute_error: 0.0142 - mean_squared_error450/500
[=====>...] - ETA: 0s - loss: 3.9731e-04 -
mean_absolute_error: 0.0142 - mean_squared_error475/500
[=====>..] - ETA: 0s - loss: 3.9633e-04 -
mean_absolute_error: 0.0142 - mean_squared_error500/500
[=====>] - 1s 2ms/step - loss: 3.9957e-04 -
mean_absolute_error: 0.0142 - mean_squared_error: 3.9957e-04 -
root_mean_squared_error: 0.0200 - val_loss: 2.3617e-04 - val_mean_absolute_error:
0.0121 - val_mean_squared_error: 2.3617e-04 - val_root_mean_squared_error: 0.0154
Epoch 6/50
1/500 [.....] - ETA: 1s - loss: 3.3535e-04 - mean_absolute_error: 0.0133 -
mean_squared_error 25/500 [>.....] - ETA: 1s - loss: 4.7377e-04 -

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mean_absolute_error: 0.0149 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 4.6370e-04 - mean_absolute_error: 0.0150 - mean_squared_error
74/500 [==>.....] - ETA: 0s - loss: 4.5522e-04 - mean_absolute_error:
0.0149 - mean_squared_error 98/500 [====>.....] - ETA: 0s - loss: 4.6556e-
04 - mean_absolute_error: 0.0151 - mean_squared_error122/500
[=====>.....] - ETA: 0s - loss: 4.5324e-04 - mean_absolute_error: 0.0149 -
mean_squared_error146/500 [=====>.....] - ETA: 0s - loss: 4.4088e-04 -
mean_absolute_error: 0.0147 - mean_squared_error171/500
[=====>.....] - ETA: 0s - loss: 4.2697e-04 - mean_absolute_error: 0.0146
- mean_squared_error195/500 [=====>.....] - ETA: 0s - loss: 4.1435e-04
- mean_absolute_error: 0.0144 - mean_squared_error218/500
[=====>.....] - ETA: 0s - loss: 4.1163e-04 - mean_absolute_error:
0.0144 - mean_squared_error242/500 [=====>.....] - ETA: 0s - loss:
4.0104e-04 - mean_absolute_error: 0.0142 - mean_squared_error267/500
[=====>.....] - ETA: 0s - loss: 3.9512e-04 - mean_absolute_error:
0.0141 - mean_squared_error292/500 [=====>.....] - ETA: 0s - loss:
3.9715e-04 - mean_absolute_error: 0.0142 - mean_squared_error317/500
[=====>.....] - ETA: 0s - loss: 3.9544e-04 - mean_absolute_error:
0.0141 - mean_squared_error343/500 [=====>.....] - ETA: 0s -
loss: 3.9322e-04 - mean_absolute_error: 0.0141 - mean_squared_error367/500
[=====>.....] - ETA: 0s - loss: 3.9352e-04 - mean_absolute_error:
0.0141 - mean_squared_error391/500 [=====>.....] - ETA: 0s -
loss: 3.9721e-04 - mean_absolute_error: 0.0142 - mean_squared_error416/500
[=====>.....] - ETA: 0s - loss: 3.9792e-04 -
mean_absolute_error: 0.0141 - mean_squared_error442/500
[=====>.....] - ETA: 0s - loss: 3.9712e-04 -
mean_absolute_error: 0.0141 - mean_squared_error467/500
[=====>..] - ETA: 0s - loss: 3.9414e-04 -
mean_absolute_error: 0.0141 - mean_squared_error491/500
[=====>.] - ETA: 0s - loss: 3.9196e-04 -
mean_absolute_error: 0.0140 - mean_squared_error500/500
[=====>] - 1s 2ms/step - loss: 3.9071e-04 -
mean_absolute_error: 0.0140 - mean_squared_error: 3.9071e-04 -
root_mean_squared_error: 0.0198 - val_loss: 2.6366e-04 - val_mean_absolute_error:
0.0132 - val_mean_squared_error: 2.6366e-04 - val_root_mean_squared_error: 0.0162
Epoch 7/50

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1/500 [.....] - ETA: 1s - loss: 3.3643e-04 - mean_absolute_error: 0.0143 -
 mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 3.2366e-04 -
 mean_absolute_error: 0.0130 - mean_squared_error 51/500 [==>.....] -
 ETA: 0s - loss: 3.2255e-04 - mean_absolute_error: 0.0130 - mean_squared_error
 74/500 [===>.....] - ETA: 0s - loss: 3.4170e-04 - mean_absolute_error:
 0.0133 - mean_squared_error 98/500 [====>.....] - ETA: 0s - loss: 3.5991e-
 04 - mean_absolute_error: 0.0135 - mean_squared_error 122/500
 [=====>.....] - ETA: 0s - loss: 3.6226e-04 - mean_absolute_error: 0.0135 -
 mean_squared_error 146/500 [=====>.....] - ETA: 0s - loss: 3.4802e-04 -
 mean_absolute_error: 0.0132 - mean_squared_error 171/500
 [=====>.....] - ETA: 0s - loss: 3.4551e-04 - mean_absolute_error: 0.0132
 - mean_squared_error 194/500 [=====>.....] - ETA: 0s - loss: 3.4283e-04
 - mean_absolute_error: 0.0131 - mean_squared_error 220/500
 [=====>.....] - ETA: 0s - loss: 3.4509e-04 - mean_absolute_error:
 0.0132 - mean_squared_error 246/500 [=====>.....] - ETA: 0s - loss:
 3.4790e-04 - mean_absolute_error: 0.0132 - mean_squared_error 271/500
 [=====>.....] - ETA: 0s - loss: 3.4664e-04 - mean_absolute_error:
 0.0132 - mean_squared_error 296/500 [=====>.....] - ETA: 0s - loss:
 3.5096e-04 - mean_absolute_error: 0.0132 - mean_squared_error 321/500
 [=====>.....] - ETA: 0s - loss: 3.5380e-04 - mean_absolute_error:
 0.0132 - mean_squared_error 347/500 [=====>.....] - ETA: 0s -
 loss: 3.4953e-04 - mean_absolute_error: 0.0132 - mean_squared_error 372/500
 [=====>.....] - ETA: 0s - loss: 3.5529e-04 - mean_absolute_error:
 0.0133 - mean_squared_error 398/500 [=====>.....] - ETA: 0s -
 loss: 3.5308e-04 - mean_absolute_error: 0.0132 - mean_squared_error 422/500
 [=====>.....] - ETA: 0s - loss: 3.5083e-04 -
 mean_absolute_error: 0.0132 - mean_squared_error 447/500
 [=====>.....] - ETA: 0s - loss: 3.4935e-04 -
 mean_absolute_error: 0.0132 - mean_squared_error 472/500
 [=====>..] - ETA: 0s - loss: 3.5146e-04 -
 mean_absolute_error: 0.0132 - mean_squared_error 496/500
 [=====>.] - ETA: 0s - loss: 3.5199e-04 -
 mean_absolute_error: 0.0132 - mean_squared_error 500/500
 [=====>] - 1s 2ms/step - loss: 3.5236e-04 -
 mean_absolute_error: 0.0132 - mean_squared_error: 3.5236e-04 -
 root_mean_squared_error: 0.0188 - val_loss: 5.4241e-04 - val_mean_absolute_error:

0.0199 - val_mean_squared_error: 5.4241e-04 - val_root_mean_squared_error: 0.0233
Epoch 8/50
1/500 [.....] - ETA: 1s - loss: 4.1990e-04 - mean_absolute_error: 0.0156 -
mean_squared_error 21/500 [>.....] - ETA: 1s - loss: 3.1717e-04 -
mean_absolute_error: 0.0127 - mean_squared_error 43/500 [=>.....] -
ETA: 1s - loss: 3.3474e-04 - mean_absolute_error: 0.0129 - mean_squared_error
60/500 [==>.....] - ETA: 1s - loss: 3.4194e-04 - mean_absolute_error:
0.0132 - mean_squared_error 85/500 [====>.....] - ETA: 1s - loss: 3.3052e-
04 - mean_absolute_error: 0.0130 - mean_squared_error109/500
[=====>.....] - ETA: 0s - loss: 3.4014e-04 - mean_absolute_error: 0.0131 -
mean_squared_error133/500 [=====>.....] - ETA: 0s - loss: 3.5513e-04 -
mean_absolute_error: 0.0132 - mean_squared_error157/500 [=====>.....]
- ETA: 0s - loss: 3.5646e-04 - mean_absolute_error: 0.0132 -
mean_squared_error182/500 [=====>.....] - ETA: 0s - loss: 3.5203e-04 -
mean_absolute_error: 0.0131 - mean_squared_error207/500
[=====>.....] - ETA: 0s - loss: 3.4937e-04 - mean_absolute_error:
0.0131 - mean_squared_error228/500 [=====>.....] - ETA: 0s - loss:
3.4661e-04 - mean_absolute_error: 0.0131 - mean_squared_error254/500
[=====>.....] - ETA: 0s - loss: 3.4285e-04 - mean_absolute_error:
0.0129 - mean_squared_error277/500 [=====>.....] - ETA: 0s - loss:
3.3880e-04 - mean_absolute_error: 0.0129 - mean_squared_error289/500
[=====>.....] - ETA: 0s - loss: 3.3550e-04 - mean_absolute_error:
0.0129 - mean_squared_error310/500 [=====>.....] - ETA: 0s - loss:
3.3565e-04 - mean_absolute_error: 0.0128 - mean_squared_error327/500
[=====>.....] - ETA: 0s - loss: 3.3835e-04 - mean_absolute_error:
0.0129 - mean_squared_error343/500 [=====>.....] - ETA: 0s -
loss: 3.3788e-04 - mean_absolute_error: 0.0129 - mean_squared_error361/500
[=====>.....] - ETA: 0s - loss: 3.3579e-04 - mean_absolute_error:
0.0129 - mean_squared_error382/500 [=====>.....] - ETA: 0s -
loss: 3.3496e-04 - mean_absolute_error: 0.0128 - mean_squared_error397/500
[=====>.....] - ETA: 0s - loss: 3.3474e-04 -
mean_absolute_error: 0.0128 - mean_squared_error424/500
[=====>.....] - ETA: 0s - loss: 3.3204e-04 -
mean_absolute_error: 0.0128 - mean_squared_error448/500
[=====>.....] - ETA: 0s - loss: 3.3187e-04 -
mean_absolute_error: 0.0128 - mean_squared_error478/500

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[=====>..] - ETA: 0s - loss: 3.3198e-04 -
mean_absolute_error: 0.0128 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 3.3089e-04 -
mean_absolute_error: 0.0128 - mean_squared_error: 3.3089e-04 -
root_mean_squared_error: 0.0182 - val_loss: 5.2854e-04 - val_mean_absolute_error:
0.0204 - val_mean_squared_error: 5.2854e-04 - val_root_mean_squared_error: 0.0230
Epoch 9/50
1/500 [.....] - ETA: 1s - loss: 3.0556e-04 - mean_absolute_error: 0.0136 -
mean_squared_error 27/500 [>.....] - ETA: 0s - loss: 3.3434e-04 -
mean_absolute_error: 0.0132 - mean_squared_error 54/500 [==>.....] -
ETA: 0s - loss: 3.1340e-04 - mean_absolute_error: 0.0128 - mean_squared_error
81/500 [==>.....] - ETA: 0s - loss: 3.4285e-04 - mean_absolute_error:
0.0130 - mean_squared_error108/500 [====>.....] - ETA: 0s - loss:
3.5662e-04 - mean_absolute_error: 0.0131 - mean_squared_error133/500
[====>.....] - ETA: 0s - loss: 3.5591e-04 - mean_absolute_error: 0.0131 -
mean_squared_error160/500 [=====>.....] - ETA: 0s - loss: 3.5141e-04 -
mean_absolute_error: 0.0130 - mean_squared_error188/500
[=====>.....] - ETA: 0s - loss: 3.4908e-04 - mean_absolute_error: 0.0129
- mean_squared_error214/500 [=====>.....] - ETA: 0s - loss: 3.4168e-
04 - mean_absolute_error: 0.0128 - mean_squared_error241/500
[=====>.....] - ETA: 0s - loss: 3.3911e-04 - mean_absolute_error:
0.0128 - mean_squared_error265/500 [=====>.....] - ETA: 0s - loss:
3.3971e-04 - mean_absolute_error: 0.0128 - mean_squared_error291/500
[=====>.....] - ETA: 0s - loss: 3.4113e-04 - mean_absolute_error:
0.0128 - mean_squared_error317/500 [=====>.....] - ETA: 0s -
loss: 3.3677e-04 - mean_absolute_error: 0.0128 - mean_squared_error346/500
[=====>.....] - ETA: 0s - loss: 3.4044e-04 - mean_absolute_error:
0.0128 - mean_squared_error372/500 [=====>.....] - ETA: 0s -
loss: 3.4201e-04 - mean_absolute_error: 0.0128 - mean_squared_error398/500
[=====>.....] - ETA: 0s - loss: 3.4081e-04 -
mean_absolute_error: 0.0128 - mean_squared_error424/500
[=====>.....] - ETA: 0s - loss: 3.3899e-04 -
mean_absolute_error: 0.0128 - mean_squared_error449/500
[=====>.....] - ETA: 0s - loss: 3.3815e-04 -
mean_absolute_error: 0.0128 - mean_squared_error475/500
[=====>..] - ETA: 0s - loss: 3.3615e-04 -

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mean_absolute_error: 0.0127 - mean_squared_error499/500
[=====>.] - ETA: 0s - loss: 3.3399e-04 -
mean_absolute_error: 0.0127 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 3.3384e-04 -
mean_absolute_error: 0.0127 - mean_squared_error: 3.3384e-04 -
root_mean_squared_error: 0.0183 - val_loss: 6.1533e-04 - val_mean_absolute_error:
0.0223 - val_mean_squared_error: 6.1533e-04 - val_root_mean_squared_error: 0.0248
Epoch 10/50
1/500 [.....] - ETA: 1s - loss: 4.3178e-04 - mean_absolute_error: 0.0126 -
mean_squared_error 28/500 [>.....] - ETA: 0s - loss: 2.8119e-04 -
mean_absolute_error: 0.0120 - mean_squared_error 54/500 [==>.....] -
ETA: 0s - loss: 2.7470e-04 - mean_absolute_error: 0.0120 - mean_squared_error
79/500 [===>.....] - ETA: 0s - loss: 3.0144e-04 - mean_absolute_error:
0.0125 - mean_squared_error104/500 [====>.....] - ETA: 0s - loss:
3.0039e-04 - mean_absolute_error: 0.0125 - mean_squared_error129/500
[=====>.....] - ETA: 0s - loss: 3.0413e-04 - mean_absolute_error: 0.0125 -
mean_squared_error153/500 [=====>.....] - ETA: 0s - loss: 2.9939e-04 -
mean_absolute_error: 0.0124 - mean_squared_error177/500
[=====>.....] - ETA: 0s - loss: 3.0077e-04 - mean_absolute_error: 0.0123
- mean_squared_error201/500 [=====>.....] - ETA: 0s - loss: 3.1247e-
04 - mean_absolute_error: 0.0124 - mean_squared_error226/500
[=====>.....] - ETA: 0s - loss: 3.1530e-04 - mean_absolute_error:
0.0124 - mean_squared_error254/500 [=====>.....] - ETA: 0s - loss:
3.1034e-04 - mean_absolute_error: 0.0124 - mean_squared_error280/500
[=====>.....] - ETA: 0s - loss: 3.1393e-04 - mean_absolute_error:
0.0125 - mean_squared_error305/500 [=====>.....] - ETA: 0s - loss:
3.1508e-04 - mean_absolute_error: 0.0125 - mean_squared_error330/500
[=====>.....] - ETA: 0s - loss: 3.1985e-04 - mean_absolute_error:
0.0126 - mean_squared_error355/500 [=====>.....] - ETA: 0s -
loss: 3.1667e-04 - mean_absolute_error: 0.0125 - mean_squared_error380/500
[=====>.....] - ETA: 0s - loss: 3.1440e-04 - mean_absolute_error:
0.0125 - mean_squared_error405/500 [=====>.....] - ETA: 0s -
loss: 3.1213e-04 - mean_absolute_error: 0.0125 - mean_squared_error430/500
[=====>.....] - ETA: 0s - loss: 3.1434e-04 -
mean_absolute_error: 0.0125 - mean_squared_error455/500
[=====>...] - ETA: 0s - loss: 3.1759e-04 -

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mean_absolute_error: 0.0126 - mean_squared_error480/500
[=====>..] - ETA: 0s - loss: 3.2095e-04 -
mean_absolute_error: 0.0126 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 3.2382e-04 -
mean_absolute_error: 0.0126 - mean_squared_error: 3.2382e-04 -
root_mean_squared_error: 0.0180 - val_loss: 1.1910e-04 - val_mean_absolute_error:
0.0081 - val_mean_squared_error: 1.1910e-04 - val_root_mean_squared_error: 0.0109
Epoch 11/50
1/500 [.....] - ETA: 1s - loss: 5.2341e-04 - mean_absolute_error: 0.0158 -
mean_squared_error 25/500 [>.....] - ETA: 0s - loss: 4.2870e-04 -
mean_absolute_error: 0.0137 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 4.0716e-04 - mean_absolute_error: 0.0133 - mean_squared_error
73/500 [===>.....] - ETA: 0s - loss: 3.7681e-04 - mean_absolute_error:
0.0130 - mean_squared_error 98/500 [====>.....] - ETA: 0s - loss: 3.7072e-
04 - mean_absolute_error: 0.0130 - mean_squared_error122/500
[=====>.....] - ETA: 0s - loss: 3.5843e-04 - mean_absolute_error: 0.0129 -
mean_squared_error146/500 [=====>.....] - ETA: 0s - loss: 3.4821e-04 -
mean_absolute_error: 0.0127 - mean_squared_error170/500
[=====>.....] - ETA: 0s - loss: 3.3760e-04 - mean_absolute_error: 0.0126
- mean_squared_error193/500 [=====>.....] - ETA: 0s - loss: 3.3067e-04
- mean_absolute_error: 0.0125 - mean_squared_error216/500
[=====>.....] - ETA: 0s - loss: 3.2387e-04 - mean_absolute_error:
0.0124 - mean_squared_error244/500 [=====>.....] - ETA: 0s - loss:
3.2046e-04 - mean_absolute_error: 0.0123 - mean_squared_error270/500
[=====>.....] - ETA: 0s - loss: 3.1408e-04 - mean_absolute_error:
0.0123 - mean_squared_error297/500 [=====>.....] - ETA: 0s - loss:
3.1689e-04 - mean_absolute_error: 0.0123 - mean_squared_error322/500
[=====>.....] - ETA: 0s - loss: 3.1644e-04 - mean_absolute_error:
0.0123 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
loss: 3.1502e-04 - mean_absolute_error: 0.0123 - mean_squared_error373/500
[=====>.....] - ETA: 0s - loss: 3.1053e-04 - mean_absolute_error:
0.0122 - mean_squared_error398/500 [=====>.....] - ETA: 0s -
loss: 3.0837e-04 - mean_absolute_error: 0.0122 - mean_squared_error423/500
[=====>.....] - ETA: 0s - loss: 3.0556e-04 -
mean_absolute_error: 0.0121 - mean_squared_error449/500
[=====>....] - ETA: 0s - loss: 3.0324e-04 -

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mean_absolute_error: 0.0121 - mean_squared_error475/500
[=====>..] - ETA: 0s - loss: 3.0067e-04 -
mean_absolute_error: 0.0121 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 3.0201e-04 -
mean_absolute_error: 0.0121 - mean_squared_error: 3.0201e-04 -
root_mean_squared_error: 0.0174 - val_loss: 1.8649e-04 - val_mean_absolute_error:
0.0107 - val_mean_squared_error: 1.8649e-04 - val_root_mean_squared_error: 0.0137
Epoch 12/50
1/500 [.....] - ETA: 1s - loss: 2.0566e-04 - mean_absolute_error: 0.0111 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.5195e-04 -
mean_absolute_error: 0.0115 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 2.5714e-04 - mean_absolute_error: 0.0113 - mean_squared_error
75/500 [===>.....] - ETA: 0s - loss: 2.6586e-04 - mean_absolute_error:
0.0117 - mean_squared_error100/500 [====>.....] - ETA: 0s - loss:
2.8440e-04 - mean_absolute_error: 0.0118 - mean_squared_error124/500
[=====>.....] - ETA: 0s - loss: 2.7521e-04 - mean_absolute_error: 0.0117 -
mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 2.8057e-04 -
mean_absolute_error: 0.0118 - mean_squared_error174/500
[=====>.....] - ETA: 0s - loss: 2.7999e-04 - mean_absolute_error: 0.0118
- mean_squared_error198/500 [=====>.....] - ETA: 0s - loss: 2.8876e-04
- mean_absolute_error: 0.0119 - mean_squared_error222/500
[=====>.....] - ETA: 0s - loss: 2.9056e-04 - mean_absolute_error:
0.0119 - mean_squared_error248/500 [=====>.....] - ETA: 0s - loss:
2.9646e-04 - mean_absolute_error: 0.0121 - mean_squared_error274/500
[=====>.....] - ETA: 0s - loss: 3.0050e-04 - mean_absolute_error:
0.0121 - mean_squared_error300/500 [=====>.....] - ETA: 0s - loss:
2.9976e-04 - mean_absolute_error: 0.0121 - mean_squared_error326/500
[=====>.....] - ETA: 0s - loss: 2.9710e-04 - mean_absolute_error:
0.0120 - mean_squared_error352/500 [=====>.....] - ETA: 0s -
loss: 2.9981e-04 - mean_absolute_error: 0.0120 - mean_squared_error377/500
[=====>.....] - ETA: 0s - loss: 2.9939e-04 - mean_absolute_error:
0.0120 - mean_squared_error403/500 [=====>.....] - ETA: 0s -
loss: 3.0140e-04 - mean_absolute_error: 0.0121 - mean_squared_error429/500
[=====>.....] - ETA: 0s - loss: 3.0186e-04 -
mean_absolute_error: 0.0121 - mean_squared_error454/500
[=====>...] - ETA: 0s - loss: 2.9983e-04 -

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mean_absolute_error: 0.0121 - mean_squared_error479/500
[=====>..] - ETA: 0s - loss: 3.0472e-04 -
mean_absolute_error: 0.0122 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 3.0388e-04 -
mean_absolute_error: 0.0121 - mean_squared_error: 3.0388e-04 -
root_mean_squared_error: 0.0174 - val_loss: 2.5014e-04 - val_mean_absolute_error:
0.0128 - val_mean_squared_error: 2.5014e-04 - val_root_mean_squared_error: 0.0158
Epoch 13/50
1/500 [.....] - ETA: 1s - loss: 2.8597e-04 - mean_absolute_error: 0.0124 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.6373e-04 -
mean_absolute_error: 0.0117 - mean_squared_error 51/500 [==>.....] -
ETA: 0s - loss: 2.8713e-04 - mean_absolute_error: 0.0118 - mean_squared_error
76/500 [===>.....] - ETA: 0s - loss: 2.8550e-04 - mean_absolute_error:
0.0119 - mean_squared_error100/500 [====>.....] - ETA: 0s - loss:
2.8844e-04 - mean_absolute_error: 0.0119 - mean_squared_error125/500
[=====>.....] - ETA: 0s - loss: 2.9700e-04 - mean_absolute_error: 0.0121 -
mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 2.8899e-04 -
mean_absolute_error: 0.0119 - mean_squared_error175/500
[=====>.....] - ETA: 0s - loss: 2.9341e-04 - mean_absolute_error: 0.0121
- mean_squared_error199/500 [=====>.....] - ETA: 0s - loss: 2.9202e-04
- mean_absolute_error: 0.0120 - mean_squared_error224/500
[=====>.....] - ETA: 0s - loss: 2.9388e-04 - mean_absolute_error:
0.0120 - mean_squared_error249/500 [=====>.....] - ETA: 0s - loss:
3.0165e-04 - mean_absolute_error: 0.0121 - mean_squared_error274/500
[=====>.....] - ETA: 0s - loss: 3.0500e-04 - mean_absolute_error:
0.0121 - mean_squared_error298/500 [=====>.....] - ETA: 0s - loss:
3.0110e-04 - mean_absolute_error: 0.0120 - mean_squared_error324/500
[=====>.....] - ETA: 0s - loss: 2.9579e-04 - mean_absolute_error:
0.0119 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
loss: 2.9092e-04 - mean_absolute_error: 0.0118 - mean_squared_error373/500
[=====>.....] - ETA: 0s - loss: 2.9215e-04 - mean_absolute_error:
0.0118 - mean_squared_error398/500 [=====>.....] - ETA: 0s -
loss: 2.9567e-04 - mean_absolute_error: 0.0119 - mean_squared_error423/500
[=====>.....] - ETA: 0s - loss: 2.9778e-04 -
mean_absolute_error: 0.0119 - mean_squared_error448/500
[=====>....] - ETA: 0s - loss: 2.9810e-04 -

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mean_absolute_error: 0.0120 - mean_squared_error473/500
[=====>..] - ETA: 0s - loss: 2.9461e-04 -
mean_absolute_error: 0.0119 - mean_squared_error496/500
[=====>.] - ETA: 0s - loss: 2.9810e-04 -
mean_absolute_error: 0.0120 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.9765e-04 -
mean_absolute_error: 0.0120 - mean_squared_error: 2.9765e-04 -
root_mean_squared_error: 0.0173 - val_loss: 6.8992e-04 - val_mean_absolute_error:
0.0236 - val_mean_squared_error: 6.8992e-04 - val_root_mean_squared_error: 0.0263
Epoch 14/50
1/500 [.....] - ETA: 1s - loss: 3.5217e-04 - mean_absolute_error: 0.0142 -
mean_squared_error 25/500 [>.....] - ETA: 1s - loss: 2.9665e-04 -
mean_absolute_error: 0.0122 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 3.1143e-04 - mean_absolute_error: 0.0121 - mean_squared_error
74/500 [===>.....] - ETA: 0s - loss: 3.1213e-04 - mean_absolute_error:
0.0120 - mean_squared_error 99/500 [====>.....] - ETA: 0s - loss: 3.0297e-
04 - mean_absolute_error: 0.0119 - mean_squared_error124/500
[=====>.....] - ETA: 0s - loss: 2.9424e-04 - mean_absolute_error: 0.0117 -
mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 2.9610e-04 -
mean_absolute_error: 0.0118 - mean_squared_error173/500
[=====>.....] - ETA: 0s - loss: 2.9618e-04 - mean_absolute_error: 0.0118
- mean_squared_error197/500 [=====>.....] - ETA: 0s - loss: 2.9114e-04
- mean_absolute_error: 0.0117 - mean_squared_error223/500
[=====>.....] - ETA: 0s - loss: 2.8784e-04 - mean_absolute_error:
0.0117 - mean_squared_error249/500 [=====>.....] - ETA: 0s - loss:
2.8276e-04 - mean_absolute_error: 0.0116 - mean_squared_error275/500
[=====>.....] - ETA: 0s - loss: 2.7892e-04 - mean_absolute_error:
0.0115 - mean_squared_error300/500 [=====>.....] - ETA: 0s - loss:
2.7724e-04 - mean_absolute_error: 0.0115 - mean_squared_error324/500
[=====>.....] - ETA: 0s - loss: 2.7427e-04 - mean_absolute_error:
0.0115 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
loss: 2.7603e-04 - mean_absolute_error: 0.0115 - mean_squared_error374/500
[=====>.....] - ETA: 0s - loss: 2.7787e-04 - mean_absolute_error:
0.0115 - mean_squared_error398/500 [=====>.....] - ETA: 0s -
loss: 2.7918e-04 - mean_absolute_error: 0.0116 - mean_squared_error422/500
[=====>.....] - ETA: 0s - loss: 2.7934e-04 -

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mean_absolute_error: 0.0115 - mean_squared_error448/500
[=====>....] - ETA: 0s - loss: 2.8110e-04 -
mean_absolute_error: 0.0116 - mean_squared_error473/500
[=====>..] - ETA: 0s - loss: 2.7873e-04 -
mean_absolute_error: 0.0115 - mean_squared_error498/500
[=====>.] - ETA: 0s - loss: 2.8070e-04 -
mean_absolute_error: 0.0116 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.8075e-04 -
mean_absolute_error: 0.0116 - mean_squared_error: 2.8075e-04 -
root_mean_squared_error: 0.0168 - val_loss: 1.3574e-04 - val_mean_absolute_error:
0.0089 - val_mean_squared_error: 1.3574e-04 - val_root_mean_squared_error: 0.0117
Epoch 15/50
1/500 [.....] - ETA: 1s - loss: 1.7111e-04 - mean_absolute_error: 0.0103 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.9557e-04 -
mean_absolute_error: 0.0116 - mean_squared_error 51/500 [==>.....] -
ETA: 0s - loss: 3.1331e-04 - mean_absolute_error: 0.0118 - mean_squared_error
76/500 [===>.....] - ETA: 0s - loss: 3.0761e-04 - mean_absolute_error:
0.0118 - mean_squared_error100/500 [====>.....] - ETA: 0s - loss:
2.9752e-04 - mean_absolute_error: 0.0118 - mean_squared_error125/500
[=====>.....] - ETA: 0s - loss: 2.8943e-04 - mean_absolute_error: 0.0117 -
mean_squared_error151/500 [=====>.....] - ETA: 0s - loss: 2.8378e-04 -
mean_absolute_error: 0.0116 - mean_squared_error176/500
[=====>.....] - ETA: 0s - loss: 2.8410e-04 - mean_absolute_error: 0.0116
- mean_squared_error201/500 [=====>.....] - ETA: 0s - loss: 2.7586e-
04 - mean_absolute_error: 0.0115 - mean_squared_error227/500
[=====>.....] - ETA: 0s - loss: 2.7215e-04 - mean_absolute_error:
0.0114 - mean_squared_error253/500 [=====>.....] - ETA: 0s - loss:
2.7156e-04 - mean_absolute_error: 0.0115 - mean_squared_error278/500
[=====>.....] - ETA: 0s - loss: 2.7077e-04 - mean_absolute_error:
0.0115 - mean_squared_error303/500 [=====>.....] - ETA: 0s - loss:
2.7077e-04 - mean_absolute_error: 0.0115 - mean_squared_error328/500
[=====>.....] - ETA: 0s - loss: 2.7276e-04 - mean_absolute_error:
0.0115 - mean_squared_error352/500 [=====>.....] - ETA: 0s -
loss: 2.7326e-04 - mean_absolute_error: 0.0115 - mean_squared_error377/500
[=====>.....] - ETA: 0s - loss: 2.7554e-04 - mean_absolute_error:
0.0116 - mean_squared_error403/500 [=====>.....] - ETA: 0s -

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loss: 2.7842e-04 - mean_absolute_error: 0.0116 - mean_squared_error428/500
[=====>.....] - ETA: 0s - loss: 2.7814e-04 -
mean_absolute_error: 0.0116 - mean_squared_error453/500
[=====>...] - ETA: 0s - loss: 2.8066e-04 -
mean_absolute_error: 0.0116 - mean_squared_error477/500
[=====>..] - ETA: 0s - loss: 2.7921e-04 -
mean_absolute_error: 0.0116 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.8086e-04 -
mean_absolute_error: 0.0116 - mean_squared_error: 2.8086e-04 -
root_mean_squared_error: 0.0168 - val_loss: 2.2959e-04 - val_mean_absolute_error:
0.0123 - val_mean_squared_error: 2.2959e-04 - val_root_mean_squared_error: 0.0152
Epoch 16/50
1/500 [.....] - ETA: 1s - loss: 2.3267e-04 - mean_absolute_error: 0.0109 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.6979e-04 -
mean_absolute_error: 0.0115 - mean_squared_error 51/500 [==>.....] -
ETA: 0s - loss: 2.7234e-04 - mean_absolute_error: 0.0119 - mean_squared_error
76/500 [===>.....] - ETA: 0s - loss: 2.9903e-04 - mean_absolute_error:
0.0121 - mean_squared_error101/500 [====>.....] - ETA: 0s - loss:
2.8866e-04 - mean_absolute_error: 0.0119 - mean_squared_error127/500
[=====>.....] - ETA: 0s - loss: 2.8421e-04 - mean_absolute_error: 0.0119 -
mean_squared_error152/500 [=====>.....] - ETA: 0s - loss: 2.7316e-04 -
mean_absolute_error: 0.0117 - mean_squared_error176/500
[=====>.....] - ETA: 0s - loss: 2.7191e-04 - mean_absolute_error: 0.0116
- mean_squared_error200/500 [=====>.....] - ETA: 0s - loss: 2.8600e-
04 - mean_absolute_error: 0.0118 - mean_squared_error226/500
[=====>.....] - ETA: 0s - loss: 2.9262e-04 - mean_absolute_error:
0.0119 - mean_squared_error251/500 [=====>.....] - ETA: 0s - loss:
2.9757e-04 - mean_absolute_error: 0.0120 - mean_squared_error276/500
[=====>.....] - ETA: 0s - loss: 3.0048e-04 - mean_absolute_error:
0.0120 - mean_squared_error301/500 [=====>.....] - ETA: 0s - loss:
3.0181e-04 - mean_absolute_error: 0.0120 - mean_squared_error327/500
[=====>.....] - ETA: 0s - loss: 2.9795e-04 - mean_absolute_error:
0.0120 - mean_squared_error352/500 [=====>.....] - ETA: 0s -
loss: 2.9833e-04 - mean_absolute_error: 0.0120 - mean_squared_error377/500
[=====>.....] - ETA: 0s - loss: 2.9482e-04 - mean_absolute_error:
0.0119 - mean_squared_error402/500 [=====>.....] - ETA: 0s -

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loss: 2.9708e-04 - mean_absolute_error: 0.0119 - mean_squared_error427/500
[=====>.....] - ETA: 0s - loss: 2.9856e-04 -
mean_absolute_error: 0.0119 - mean_squared_error452/500
[=====>...] - ETA: 0s - loss: 2.9853e-04 -
mean_absolute_error: 0.0119 - mean_squared_error476/500
[=====>..] - ETA: 0s - loss: 2.9636e-04 -
mean_absolute_error: 0.0119 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.9623e-04 -
mean_absolute_error: 0.0119 - mean_squared_error: 2.9623e-04 -
root_mean_squared_error: 0.0172 - val_loss: 1.3944e-04 - val_mean_absolute_error:
0.0091 - val_mean_squared_error: 1.3944e-04 - val_root_mean_squared_error: 0.0118
Epoch 17/50
1/500 [.....] - ETA: 1s - loss: 2.1772e-04 - mean_absolute_error: 0.0110 -
mean_squared_error 24/500 [>.....] - ETA: 1s - loss: 3.1509e-04 -
mean_absolute_error: 0.0123 - mean_squared_error 49/500 [=.....] -
ETA: 0s - loss: 2.9939e-04 - mean_absolute_error: 0.0119 - mean_squared_error
74/500 [==>.....] - ETA: 0s - loss: 2.9796e-04 - mean_absolute_error:
0.0119 - mean_squared_error 99/500 [===>.....] - ETA: 0s - loss: 2.8440e-
04 - mean_absolute_error: 0.0117 - mean_squared_error122/500
[=====>.....] - ETA: 0s - loss: 2.8306e-04 - mean_absolute_error: 0.0117 -
mean_squared_error147/500 [=====>.....] - ETA: 0s - loss: 2.7662e-04 -
mean_absolute_error: 0.0116 - mean_squared_error173/500
[=====>.....] - ETA: 0s - loss: 2.7335e-04 - mean_absolute_error: 0.0115
- mean_squared_error197/500 [=====>.....] - ETA: 0s - loss: 2.7593e-04
- mean_absolute_error: 0.0116 - mean_squared_error222/500
[=====>.....] - ETA: 0s - loss: 2.8651e-04 - mean_absolute_error:
0.0117 - mean_squared_error246/500 [=====>.....] - ETA: 0s - loss:
2.8183e-04 - mean_absolute_error: 0.0117 - mean_squared_error272/500
[=====>.....] - ETA: 0s - loss: 2.7729e-04 - mean_absolute_error:
0.0116 - mean_squared_error297/500 [=====>.....] - ETA: 0s - loss:
2.7848e-04 - mean_absolute_error: 0.0116 - mean_squared_error321/500
[=====>.....] - ETA: 0s - loss: 2.8020e-04 - mean_absolute_error:
0.0117 - mean_squared_error346/500 [=====>.....] - ETA: 0s -
loss: 2.8017e-04 - mean_absolute_error: 0.0117 - mean_squared_error370/500
[=====>.....] - ETA: 0s - loss: 2.7880e-04 - mean_absolute_error:
0.0117 - mean_squared_error394/500 [=====>.....] - ETA: 0s -

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loss: 2.7883e-04 - mean_absolute_error: 0.0117 - mean_squared_error419/500
[=====>.....] - ETA: 0s - loss: 2.7792e-04 -
mean_absolute_error: 0.0117 - mean_squared_error441/500
[=====>.....] - ETA: 0s - loss: 2.8048e-04 -
mean_absolute_error: 0.0117 - mean_squared_error466/500
[=====>...] - ETA: 0s - loss: 2.8191e-04 -
mean_absolute_error: 0.0117 - mean_squared_error490/500
[=====>.] - ETA: 0s - loss: 2.8190e-04 -
mean_absolute_error: 0.0116 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.8363e-04 -
mean_absolute_error: 0.0117 - mean_squared_error: 2.8363e-04 -
root_mean_squared_error: 0.0168 - val_loss: 0.0018 - val_mean_absolute_error:
0.0412 - val_mean_squared_error: 0.0018 - val_root_mean_squared_error: 0.0424
Epoch 18/50
1/500 [.....] - ETA: 1s - loss: 0.0013 - mean_absolute_error: 0.0200 -
mean_squared_error: 0. 25/500 [>.....] - ETA: 1s - loss: 3.2385e-04 -
mean_absolute_error: 0.0124 - mean_squared_error 48/500 [=>.....] -
ETA: 0s - loss: 3.1079e-04 - mean_absolute_error: 0.0121 - mean_squared_error
71/500 [==>.....] - ETA: 0s - loss: 3.1130e-04 - mean_absolute_error:
0.0121 - mean_squared_error 96/500 [====>.....] - ETA: 0s - loss: 3.1973e-
04 - mean_absolute_error: 0.0121 - mean_squared_error121/500
[=====>.....] - ETA: 0s - loss: 3.1150e-04 - mean_absolute_error: 0.0119 -
mean_squared_error145/500 [=====>.....] - ETA: 0s - loss: 3.0202e-04 -
mean_absolute_error: 0.0118 - mean_squared_error169/500
[=====>.....] - ETA: 0s - loss: 3.0046e-04 - mean_absolute_error: 0.0118
- mean_squared_error191/500 [=====>.....] - ETA: 0s - loss: 3.0087e-04
- mean_absolute_error: 0.0118 - mean_squared_error217/500
[=====>.....] - ETA: 0s - loss: 2.9598e-04 - mean_absolute_error:
0.0117 - mean_squared_error243/500 [=====>.....] - ETA: 0s - loss:
2.9327e-04 - mean_absolute_error: 0.0116 - mean_squared_error268/500
[=====>.....] - ETA: 0s - loss: 2.8584e-04 - mean_absolute_error:
0.0115 - mean_squared_error294/500 [=====>.....] - ETA: 0s - loss:
2.8829e-04 - mean_absolute_error: 0.0115 - mean_squared_error318/500
[=====>.....] - ETA: 0s - loss: 2.8556e-04 - mean_absolute_error:
0.0114 - mean_squared_error343/500 [=====>.....] - ETA: 0s -
loss: 2.8935e-04 - mean_absolute_error: 0.0115 - mean_squared_error368/500

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[=====>.....] - ETA: 0s - loss: 2.8501e-04 - mean_absolute_error:
0.0115 - mean_squared_error395/500 [=====>.....] - ETA: 0s -
loss: 2.8277e-04 - mean_absolute_error: 0.0114 - mean_squared_error420/500
[=====>.....] - ETA: 0s - loss: 2.8165e-04 -
mean_absolute_error: 0.0114 - mean_squared_error446/500
[=====>....] - ETA: 0s - loss: 2.7905e-04 -
mean_absolute_error: 0.0114 - mean_squared_error471/500
[=====>..] - ETA: 0s - loss: 2.7776e-04 -
mean_absolute_error: 0.0114 - mean_squared_error497/500
[=====>.] - ETA: 0s - loss: 2.7668e-04 -
mean_absolute_error: 0.0114 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.7648e-04 -
mean_absolute_error: 0.0114 - mean_squared_error: 2.7648e-04 -
root_mean_squared_error: 0.0166 - val_loss: 1.1163e-04 - val_mean_absolute_error:
0.0080 - val_mean_squared_error: 1.1163e-04 - val_root_mean_squared_error: 0.0106
Epoch 19/50
1/500 [.....] - ETA: 1s - loss: 2.0185e-04 - mean_absolute_error: 0.0106 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.7964e-04 -
mean_absolute_error: 0.0117 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 2.7953e-04 - mean_absolute_error: 0.0117 - mean_squared_error
74/500 [==>.....] - ETA: 0s - loss: 2.8407e-04 - mean_absolute_error:
0.0116 - mean_squared_error100/500 [=====>.....] - ETA: 0s - loss:
2.7439e-04 - mean_absolute_error: 0.0114 - mean_squared_error125/500
[=====>.....] - ETA: 0s - loss: 2.7110e-04 - mean_absolute_error: 0.0114 -
mean_squared_error145/500 [=====>.....] - ETA: 0s - loss: 2.6852e-04 -
mean_absolute_error: 0.0114 - mean_squared_error166/500 [=====>.....]
- ETA: 0s - loss: 2.7149e-04 - mean_absolute_error: 0.0114 -
mean_squared_error191/500 [=====>.....] - ETA: 0s - loss: 2.7000e-04 -
mean_absolute_error: 0.0113 - mean_squared_error218/500
[=====>.....] - ETA: 0s - loss: 2.6753e-04 - mean_absolute_error:
0.0113 - mean_squared_error245/500 [=====>.....] - ETA: 0s - loss:
2.7136e-04 - mean_absolute_error: 0.0114 - mean_squared_error270/500
[=====>.....] - ETA: 0s - loss: 2.6763e-04 - mean_absolute_error:
0.0113 - mean_squared_error297/500 [=====>.....] - ETA: 0s - loss:
2.6183e-04 - mean_absolute_error: 0.0112 - mean_squared_error323/500
[=====>.....] - ETA: 0s - loss: 2.6426e-04 - mean_absolute_error:

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0.0113 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
 loss: 2.6561e-04 - mean_absolute_error: 0.0113 - mean_squared_error374/500
 [=====>.....] - ETA: 0s - loss: 2.6789e-04 - mean_absolute_error:
 0.0113 - mean_squared_error400/500 [=====>.....] - ETA: 0s -
 loss: 2.6944e-04 - mean_absolute_error: 0.0113 - mean_squared_error424/500
 [=====>.....] - ETA: 0s - loss: 2.6772e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error449/500
 [=====>.....] - ETA: 0s - loss: 2.6519e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error476/500
 [=====>..] - ETA: 0s - loss: 2.6511e-04 -
 mean_absolute_error: 0.0112 - mean_squared_error500/500
 [=====] - 1s 2ms/step - loss: 2.6531e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error: 2.6531e-04 -
 root_mean_squared_error: 0.0163 - val_loss: 1.2743e-04 - val_mean_absolute_error:
 0.0086 - val_mean_squared_error: 1.2743e-04 - val_root_mean_squared_error: 0.0113
 Epoch 20/50
 1/500 [.....] - ETA: 1s - loss: 3.2582e-04 - mean_absolute_error: 0.0121 -
 mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.8691e-04 -
 mean_absolute_error: 0.0123 - mean_squared_error 51/500 [==>.....] -
 ETA: 0s - loss: 2.8223e-04 - mean_absolute_error: 0.0122 - mean_squared_error
 76/500 [==>.....] - ETA: 0s - loss: 2.8098e-04 - mean_absolute_error:
 0.0121 - mean_squared_error 99/500 [====>.....] - ETA: 0s - loss: 2.7649e-
 04 - mean_absolute_error: 0.0118 - mean_squared_error123/500
 [=====>.....] - ETA: 0s - loss: 2.7222e-04 - mean_absolute_error: 0.0117 -
 mean_squared_error148/500 [=====>.....] - ETA: 0s - loss: 2.7630e-04 -
 mean_absolute_error: 0.0117 - mean_squared_error172/500
 [=====>.....] - ETA: 0s - loss: 2.6994e-04 - mean_absolute_error: 0.0116
 - mean_squared_error195/500 [=====>.....] - ETA: 0s - loss: 2.6869e-04
 - mean_absolute_error: 0.0116 - mean_squared_error219/500
 [=====>.....] - ETA: 0s - loss: 2.7008e-04 - mean_absolute_error:
 0.0116 - mean_squared_error245/500 [=====>.....] - ETA: 0s - loss:
 2.7273e-04 - mean_absolute_error: 0.0116 - mean_squared_error270/500
 [=====>.....] - ETA: 0s - loss: 2.7007e-04 - mean_absolute_error:
 0.0116 - mean_squared_error296/500 [=====>.....] - ETA: 0s - loss:
 2.7030e-04 - mean_absolute_error: 0.0116 - mean_squared_error322/500
 [=====>.....] - ETA: 0s - loss: 2.6876e-04 - mean_absolute_error:

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0.0115 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
loss: 2.6817e-04 - mean_absolute_error: 0.0115 - mean_squared_error373/500
[=====>.....] - ETA: 0s - loss: 2.6632e-04 - mean_absolute_error:
0.0114 - mean_squared_error398/500 [=====>.....] - ETA: 0s -
loss: 2.7054e-04 - mean_absolute_error: 0.0115 - mean_squared_error423/500
[=====>.....] - ETA: 0s - loss: 2.7100e-04 -
mean_absolute_error: 0.0115 - mean_squared_error448/500
[=====>.....] - ETA: 0s - loss: 2.6880e-04 -
mean_absolute_error: 0.0114 - mean_squared_error473/500
[=====>..] - ETA: 0s - loss: 2.6753e-04 -
mean_absolute_error: 0.0114 - mean_squared_error498/500
[=====>.] - ETA: 0s - loss: 2.6559e-04 -
mean_absolute_error: 0.0113 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.6577e-04 -
mean_absolute_error: 0.0114 - mean_squared_error: 2.6577e-04 -
root_mean_squared_error: 0.0163 - val_loss: 1.5633e-04 - val_mean_absolute_error:
0.0100 - val_mean_squared_error: 1.5633e-04 - val_root_mean_squared_error: 0.0125
Epoch 21/50
1/500 [.....] - ETA: 1s - loss: 1.3896e-04 - mean_absolute_error: 0.0095 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.3870e-04 -
mean_absolute_error: 0.0108 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 2.8467e-04 - mean_absolute_error: 0.0116 - mean_squared_error
76/500 [==>.....] - ETA: 0s - loss: 2.9384e-04 - mean_absolute_error:
0.0118 - mean_squared_error101/500 [=====>.....] - ETA: 0s - loss:
2.7733e-04 - mean_absolute_error: 0.0116 - mean_squared_error125/500
[=====>.....] - ETA: 0s - loss: 2.6682e-04 - mean_absolute_error: 0.0114 -
mean_squared_error151/500 [=====>.....] - ETA: 0s - loss: 2.6712e-04 -
mean_absolute_error: 0.0113 - mean_squared_error176/500
[=====>.....] - ETA: 0s - loss: 2.6422e-04 - mean_absolute_error: 0.0113
- mean_squared_error200/500 [=====>.....] - ETA: 0s - loss: 2.6803e-
04 - mean_absolute_error: 0.0114 - mean_squared_error224/500
[=====>.....] - ETA: 0s - loss: 2.7166e-04 - mean_absolute_error:
0.0114 - mean_squared_error246/500 [=====>.....] - ETA: 0s - loss:
2.7441e-04 - mean_absolute_error: 0.0114 - mean_squared_error271/500
[=====>.....] - ETA: 0s - loss: 2.7724e-04 - mean_absolute_error:
0.0115 - mean_squared_error297/500 [=====>.....] - ETA: 0s - loss:

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2.7701e-04 - mean_absolute_error: 0.0114 - mean_squared_error323/500
 [=====>.....] - ETA: 0s - loss: 2.7432e-04 - mean_absolute_error:
 0.0114 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
 loss: 2.7333e-04 - mean_absolute_error: 0.0114 - mean_squared_error374/500
 [=====>.....] - ETA: 0s - loss: 2.7150e-04 - mean_absolute_error:
 0.0114 - mean_squared_error400/500 [=====>.....] - ETA: 0s -
 loss: 2.7242e-04 - mean_absolute_error: 0.0114 - mean_squared_error426/500
 [=====>.....] - ETA: 0s - loss: 2.7255e-04 -
 mean_absolute_error: 0.0114 - mean_squared_error451/500
 [=====>...] - ETA: 0s - loss: 2.6955e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error477/500
 [=====>..] - ETA: 0s - loss: 2.7143e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error500/500
 [=====] - 1s 2ms/step - loss: 2.7230e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error: 2.7230e-04 -
 root_mean_squared_error: 0.0165 - val_loss: 1.3803e-04 - val_mean_absolute_error:
 0.0093 - val_mean_squared_error: 1.3803e-04 - val_root_mean_squared_error: 0.0117
 Epoch 22/50
 1/500 [.....] - ETA: 1s - loss: 2.3221e-04 - mean_absolute_error: 0.0106 -
 mean_squared_error 25/500 [>.....] - ETA: 0s - loss: 2.8633e-04 -
 mean_absolute_error: 0.0113 - mean_squared_error 50/500 [==>.....] -
 ETA: 0s - loss: 2.6658e-04 - mean_absolute_error: 0.0111 - mean_squared_error
 75/500 [==>.....] - ETA: 0s - loss: 2.5982e-04 - mean_absolute_error:
 0.0110 - mean_squared_error 99/500 [====>.....] - ETA: 0s - loss: 2.6863e-
 04 - mean_absolute_error: 0.0113 - mean_squared_error124/500
 [=====>.....] - ETA: 0s - loss: 2.6214e-04 - mean_absolute_error: 0.0112 -
 mean_squared_error150/500 [=====>.....] - ETA: 0s - loss: 2.5498e-04 -
 mean_absolute_error: 0.0111 - mean_squared_error175/500
 [=====>.....] - ETA: 0s - loss: 2.6014e-04 - mean_absolute_error: 0.0111
 - mean_squared_error200/500 [=====>.....] - ETA: 0s - loss: 2.6092e-
 04 - mean_absolute_error: 0.0112 - mean_squared_error225/500
 [=====>.....] - ETA: 0s - loss: 2.5604e-04 - mean_absolute_error:
 0.0111 - mean_squared_error251/500 [=====>.....] - ETA: 0s - loss:
 2.5363e-04 - mean_absolute_error: 0.0111 - mean_squared_error276/500
 [=====>.....] - ETA: 0s - loss: 2.6047e-04 - mean_absolute_error:
 0.0112 - mean_squared_error302/500 [=====>.....] - ETA: 0s - loss:

2.5895e-04 - mean_absolute_error: 0.0111 - mean_squared_error328/500
 [=====>.....] - ETA: 0s - loss: 2.5850e-04 - mean_absolute_error:
 0.0111 - mean_squared_error353/500 [=====>.....] - ETA: 0s -
 loss: 2.5866e-04 - mean_absolute_error: 0.0111 - mean_squared_error377/500
 [=====>.....] - ETA: 0s - loss: 2.6187e-04 - mean_absolute_error:
 0.0112 - mean_squared_error402/500 [=====>.....] - ETA: 0s -
 loss: 2.6098e-04 - mean_absolute_error: 0.0111 - mean_squared_error427/500
 [=====>.....] - ETA: 0s - loss: 2.6296e-04 -
 mean_absolute_error: 0.0112 - mean_squared_error450/500
 [=====>...] - ETA: 0s - loss: 2.6217e-04 -
 mean_absolute_error: 0.0112 - mean_squared_error475/500
 [=====>..] - ETA: 0s - loss: 2.6255e-04 -
 mean_absolute_error: 0.0111 - mean_squared_error499/500
 [=====>.] - ETA: 0s - loss: 2.6497e-04 -
 mean_absolute_error: 0.0112 - mean_squared_error500/500
 [=====] - 1s 2ms/step - loss: 2.6488e-04 -
 mean_absolute_error: 0.0112 - mean_squared_error: 2.6488e-04 -
 root_mean_squared_error: 0.0163 - val_loss: 1.9388e-04 - val_mean_absolute_error:
 0.0112 - val_mean_squared_error: 1.9388e-04 - val_root_mean_squared_error: 0.0139
 Epoch 23/50
 1/500 [.....] - ETA: 0s - loss: 1.6013e-04 - mean_absolute_error: 0.0082 -
 mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.4709e-04 -
 mean_absolute_error: 0.0110 - mean_squared_error 51/500 [==>.....] -
 ETA: 0s - loss: 2.5725e-04 - mean_absolute_error: 0.0113 - mean_squared_error
 77/500 [==>.....] - ETA: 0s - loss: 2.4690e-04 - mean_absolute_error:
 0.0110 - mean_squared_error102/500 [====>.....] - ETA: 0s - loss:
 2.4929e-04 - mean_absolute_error: 0.0111 - mean_squared_error128/500
 [====>.....] - ETA: 0s - loss: 2.5231e-04 - mean_absolute_error: 0.0111 -
 mean_squared_error153/500 [====>.....] - ETA: 0s - loss: 2.5109e-04 -
 mean_absolute_error: 0.0111 - mean_squared_error178/500
 [====>.....] - ETA: 0s - loss: 2.5157e-04 - mean_absolute_error: 0.0111
 - mean_squared_error203/500 [====>.....] - ETA: 0s - loss: 2.4944e-
 04 - mean_absolute_error: 0.0111 - mean_squared_error227/500
 [====>.....] - ETA: 0s - loss: 2.4769e-04 - mean_absolute_error:
 0.0110 - mean_squared_error251/500 [====>.....] - ETA: 0s - loss:
 2.4433e-04 - mean_absolute_error: 0.0110 - mean_squared_error275/500

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[=====>.....] - ETA: 0s - loss: 2.4342e-04 - mean_absolute_error:
0.0109 - mean_squared_error301/500 [=====>.....] - ETA: 0s - loss:
2.4500e-04 - mean_absolute_error: 0.0110 - mean_squared_error325/500
[=====>.....] - ETA: 0s - loss: 2.4423e-04 - mean_absolute_error:
0.0109 - mean_squared_error350/500 [=====>.....] - ETA: 0s -
loss: 2.4399e-04 - mean_absolute_error: 0.0109 - mean_squared_error375/500
[=====>.....] - ETA: 0s - loss: 2.4404e-04 - mean_absolute_error:
0.0109 - mean_squared_error401/500 [=====>.....] - ETA: 0s -
loss: 2.4809e-04 - mean_absolute_error: 0.0110 - mean_squared_error425/500
[=====>.....] - ETA: 0s - loss: 2.4550e-04 -
mean_absolute_error: 0.0109 - mean_squared_error451/500
[=====>...] - ETA: 0s - loss: 2.4574e-04 -
mean_absolute_error: 0.0109 - mean_squared_error476/500
[=====>..] - ETA: 0s - loss: 2.5173e-04 -
mean_absolute_error: 0.0110 - mean_squared_error500/500
[=====] - ETA: 0s - loss: 2.5242e-04 -
mean_absolute_error: 0.0110 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.5242e-04 -
mean_absolute_error: 0.0110 - mean_squared_error: 2.5242e-04 -
root_mean_squared_error: 0.0159 - val_loss: 2.2078e-04 - val_mean_absolute_error:
0.0124 - val_mean_squared_error: 2.2078e-04 - val_root_mean_squared_error: 0.0149
Epoch 24/50
1/500 [.....] - ETA: 1s - loss: 2.2873e-04 - mean_absolute_error: 0.0116 -
mean_squared_error 25/500 [>.....] - ETA: 0s - loss: 2.6874e-04 -
mean_absolute_error: 0.0115 - mean_squared_error 50/500 [==>.....] -
ETA: 0s - loss: 2.5278e-04 - mean_absolute_error: 0.0112 - mean_squared_error
74/500 [==>.....] - ETA: 0s - loss: 2.7490e-04 - mean_absolute_error:
0.0115 - mean_squared_error 99/500 [=====>.....] - ETA: 0s - loss: 2.6707e-
04 - mean_absolute_error: 0.0113 - mean_squared_error124/500
[=====>.....] - ETA: 0s - loss: 2.7832e-04 - mean_absolute_error: 0.0114 -
mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 2.7891e-04 -
mean_absolute_error: 0.0114 - mean_squared_error174/500
[=====>.....] - ETA: 0s - loss: 2.7610e-04 - mean_absolute_error: 0.0114
- mean_squared_error198/500 [=====>.....] - ETA: 0s - loss: 2.7860e-04
- mean_absolute_error: 0.0115 - mean_squared_error223/500
[=====>.....] - ETA: 0s - loss: 2.7341e-04 - mean_absolute_error:

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0.0114 - mean_squared_error248/500 [=====>.....] - ETA: 0s - loss:
 2.6759e-04 - mean_absolute_error: 0.0113 - mean_squared_error273/500
 [=====>.....] - ETA: 0s - loss: 2.6907e-04 - mean_absolute_error:
 0.0113 - mean_squared_error299/500 [=====>.....] - ETA: 0s - loss:
 2.6978e-04 - mean_absolute_error: 0.0113 - mean_squared_error324/500
 [=====>.....] - ETA: 0s - loss: 2.6731e-04 - mean_absolute_error:
 0.0113 - mean_squared_error348/500 [=====>.....] - ETA: 0s -
 loss: 2.6507e-04 - mean_absolute_error: 0.0113 - mean_squared_error373/500
 [=====>.....] - ETA: 0s - loss: 2.6508e-04 - mean_absolute_error:
 0.0113 - mean_squared_error399/500 [=====>.....] - ETA: 0s -
 loss: 2.7807e-04 - mean_absolute_error: 0.0114 - mean_squared_error425/500
 [=====>.....] - ETA: 0s - loss: 2.8328e-04 -
 mean_absolute_error: 0.0115 - mean_squared_error450/500
 [=====>...] - ETA: 0s - loss: 2.8394e-04 -
 mean_absolute_error: 0.0115 - mean_squared_error475/500
 [=====>..] - ETA: 0s - loss: 2.8227e-04 -
 mean_absolute_error: 0.0115 - mean_squared_error500/500
 [=====>] - 1s 2ms/step - loss: 2.7962e-04 -
 mean_absolute_error: 0.0114 - mean_squared_error: 2.7962e-04 -
 root_mean_squared_error: 0.0167 - val_loss: 1.4302e-04 - val_mean_absolute_error:
 0.0095 - val_mean_squared_error: 1.4302e-04 - val_root_mean_squared_error: 0.0120
 Epoch 25/50
 1/500 [.....] - ETA: 1s - loss: 1.6150e-04 - mean_absolute_error: 0.0097 -
 mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.2671e-04 -
 mean_absolute_error: 0.0107 - mean_squared_error 49/500 [=>.....] -
 ETA: 0s - loss: 2.7283e-04 - mean_absolute_error: 0.0113 - mean_squared_error
 73/500 [==>.....] - ETA: 0s - loss: 2.5151e-04 - mean_absolute_error:
 0.0109 - mean_squared_error 98/500 [===>.....] - ETA: 0s - loss: 2.7022e-
 04 - mean_absolute_error: 0.0113 - mean_squared_error123/500
 [=====>.....] - ETA: 0s - loss: 2.6500e-04 - mean_absolute_error: 0.0112 -
 mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 2.6073e-04 -
 mean_absolute_error: 0.0112 - mean_squared_error174/500
 [=====>.....] - ETA: 0s - loss: 2.5596e-04 - mean_absolute_error: 0.0111
 - mean_squared_error199/500 [=====>.....] - ETA: 0s - loss: 2.5474e-04
 - mean_absolute_error: 0.0111 - mean_squared_error223/500
 [=====>.....] - ETA: 0s - loss: 2.5424e-04 - mean_absolute_error:

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0.0111 - mean_squared_error248/500 [=====>.....] - ETA: 0s - loss:
2.5024e-04 - mean_absolute_error: 0.0110 - mean_squared_error273/500
[=====>.....] - ETA: 0s - loss: 2.5201e-04 - mean_absolute_error:
0.0110 - mean_squared_error300/500 [=====>.....] - ETA: 0s - loss:
2.5440e-04 - mean_absolute_error: 0.0111 - mean_squared_error325/500
[=====>.....] - ETA: 0s - loss: 2.5742e-04 - mean_absolute_error:
0.0111 - mean_squared_error350/500 [=====>.....] - ETA: 0s -
loss: 2.5384e-04 - mean_absolute_error: 0.0110 - mean_squared_error375/500
[=====>.....] - ETA: 0s - loss: 2.5487e-04 - mean_absolute_error:
0.0111 - mean_squared_error397/500 [=====>.....] - ETA: 0s -
loss: 2.5429e-04 - mean_absolute_error: 0.0111 - mean_squared_error422/500
[=====>.....] - ETA: 0s - loss: 2.5348e-04 -
mean_absolute_error: 0.0110 - mean_squared_error447/500
[=====>.....] - ETA: 0s - loss: 2.5553e-04 -
mean_absolute_error: 0.0111 - mean_squared_error471/500
[=====>..] - ETA: 0s - loss: 2.5428e-04 -
mean_absolute_error: 0.0110 - mean_squared_error495/500
[=====>.] - ETA: 0s - loss: 2.5607e-04 -
mean_absolute_error: 0.0111 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.5609e-04 -
mean_absolute_error: 0.0111 - mean_squared_error: 2.5609e-04 -
root_mean_squared_error: 0.0160 - val_loss: 1.2314e-04 - val_mean_absolute_error:
0.0087 - val_mean_squared_error: 1.2314e-04 - val_root_mean_squared_error: 0.0111
Epoch 26/50
1/500 [.....] - ETA: 1s - loss: 2.7417e-04 - mean_absolute_error: 0.0123 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.5670e-04 -
mean_absolute_error: 0.0105 - mean_squared_error 52/500 [==>.....] -
ETA: 0s - loss: 2.8991e-04 - mean_absolute_error: 0.0113 - mean_squared_error
78/500 [==>.....] - ETA: 0s - loss: 2.7838e-04 - mean_absolute_error:
0.0114 - mean_squared_error103/500 [=====>.....] - ETA: 0s - loss:
2.6731e-04 - mean_absolute_error: 0.0113 - mean_squared_error128/500
[=====>.....] - ETA: 0s - loss: 2.5391e-04 - mean_absolute_error: 0.0111 -
mean_squared_error153/500 [=====>.....] - ETA: 0s - loss: 2.4848e-04 -
mean_absolute_error: 0.0110 - mean_squared_error178/500
[=====>.....] - ETA: 0s - loss: 2.4126e-04 - mean_absolute_error: 0.0108
- mean_squared_error201/500 [=====>.....] - ETA: 0s - loss: 2.4423e-

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04 - mean_absolute_error: 0.0109 - mean_squared_error226/500
[=====>.....] - ETA: 0s - loss: 2.4468e-04 - mean_absolute_error:
0.0109 - mean_squared_error251/500 [=====>.....] - ETA: 0s - loss:
2.4820e-04 - mean_absolute_error: 0.0110 - mean_squared_error276/500
[=====>.....] - ETA: 0s - loss: 2.4776e-04 - mean_absolute_error:
0.0109 - mean_squared_error301/500 [=====>.....] - ETA: 0s - loss:
2.4263e-04 - mean_absolute_error: 0.0109 - mean_squared_error326/500
[=====>.....] - ETA: 0s - loss: 2.4156e-04 - mean_absolute_error:
0.0108 - mean_squared_error349/500 [=====>.....] - ETA: 0s -
loss: 2.4212e-04 - mean_absolute_error: 0.0109 - mean_squared_error373/500
[=====>.....] - ETA: 0s - loss: 2.4490e-04 - mean_absolute_error:
0.0109 - mean_squared_error399/500 [=====>.....] - ETA: 0s -
loss: 2.4531e-04 - mean_absolute_error: 0.0110 - mean_squared_error423/500
[=====>.....] - ETA: 0s - loss: 2.4738e-04 -
mean_absolute_error: 0.0110 - mean_squared_error448/500
[=====>.....] - ETA: 0s - loss: 2.4605e-04 -
mean_absolute_error: 0.0110 - mean_squared_error472/500
[=====>..] - ETA: 0s - loss: 2.4567e-04 -
mean_absolute_error: 0.0109 - mean_squared_error497/500
[=====>.] - ETA: 0s - loss: 2.4480e-04 -
mean_absolute_error: 0.0109 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.4442e-04 -
mean_absolute_error: 0.0109 - mean_squared_error: 2.4442e-04 -
root_mean_squared_error: 0.0156 - val_loss: 3.8412e-04 - val_mean_absolute_error:
0.0169 - val_mean_squared_error: 3.8412e-04 - val_root_mean_squared_error: 0.0196
Epoch 27/50
1/500 [.....] - ETA: 1s - loss: 3.5342e-04 - mean_absolute_error: 0.0130 -
mean_squared_error 26/500 [>.....] - ETA: 0s - loss: 2.4357e-04 -
mean_absolute_error: 0.0108 - mean_squared_error 51/500 [==>.....] -
ETA: 0s - loss: 2.4635e-04 - mean_absolute_error: 0.0110 - mean_squared_error
75/500 [==>.....] - ETA: 0s - loss: 2.4640e-04 - mean_absolute_error:
0.0110 - mean_squared_error100/500 [=====>.....] - ETA: 0s - loss:
2.3916e-04 - mean_absolute_error: 0.0109 - mean_squared_error125/500
[=====>.....] - ETA: 0s - loss: 2.3837e-04 - mean_absolute_error: 0.0108 -
mean_squared_error149/500 [=====>.....] - ETA: 0s - loss: 2.4197e-04 -
mean_absolute_error: 0.0109 - mean_squared_error176/500

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[=====>.....] - ETA: 0s - loss: 2.3893e-04 - mean_absolute_error: 0.0108
- mean_squared_error201/500 [=====>.....] - ETA: 0s - loss: 2.4047e-
04 - mean_absolute_error: 0.0109 - mean_squared_error226/500
[=====>.....] - ETA: 0s - loss: 2.4295e-04 - mean_absolute_error:
0.0109 - mean_squared_error250/500 [=====>.....] - ETA: 0s - loss:
2.3755e-04 - mean_absolute_error: 0.0108 - mean_squared_error274/500
[=====>.....] - ETA: 0s - loss: 2.3555e-04 - mean_absolute_error:
0.0108 - mean_squared_error299/500 [=====>.....] - ETA: 0s - loss:
2.3815e-04 - mean_absolute_error: 0.0108 - mean_squared_error323/500
[=====>.....] - ETA: 0s - loss: 2.3541e-04 - mean_absolute_error:
0.0107 - mean_squared_error349/500 [=====>.....] - ETA: 0s -
loss: 2.3861e-04 - mean_absolute_error: 0.0108 - mean_squared_error374/500
[=====>.....] - ETA: 0s - loss: 2.4016e-04 - mean_absolute_error:
0.0108 - mean_squared_error398/500 [=====>.....] - ETA: 0s -
loss: 2.3949e-04 - mean_absolute_error: 0.0108 - mean_squared_error424/500
[=====>.....] - ETA: 0s - loss: 2.3759e-04 -
mean_absolute_error: 0.0108 - mean_squared_error448/500
[=====>.....] - ETA: 0s - loss: 2.3740e-04 -
mean_absolute_error: 0.0108 - mean_squared_error473/500
[=====>..] - ETA: 0s - loss: 2.3684e-04 -
mean_absolute_error: 0.0107 - mean_squared_error497/500
[=====>.] - ETA: 0s - loss: 2.3665e-04 -
mean_absolute_error: 0.0107 - mean_squared_error500/500
[=====] - 1s 2ms/step - loss: 2.3636e-04 -
mean_absolute_error: 0.0107 - mean_squared_error: 2.3636e-04 -
root_mean_squared_error: 0.0154 - val_loss: 1.2876e-04 - val_mean_absolute_error:
0.0088 - val_mean_squared_error: 1.2876e-04 - val_root_mean_squared_error: 0.0113
Epoch 28/50
1/500 [.....] - ETA: 1s - loss: 3.2187e-04 - mean_absolute_error: 0.0127 -
mean_squared_error 27/500 [>.....] - ETA: 0s - loss: 2.3648e-04 -
mean_absolute_error: 0.0105 - mean_squared_error 51/500 [==>.....] -
ETA: 0s - loss: 2.3999e-04 - mean_absolute_error: 0.0108 - mean_squared_error
74/500 [==>.....] - ETA: 0s - loss: 2.2742e-04 - mean_absolute_error:
0.0105 - mean_squared_error 99/500 [=====>.....] - ETA: 0s - loss: 2.2820e-
04 - mean_absolute_error: 0.0106 - mean_squared_error123/500
[=====>.....] - ETA: 0s - loss: 2.3376e-04 - mean_absolute_error: 0.0107 -

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mean_squared_error147/500 [=====>.....] - ETA: 0s - loss: 2.4027e-04 -
mean_absolute_error: 0.0108 - mean_squared_error172/500
[=====>.....] - ETA: 0s - loss: 2.4031e-04 - mean_absolute_error: 0.0108
- mean_squared_error195/500 [=====>.....] - ETA: 0s - loss: 2.4454e-04
- mean_absolute_error: 0.0108 - mean_squared_error221/500
[=====>.....] - ETA: 0s - loss: 2.4981e-04 - mean_absolute_error:
0.0108 - mean_squared_error247/500 [=====>.....] - ETA: 0s - loss:
2.5410e-04 - mean_absolute_error: 0.0109 - mean_squared_error271/500
[=====>.....] - ETA: 0s - loss: 2.5210e-04 - mean_absolute_error:
0.0109 - mean_squared_error296/500 [=====>.....] - ETA: 0s - loss:
2.5777e-04 - mean_absolute_error: 0.0110 - mean_squared_error321/500
[=====>.....] - ETA: 0s - loss: 2.5626e-04 - mean_absolute_error:
0.0110 - mean_squared_error347/500 [=====>.....] - ETA: 0s -
loss: 2.6356e-04 - mean_absolute_error: 0.0111 - mean_squared_error373/500
[=====>.....] - ETA: 0s - loss: 2.6790e-04 - mean_absolute_error:
0.0111 - mean_squared_error399/500 [=====>.....] - ETA: 0s -
loss: 2.6329e-04 - mean_absolute_error: 0.0110 - mean_squared_error424/500
[=====>.....] - ETA: 0s - loss: 2.5927e-04 -
mean_absolute_error: 0.0110 - mean_squared_error451/500
[=====>...] - ETA: 0s - loss: 2.5721e-04 -
mean_absolute_error: 0.0110 - mean_squared_error477/500
[=====>..] - ETA: 0s - loss: 2.5437e-04 -
mean_absolute_error: 0.0109 - mean_squared_error500/500
[=====>] - 1s 2ms/step - loss: 2.5117e-04 -
mean_absolute_error: 0.0109 - mean_squared_error: 2.5117e-04 -
root_mean_squared_error: 0.0158 - val_loss: 2.3207e-04 - val_mean_absolute_error:
0.0123 - val_mean_squared_error: 2.3207e-04 - val_root_mean_squared_error: 0.0152
Restoring model weights from the end of the best epoch.
Epoch 00028: early stopping
Used training time: 34.285064
Testing set: MSE 0.000144, RMSE: 0.011982, MAE: 0.009200

```