BIG_test

April 15, 2021

```python
[1]: import os
     os.environ['TF_CPP_MIN_LOG_LEVEL'] = '2'                    # Hide log

     import tensorflow as tf                                     # Data augmentation
     physical_devices = tf.config.list_physical_devices('GPU')
     tf.config.experimental.set_memory_growth(physical_devices[0], True)

     from tensorflow.keras import layers
     from tensorflow.keras.preprocessing.image import ImageDataGenerator

     import PIL                                                  # Read pictures
     from PIL import Image, ImageOps                             # Using ImageOps␣
      ↪for padding
     import numpy as np                                          # Handling picture␣
      ↪as matrix, randomize etc...

     import matplotlib.pyplot as plt                             # Optional, if you␣
      ↪would like to show results

     import sklearn
     from sklearn import neighbors
     from sklearn.metrics import confusion_matrix


     # Need to supervise
     from tensorflow import keras
     from keras.models import Sequential
     from keras.layers import Dense, Dropout, Flatten, Layer, AveragePooling2D, Input
     from keras.layers import Conv2D, MaxPooling2D, BatchNormalization, Activation
     from keras import backend as K

     from keras.optimizers import Adam
     from keras.callbacks import ModelCheckpoint, LearningRateScheduler
     from keras.callbacks import ReduceLROnPlateau
     from keras.preprocessing.image import ImageDataGenerator
     from keras.regularizers import l2
     from keras.models import Model
```

```python
median_ratio = 1.48
q3_x = 820
q3_y = 630
alpha = 0.2
lr = 1e-1
epochs = 100

def triplet_loss(model1, apn_list, alpha):
    y = data_augmentation(apn_list)
    x = model1(y, training = True)
    a = tf.linalg.normalize(x[0])[0]
    p = tf.linalg.normalize(x[1])[0]
    n = tf.linalg.normalize(x[2])[0]
    return tf.math.maximum(tf.math.square(tf.norm(a-p, ord='euclidean'))-tf.
 ↪math.square(tf.norm(a-n, ord='euclidean'))+alpha,0)

def grad(model1, apn_list, alpha):
    with tf.GradientTape() as tape:
        loss = triplet_loss(model1, apn_list, alpha)+sum(model1.losses)
    return loss,tape.gradient(loss,model1.trainable_variables)

def read_image(pic_list):
# Initalize az empty list which will contain the 3 picture as array.
    apn_list = []
# Read 3 picture
    for i in pic_list:
    # Read image and get dimensions
        img = PIL.Image.open(i).convert('RGB')              # Read image
        height = np.asarray(img).shape[0]                   # Get y max coord
        width = np.asarray(img).shape[1]                    # Get x max coord
        current_ratio = float(width/height)                 # Calculate ratio

    # Define initial new resolution (temporary)
        new_tb = height
        new_lr = width

    # Calculate new size with keeping the aspect ratio
        if current_ratio < median_ratio:
            new_lr = int(median_ratio*height)
        elif current_ratio > median_ratio:
            new_tb = int(width/median_ratio)

    # Padding new image to the middle of the picture
```

```python
        new_img = PIL.ImageOps.pad(img, (new_lr,new_tb), color=None,
 ↪centering=(0.5, 0.5))

    # Using Quantile 3 to resize images with keeping the aspect ratio
        new_height = int(q3_x * new_tb / new_lr)
        new_width  = int(q3_y * new_lr / new_tb)
        new_img = new_img.resize((new_width, new_height), Image.ANTIALIAS)

    # Padding the new image again to keep the q3_x and q3_y
        new_img = np.asarray(PIL.ImageOps.pad(new_img, (q3_x,q3_y), color=None,
 ↪centering=(0.5, 0.5)))/255
        apn_list.append(new_img)

    #print(np.asarray(apn_list).shape)                    # Check dimensions
 ↪if necessary
    return np.asarray(apn_list)

# RESNET V1
# depth = 6*n+2

# RESNET V2
depth = 20

data_augmentation = tf.keras.Sequential([
  layers.experimental.preprocessing.RandomZoom((-0.05, 0.2),(-0.05, 0.
 ↪2),fill_mode='nearest'),
  layers.experimental.preprocessing.RandomFlip("horizontal_and_vertical"),
  layers.experimental.preprocessing.RandomRotation(0.02, 'nearest'),
  layers.experimental.preprocessing.RandomContrast(0.7),
])


# Input data
# szazxszep_L="/home/wildhorse_project/detectron_pic/szazxszep_L.csv"          ↪
 ↪                # Examined horse   [take 2 horse]
# thetisz_L="/home/wildhorse_project/detectron_pic/thetisz_L.csv"              ↪
 ↪          # Different horse [take 1 horse]
# panka_L="/home/wildhorse_project/detectron_pic/panka_L.csv"

szazxszep="/home/wildhorse_project/detectron_pic/FINAL_TEST/szazxszep_train.
 ↪csv"                          # Examined horse   [take 2 horse]
thetisz="/home/wildhorse_project/detectron_pic/FINAL_TEST/thetisz_train.csv"  ↪
 ↪                 # Different horse [take 1 horse]
panka="/home/wildhorse_project/detectron_pic/FINAL_TEST/panka_train.csv"
huba="/home/wildhorse_project/detectron_pic/FINAL_TEST/huba_train.csv"
lilla="/home/wildhorse_project/detectron_pic/FINAL_TEST/lilla_train.csv"
lantos="/home/wildhorse_project/detectron_pic/FINAL_TEST/lantos_train.csv"
```

```
szazxszep_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
↪plus_val_szazxszep.csv"                              # Examined horse  [take 2␣
↪horse]
thetisz_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
↪plus_val_thetisz.csv"                        # Different horse [take 1 horse]
panka_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/plus_val_panka.
↪csv"
huba_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/plus_val_huba.
↪csv"
lilla_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/plus_val_lilla.
↪csv"
lantos_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
↪plus_val_lantos.csv"

szazxszep_plus_val_crop="/home/wildhorse_project/detectron_pic/szazxszep_plus/
↪plus_val_szazxszep_crop.csv"                              # Examined horse  [take␣
↪2 horse]
thetisz_plus_val_crop="/home/wildhorse_project/detectron_pic/thetisz_plus/
↪plus_val_thetisz_crop.csv"                        # Different horse [take 1␣
↪horse]
panka_plus_val_crop="/home/wildhorse_project/detectron_pic/panka_plus/
↪plus_val_panka_crop.csv"
huba_plus_val_crop="/home/wildhorse_project/detectron_pic/huba_plus/
↪plus_val_huba_crop.csv"
lilla_plus_val_crop="/home/wildhorse_project/detectron_pic/lilla_plus/
↪plus_val_lilla_crop.csv"
lantos_plus_val_crop="/home/wildhorse_project/detectron_pic/lantos_plus/
↪plus_val_lantos_crop.csv"

horses = [szazxszep,thetisz,panka,huba,lilla,lantos]

# Generate a big numpy array from the '.csv' file
my_data = np.empty(shape=(0,3))
for i in horses:
    my_data = np.concatenate((my_data,np.genfromtxt(i, dtype=str,␣
↪delimiter=',')),axis = 0)

# Validaton dataset
# szazxszep_R="/home/wildhorse_project/detectron_pic/szazxszep_R.csv"           ␣
↪               # Examined horse  [take 2 horse]
# thetisz_R="/home/wildhorse_project/detectron_pic/thetisz_R.csv"              ␣
↪        # Different horse [take 1 horse]
# panka_R="/home/wildhorse_project/detectron_pic/panka_R.csv"
```

```python
szazxszep_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/szazxszep_val.
 ↪csv"                           # Examined horse   [take 2 horse]
thetisz_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/thetisz_val.csv" ␣
 ↪                         # Different horse [take 1 horse]
panka_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/panka_val.csv"
huba_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/huba_val.csv"
lilla_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/lilla_val.csv"
lantos_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/lantos_val.csv"

val_horses = [szazxszep_val,thetisz_val,panka_val,huba_val,lilla_val,lantos_val]

# Generate a big numpy array from the '.csv' file
val_data = np.empty(shape=(0,3))
for i in val_horses:
    val_data = np.concatenate((val_data,np.genfromtxt(i, dtype=str,␣
 ↪delimiter=',')),axis = 0)

val_plus_horses =␣
 ↪[szazxszep_plus_val,thetisz_plus_val,panka_plus_val,huba_plus_val,lilla_plus_val,lantos_plu

# Generate a big numpy array from the '.csv' file
val_plus_data = np.empty(shape=(0,3))
for i in val_plus_horses:
    val_plus_data = np.concatenate((val_plus_data,np.genfromtxt(i, dtype=str,␣
 ↪delimiter=',')),axis = 0)

val_plus_horses_crop =␣
 ↪[szazxszep_plus_val_crop,thetisz_plus_val_crop,panka_plus_val_crop,huba_plus_val_crop,lilla

# Generate a big numpy array from the '.csv' file
val_plus_data_crop = np.empty(shape=(0,3))
for i in val_plus_horses_crop:
    val_plus_data_crop = np.concatenate((val_plus_data_crop,np.genfromtxt(i,␣
 ↪dtype=str, delimiter=',')),axis = 0)

resnet1 = tf.keras.applications.ResNet50V2(input_shape =␣
 ↪(q3_y,q3_x,3),include_top=False, classes = 16, weights='imagenet')
#resnet1 = tf.keras.applications.ResNet101V2(input_shape =␣
 ↪(q3_y,q3_x,3),include_top=False, classes = 16, weights='imagenet')

y = tf.keras.layers.GlobalAveragePooling2D()(resnet1.output)
outputs = Dense(16,
                activation='softmax',
                kernel_initializer='he_normal',
                kernel_regularizer='l2')(y)
```

```python
model1 = Model(inputs=resnet1.input, outputs=outputs)
optimizer = tf.keras.optimizers.SGD(learning_rate=lr)

train_images = read_image(my_data[:,0])
train_classes = np.array(my_data[:,1].astype(int))

val_images = read_image(val_data[:,0])
val_classes = np.array(val_data[:,1].astype(int))

val_plus_images = read_image(val_plus_data[:,0])
val_plus_classes = np.array(val_plus_data[:,1].astype(int))

val_plus_images_crop = read_image(val_plus_data_crop[:,0])
val_plus_classes_crop = np.array(val_plus_data_crop[:,1].astype(int))

for i in range(epochs):
    if i%10 == 9:
        lr *=0.5
        optimizer.learning_rate=lr
    if i%2 == 1:
        train_pred = model1.predict(train_images, batch_size = 1)
        train_pred = tf.linalg.normalize(train_pred, axis = 1)[0]

        val_pred = model1.predict(val_images, batch_size = 1)
        val_pred = tf.linalg.normalize(val_pred, axis = 1)[0]

        val_plus_pred = model1.predict(val_plus_images, batch_size = 1)
        val_plus_pred = tf.linalg.normalize(val_plus_pred, axis = 1)[0]

        val_plus_pred_crop = model1.predict(val_plus_images_crop, batch_size =␣
 ↪1)
        val_plus_pred_crop = tf.linalg.normalize(val_plus_pred_crop, axis =␣
 ↪1)[0]

        n_neighbors = 5
        clf = neighbors.KNeighborsClassifier(n_neighbors)
        clf.fit(train_pred,train_classes)
        val_res = clf.predict(val_pred)
        val_plus_res = clf.predict(val_plus_pred)
        val_plus_res_crop = clf.predict(val_plus_pred_crop)

        accuracy = sum(val_res == val_classes)/val_data.shape[0]
        plus_accuracy = sum(val_plus_res == val_plus_classes)/val_plus_data.
 ↪shape[0]
        plus_accuracy_crop = sum(val_plus_res_crop == val_plus_classes_crop)/
 ↪val_plus_data_crop.shape[0]
```

```python
        print(accuracy)
        print("EPOCH CONF_MATRIX VAL_RES")
        print(confusion_matrix(val_res, val_classes))
        print(val_res)

        print("#########################")

        print(plus_accuracy)
        print("EPOCH CONF_MATRIX VAL_PLUS_RES")
        print(confusion_matrix(val_plus_res, val_plus_classes))
        print(val_plus_res)

        print("#########################")

        print(plus_accuracy_crop)
        print("EPOCH CONF_MATRIX VAL_PLUS_RES_CROP")
        print(confusion_matrix(val_plus_res_crop, val_plus_classes_crop))
        print(val_plus_res_crop)

    mean_loss = 0
    indexing_counter = 0
    zero_counter = 0
    for j in np.random.permutation( range(len(my_data)) ):
        indexing_counter+=1
        p = np.random.choice(np.where( (my_data[:,1] == my_data[j,1]))[0],1)[0]
        if p == j:
            p = np.random.choice(np.where( (my_data[:,1] ==
my_data[j,1]))[0],1)[0]
        n = np.random.choice(np.where(my_data[:,1] != my_data[j,1])[0],1)[0]
                        # Get random id from another class
        apn_list = np.stack((train_images[j],train_images[p],train_images[n]),
axis = 0)
        # print(model1.layers[1].weights[0][0][0])
        loss,grad_m1 = grad(model1,apn_list,alpha)
        mean_loss = (mean_loss + loss)/(j+1)
        optimizer.apply_gradients(zip(grad_m1, model1.trainable_variables))
        if loss == 0:
            zero_counter += 1

    if zero_counter == len(my_data):
        print("Too many zeros")
        break
    print("Epoch: " + str(i) + "      "  + "Percentage of zeroes: " +
str(zero_counter/len(my_data)) + "    mean_loss: "
        + str(float(mean_loss)) + "      "  +   "step: " +
str(indexing_counter))
```

```
model1.save("/home/dkatona/big_test_lin.h5")
```

Epoch: 0   loss: 0.528050422668457   mean_loss: 0.0009566131047904491
step: 1
Epoch: 0   loss: 0.6367892622947693   mean_loss: 0.0007825102657079697
step: 2
Epoch: 0   loss: 0.4772835969924927   mean_loss: 0.0005463612615130842
step: 3
Epoch: 0   loss: 0.6859185099601746   mean_loss: 0.0007747909985482693
step: 4
Epoch: 0   loss: 0.9513713121414185   mean_loss: 0.0005043146666139364
step: 5
Epoch: 0   loss: 0.31760796904563904   mean_loss: 0.0001401993358740583
step: 6
Epoch: 0   loss: 0.6318199634552002   mean_loss: 0.0005873235641047359
step: 7
Epoch: 0   loss: 1.034899353981018   mean_loss: 0.0003845104656647891
step: 8
Epoch: 0   loss: 0.49794086813926697   mean_loss: 0.0004333264078013599
step: 9
Epoch: 0   loss: 0.3136558532714844   mean_loss: 0.00011825646652141586
step: 10
Epoch: 0   loss: 0.3124024569988251   mean_loss: 0.00016938791668508202
step: 11
Epoch: 0   loss: 0.3111540973186493   mean_loss: 0.00014960282715037465
step: 12
Epoch: 0   loss: 1.8447284698486328   mean_loss: 0.0007728856871835887
step: 13
Epoch: 0   loss: 0.7008242011070251   mean_loss: 0.002542018424719572
step: 14
Epoch: 0   loss: 0.3807889521121979   mean_loss: 0.0002684390638023615
step: 15
Epoch: 0   loss: 1.3419119119644165   mean_loss: 0.0008468015003018081
step: 16
Epoch: 0   loss: 0.4821522533893585   mean_loss: 0.0007654501823708415
step: 17
Epoch: 0   loss: 0.8036373853683472   mean_loss: 0.001235641771927476
step: 18
Epoch: 0   loss: 0.30181884765625   mean_loss: 0.00015589222311973572
step: 19
Epoch: 0   loss: 0.5604021549224854   mean_loss: 0.00028909643879160285
step: 20
Epoch: 0   loss: 0.30014950037002563   mean_loss: 0.0004925222601741552
step: 21
Epoch: 0   loss: 0.5242429375648499   mean_loss: 0.0003130879777017981
step: 22
Epoch: 0   loss: 1.6049883365631104   mean_loss: 0.0031414900440722704
step: 23

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Epoch: 0      loss: 0.2959918975830078    mean_loss: 0.00013474476872943342
step: 24
Epoch: 0      loss: 0.7245693206787109    mean_loss: 0.003735588165000081
step: 25
Epoch: 0      loss: 0.29341208934783936    mean_loss: 0.0045715030282735825
step: 26
Epoch: 0      loss: 0.29223960638046265    mean_loss: 0.00018965566414408386
step: 27
Epoch: 0      loss: 0.3243260383605957    mean_loss: 0.00035977349034510553
step: 28
Epoch: 0      loss: 0.2903403043746948    mean_loss: 0.00010609492164803669
step: 29
Epoch: 0      loss: 1.153014898300171    mean_loss: 0.00048819687799550593
step: 30
Epoch: 0      loss: 0.28695806860923767    mean_loss: 0.00011072659981437027
step: 31
Epoch: 0      loss: 0.2858113944530487    mean_loss: 0.00028939484036527574
step: 32
Epoch: 0      loss: 0.4911218285560608    mean_loss: 0.00023125232837628573
step: 33
Epoch: 0      loss: 0.45739832520484924    mean_loss: 0.0001837869785958901
step: 34
Epoch: 0      loss: 0.2824895977973938    mean_loss: 0.004711223300546408
step: 35
Epoch: 0      loss: 0.6839654445648193    mean_loss: 0.00032638703123666346
step: 36
Epoch: 0      loss: 0.46613290905952454    mean_loss: 0.00020786956883966923
step: 37
Epoch: 0      loss: 0.573931097984314    mean_loss: 0.0017611624207347631
step: 38
Epoch: 0      loss: 0.6346756219863892    mean_loss: 0.004028080962598324
step: 39
Epoch: 0      loss: 0.3634174168109894    mean_loss: 0.000406916398787871
step: 40
Epoch: 0      loss: 0.36907851696014404    mean_loss: 0.0001789275702321902
step: 41
Epoch: 0      loss: 0.4794326424598694    mean_loss: 0.00021584679780062288
step: 42
Epoch: 0      loss: 0.6729855537414551    mean_loss: 0.0002623543841764331
step: 43
Epoch: 0      loss: 0.3094780445098877    mean_loss: 0.007554643787443638
step: 44
Epoch: 0      loss: 0.3062703609466553    mean_loss: 0.00017512556223664433
step: 45
Epoch: 0      loss: 1.685485601425171    mean_loss: 0.001337826019152999
step: 46
Epoch: 0      loss: 0.26957494020462036    mean_loss: 0.00011960828851442784
step: 47
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Epoch: 0       loss: 0.428030788898468    mean_loss: 0.0002559177519287914
step: 48
Epoch: 0       loss: 0.5602526068687439   mean_loss: 0.00019826974312309176
step: 49
Epoch: 0       loss: 0.2663249671459198   mean_loss: 9.9337768915575e-05
step: 50
Epoch: 0       loss: 0.2652607262134552   mean_loss: 0.00036152597749605775
step: 51
Epoch: 0       loss: 0.26420074701309204  mean_loss: 0.00010860520706046373
step: 52
Epoch: 0       loss: 0.26314499974250793  mean_loss: 0.00022792519303038716
step: 53
Epoch: 0       loss: 0.2620934844017029   mean_loss: 0.00011234321573283523
step: 54
Epoch: 0       loss: 0.36780399084091187  mean_loss: 0.00024960402515716685
step: 55
Epoch: 0       loss: 0.2975534200668335   mean_loss: 0.00011719913891283795
step: 56
Epoch: 0       loss: 1.1120611429214478   mean_loss: 0.00040107403765432537
step: 57
Epoch: 0       loss: 0.9886716604232788   mean_loss: 0.0003670028818305582
step: 58
Epoch: 0       loss: 0.35886964201927185  mean_loss: 0.0008614787948317826
step: 59
Epoch: 0       loss: 0.2720007300376892   mean_loss: 0.00011141780123580247
step: 60
Epoch: 0       loss: 0.8831523656845093   mean_loss: 0.00033355882624164224
step: 61
Epoch: 0       loss: 0.7258273363113403   mean_loss: 0.0048410724848508835
step: 62
Epoch: 0       loss: 0.49628588557243347  mean_loss: 0.0004644364526029676
step: 63
Epoch: 0       loss: 0.6026071310043335   mean_loss: 0.0006368231843225658
step: 64
Epoch: 0       loss: 0.7708630561828613   mean_loss: 0.0007497569313272834
step: 65
Epoch: 0       loss: 0.5911998748779297   mean_loss: 0.00025951321003958583
step: 66
Epoch: 0       loss: 0.7153217792510986   mean_loss: 0.00581773417070508
step: 67
Epoch: 0       loss: 0.47124284505844116  mean_loss: 0.0003949177043978125
step: 68
Epoch: 0       loss: 0.4275202751159668   mean_loss: 0.0006513168918900192
step: 69
Epoch: 0       loss: 0.4446232318878174   mean_loss: 0.00022375605476554483
step: 70
Epoch: 0       loss: 0.4086395502090454   mean_loss: 0.00020022688840981573
step: 71
```

```
Epoch: 0        loss: 0.24326789379119873    mean_loss: 0.00013739736459683627
step: 72
Epoch: 0        loss: 0.4783112406730652    mean_loss: 0.0005877747316844761
step: 73
Epoch: 0        loss: 0.3415382504463196    mean_loss: 0.0004347217327449471
step: 74
Epoch: 0        loss: 0.2961641550064087    mean_loss: 0.00014726855442859232
step: 75
Epoch: 0        loss: 0.8765174150466919    mean_loss: 0.00035478133941069245
step: 76
Epoch: 0        loss: 0.3270738422870636    mean_loss: 0.00030289418646134436
step: 77
Epoch: 0        loss: 0.7416493892669678    mean_loss: 0.00040856405394151807
step: 78
Epoch: 0        loss: 0.2850024104118347    mean_loss: 0.0002809163124766201
step: 79
Epoch: 0        loss: 0.23575632274150848    mean_loss: 9.456620318815112e-05
step: 80
Epoch: 0        loss: 0.9772132635116577    mean_loss: 0.0022675355430692434
step: 81
Epoch: 0        loss: 0.7387193441390991    mean_loss: 0.10585527122020721
step: 82
Epoch: 0        loss: 0.3823954463005066    mean_loss: 0.00024522890453226864
step: 83
Epoch: 0        loss: 0.2314552217721939    mean_loss: 9.260609658667818e-05
step: 84
Epoch: 0        loss: 0.2904440462589264    mean_loss: 0.00016176873759832233
step: 85
Epoch: 0        loss: 1.0487433671951294    mean_loss: 0.0003890597727149725
step: 86
Epoch: 0        loss: 0.427246630191803    mean_loss: 0.0001499423960922286
step: 87
Epoch: 0        loss: 0.5318015813827515    mean_loss: 0.00021694597671739757
step: 88
Epoch: 0        loss: 0.4383768141269684    mean_loss: 0.00020128212054260075
step: 89
Epoch: 0        loss: 0.3813679814338684    mean_loss: 0.0004829990793950856
step: 90
Epoch: 0        loss: 0.3872804045677185    mean_loss: 0.000923246203456074
step: 91
Epoch: 0        loss: 0.8836420774459839    mean_loss: 0.0009635788155719638
step: 92
Epoch: 0        loss: 0.2232305109500885    mean_loss: 0.0001803653285605833
step: 93
Epoch: 0        loss: 0.47724097967147827    mean_loss: 0.00021228160767350346
step: 94
Epoch: 0        loss: 0.3973690867424011    mean_loss: 0.001126292860135436
step: 95
```

```
Epoch: 0        loss: 0.4229910969734192      mean_loss: 0.00018391908088233322
step: 96
Epoch: 0        loss: 0.35698530077934265     mean_loss: 0.000771423801779747
step: 97
Epoch: 0        loss: 0.3786032199859619      mean_loss: 0.00016959081403911114
step: 98
Epoch: 0        loss: 0.2470082938671112      mean_loss: 0.0006337894592434168
step: 99
Epoch: 0        loss: 0.52402263879776        mean_loss: 0.0002881144464481622
step: 100
Epoch: 0        loss: 0.483537495136261       mean_loss: 0.001343960058875382
step: 101
Epoch: 0        loss: 0.6795958876609802      mean_loss: 0.00029099994571879506
step: 102
Epoch: 0        loss: 0.2146943211555481      mean_loss: 0.00016007843078114092
step: 103
Epoch: 0        loss: 0.30478137731552124     mean_loss: 0.00018492506933398545
step: 104
Epoch: 0        loss: 0.2132745385169983      mean_loss: 0.00010342027962906286
step: 105
Epoch: 0        loss: 0.7768764495849609      mean_loss: 0.0004504231037572026
step: 106
Epoch: 0        loss: 0.3728073239326477      mean_loss: 0.002006762195378542
step: 107
Epoch: 0        loss: 0.42116624116897583     mean_loss: 0.0004492282459978014
step: 108
Epoch: 0        loss: 0.20955809950828552     mean_loss: 0.0001361032627755776
step: 109
Epoch: 0        loss: 0.43887361884117126     mean_loss: 0.00029682874446734786
step: 110
Epoch: 0        loss: 0.2078101634979248      mean_loss: 0.00012071171659044921
step: 111
Epoch: 0        loss: 0.35734283924102783     mean_loss: 0.0003501111932564527
step: 112
Epoch: 0        loss: 0.35890236496925354     mean_loss: 0.001678749918937683
step: 113
Epoch: 0        loss: 0.3642888069152832      mean_loss: 0.00032018159981817007
step: 114
Epoch: 0        loss: 0.4326823949813843      mean_loss: 0.00048488532775081694
step: 115
Epoch: 0        loss: 0.20399340987205505     mean_loss: 0.00023887651332188398
step: 116
Epoch: 0        loss: 0.21159325540065765     mean_loss: 8.226490899687633e-05
step: 117
Epoch: 0        loss: 0.7811408638954163      mean_loss: 0.0005463098641484976
step: 118
Epoch: 0        loss: 0.3836996555328369      mean_loss: 0.00016274712106678635
step: 119
```

```
Epoch: 0        loss: 0.40852066687450409      mean_loss: 0.00014866620767861605
step: 120
Epoch: 0        loss: 0.20006605982780457      mean_loss: 0.00010515479516470805
step: 121
Epoch: 0        loss: 0.7028747797012329       mean_loss: 0.0002464002463966608
step: 122
Epoch: 0        loss: 0.3993189334869385       mean_loss: 0.00016021063493099064
step: 123
Epoch: 0        loss: 0.2057684063911438       mean_loss: 0.0002451531181577593
step: 124
Epoch: 0        loss: 0.19699111580848694      mean_loss: 0.00010353609832236543
step: 125
Epoch: 0        loss: 0.26570260524749756      mean_loss: 0.00010889231634791194
step: 126
Epoch: 0        loss: 0.19588115811347961      mean_loss: 0.00011603911116253585
step: 127
Epoch: 0        loss: 0.195098415017128        mean_loss: 6.893165846122429e-05
step: 128
Epoch: 0        loss: 0.3966827392578125       mean_loss: 0.0008080482366494834
step: 129
Epoch: 0        loss: 0.3773023784160614       mean_loss: 0.000760785595048219
step: 130
Epoch: 0        loss: 0.19283345341682434      mean_loss: 0.00016603278345428407
step: 131
Epoch: 0        loss: 0.37880071997642517      mean_loss: 0.00018714407633524388
step: 132
Epoch: 0        loss: 0.21532143652439117      mean_loss: 0.00015306007117033005
step: 133
Epoch: 0        loss: 0.6846225261688232       mean_loss: 0.000484282587422058
step: 134
Epoch: 0        loss: 0.19064605236053467      mean_loss: 0.00010636079241521657
step: 135
Epoch: 0        loss: 0.1898842602968216       mean_loss: 9.182727080769837e-05
step: 136
Epoch: 0        loss: 0.18912547826766968      mean_loss: 7.089445716701448e-05
step: 137
Epoch: 0        loss: 0.7050004005432129       mean_loss: 0.00047415687004104257
step: 138
Epoch: 0        loss: 0.18714286386966705      mean_loss: 0.009874579949668169
step: 139
Epoch: 0        loss: 0.30554407835006714      mean_loss: 0.0010990197770297527
step: 140
Epoch: 0        loss: 0.18595245480537415      mean_loss: 0.0006053445977158844
step: 141
Epoch: 0        loss: 0.41797441244125366      mean_loss: 0.00022158800857141614
step: 142
Epoch: 0        loss: 0.35295790433883667      mean_loss: 0.00013817663420923054
step: 143
```

```
Epoch: 0      loss: 0.36762672662734985    mean_loss: 0.0002848682343028486
step: 144
Epoch: 0      loss: 0.44847506284713745    mean_loss: 0.0001986542483791709
step: 145
Epoch: 0      loss: 0.18220408260822296    mean_loss: 9.764599963091314e-05
step: 146
Epoch: 0      loss: 0.34381991624832153    mean_loss: 0.00043043497134931386
step: 147
Epoch: 0      loss: 0.18078704178333282    mean_loss: 0.00010012015263782814
step: 148
Epoch: 0      loss: 0.42526543140411377    mean_loss: 0.00021847228344995528
step: 149
Epoch: 0      loss: 0.2124122828245163     mean_loss: 0.00034020919702015817
step: 150
Epoch: 0      loss: 0.7012479901313782     mean_loss: 0.0007972593302838504
step: 151
Epoch: 0      loss: 0.25969183444976807    mean_loss: 0.00010088656563311815
step: 152
Epoch: 0      loss: 0.1838555783033371     mean_loss: 0.00017289140669163316
step: 153
Epoch: 0      loss: 0.935328483581543      mean_loss: 0.00044505298137664795
step: 154
Epoch: 0      loss: 0.20068268477916718    mean_loss: 0.00019913636788260192
step: 155
Epoch: 0      loss: 0.37547188997268677    mean_loss: 0.000840427353978157
step: 156
Epoch: 0      loss: 0.17477065324783325    mean_loss: 0.00017756428860593587
step: 157
Epoch: 0      loss: 0.1740722954273224     mean_loss: 0.00010683621076168492
step: 158
Epoch: 0      loss: 0.6500164270401001     mean_loss: 0.00041199190309271216
step: 159
Epoch: 0      loss: 0.7104885578155518     mean_loss: 0.05924171209335327
step: 160
Epoch: 0      loss: 0.6028591394424438     mean_loss: 0.0002784276148304343
step: 161
Epoch: 0      loss: 0.28792738914489746    mean_loss: 0.000448220525868237
step: 162
Epoch: 0      loss: 0.28885364532470703    mean_loss: 0.00013691523054149002
step: 163
Epoch: 0      loss: 0.19524477422237396    mean_loss: 0.00010288661724189296
step: 164
Epoch: 0      loss: 0.5400817394256592     mean_loss: 0.0007440559566020966
step: 165
Epoch: 0      loss: 0.16768138110637665    mean_loss: 6.843780283816159e-05
step: 166
Epoch: 0      loss: 0.5462915301322937     mean_loss: 0.00048436166252940893
step: 167
```

```
Epoch: 0      loss: 0.16605032980442047    mean_loss: 0.0002470840991009027
step: 168
Epoch: 0      loss: 0.527753472328186     mean_loss: 0.0010232568020001054
step: 169
Epoch: 0      loss: 0.29971519112586975    mean_loss: 0.00016578746726736426
step: 170
Epoch: 0      loss: 0.2501770257949829     mean_loss: 0.0002205663622589782
step: 171
Epoch: 0      loss: 0.3325285315513611     mean_loss: 0.0019345878390595317
step: 172
Epoch: 0      loss: 0.6112871170043945     mean_loss: 0.0003147955285385251
step: 173
Epoch: 0      loss: 0.38496512174606323    mean_loss: 0.00015777228691149503
step: 174
Epoch: 0      loss: 0.4215765595436096     mean_loss: 0.00016467564273625612
step: 175
Epoch: 0      loss: 0.3663922846317291     mean_loss: 0.0009827264584600925
step: 176
Epoch: 0      loss: 0.2846001088619232     mean_loss: 0.0001443795918021351
step: 177
Epoch: 0      loss: 0.21317456662654877    mean_loss: 0.00011364887905074283
step: 178
Epoch: 0      loss: 0.591041088104248     mean_loss: 0.0003030009102076292
step: 179
Epoch: 0      loss: 0.26700538396835327    mean_loss: 0.0006130926194600761
step: 180
Epoch: 0      loss: 0.3115517497062683     mean_loss: 0.011148744262754917
step: 181
Epoch: 0      loss: 0.4777381122112274     mean_loss: 0.0002095528761856258
step: 182
Epoch: 0      loss: 0.4662497043609619     mean_loss: 0.0009799563558772206
step: 183
Epoch: 0      loss: 0.3446652293205261     mean_loss: 0.0006284458213485777
step: 184
Epoch: 0      loss: 0.4195387065410614     mean_loss: 0.0025777125265449286
step: 185
Epoch: 0      loss: 0.343735933303833     mean_loss: 0.00034875492565333843
step: 186
Epoch: 0      loss: 0.44560450315475464    mean_loss: 0.07432553917169571
step: 187
Epoch: 0      loss: 0.3735032379627228     mean_loss: 0.00027306631091050804
step: 188
Epoch: 0      loss: 0.3519965410232544     mean_loss: 0.0008192316745407879
step: 189
Epoch: 0      loss: 0.42056411504745483    mean_loss: 0.00019608346337918192
step: 190
Epoch: 0      loss: 0.2871922254562378     mean_loss: 0.00010538624337641522
step: 191
```

```
Epoch: 0        loss: 0.4386606812477112    mean_loss: 0.00021807457960676402
step: 192
Epoch: 0        loss: 0.3777735233306885    mean_loss: 0.0002014880592469126
step: 193
Epoch: 0        loss: 0.35084831714630127   mean_loss: 0.00021071417722851038
step: 194
Epoch: 0        loss: 0.3343953490257263    mean_loss: 0.0003582506033126265
step: 195
Epoch: 0        loss: 0.34312763810157776   mean_loss: 0.0004261611611582339
step: 196
Epoch: 0        loss: 0.43613797426223755   mean_loss: 0.00044276283006183803
step: 197
Epoch: 0        loss: 0.3750067353248596    mean_loss: 0.0006610026466660202
step: 198
Epoch: 0        loss: 0.36568254232406616   mean_loss: 0.0003398363187443465
step: 199
Epoch: 0        loss: 0.2878749668598175    mean_loss: 0.00011570245260372758
step: 200
Epoch: 0        loss: 0.27669385075569153   mean_loss: 0.00010161877435166389
step: 201
Epoch: 0        loss: 0.30171966552734375   mean_loss: 0.0001662927243160084
step: 202
Epoch: 0        loss: 0.32531261444091797   mean_loss: 0.0002932242350652814
step: 203
Epoch: 0        loss: 0.35408589243888855   mean_loss: 0.0002447369624860585
step: 204
Epoch: 0        loss: 0.17503835260868073   mean_loss: 0.0002288290997967124
step: 205
Epoch: 0        loss: 0.3526337742805481    mean_loss: 0.00015752794570289552
step: 206
Epoch: 0        loss: 0.24417248368263245   mean_loss: 0.00012699064973276109
step: 207
Epoch: 0        loss: 0.8893357515335083    mean_loss: 0.00042274847510270774
step: 208
Epoch: 0        loss: 0.29454505443573      mean_loss: 0.0005432188045233488
step: 209
Epoch: 0        loss: 0.5501765608787537    mean_loss: 0.00715220533311367
step: 210
Epoch: 0        loss: 0.1636773645877838    mean_loss: 0.00010551547893555835
step: 211
Epoch: 0        loss: 0.6296489238739014    mean_loss: 0.0005592845845967531
step: 212
Epoch: 0        loss: 0.49340465664863586   mean_loss: 0.003478619270026684
step: 213
Epoch: 0        loss: 0.2789559066295624    mean_loss: 0.00015391527267638594
step: 214
Epoch: 0        loss: 0.3108453154563904    mean_loss: 0.00013791541277896613
step: 215
```

```
Epoch: 0      loss: 0.3268488645553589      mean_loss: 0.0007139449589885771
step: 216
Epoch: 0      loss: 0.3349015712738037      mean_loss: 0.0002591625670902431
step: 217
Epoch: 0      loss: 0.23509162664413452     mean_loss: 0.00014718623424414545
step: 218
Epoch: 0      loss: 0.29396459460258484     mean_loss: 0.00011960625852225348
step: 219
Epoch: 0      loss: 0.3287909924983978      mean_loss: 0.0015588179230690002
step: 220
Epoch: 0      loss: 0.3020591735839844      mean_loss: 0.0011953463545069098
step: 221
Epoch: 0      loss: 0.28893572092056274     mean_loss: 0.00010989813017658889
step: 222
Epoch: 0      loss: 0.289656400680542       mean_loss: 0.00021527957869693637
step: 223
Epoch: 0      loss: 0.3332948684692383      mean_loss: 0.00014412711607292295
step: 224
Epoch: 0      loss: 0.24287015199661255     mean_loss: 0.0001964545517694205
step: 225
Epoch: 0      loss: 0.2496553659439087      mean_loss: 9.89904219750315e-05
step: 226
Epoch: 0      loss: 0.1321055293083191      mean_loss: 0.0002552210644353181
step: 227
Epoch: 0      loss: 0.13157764077186584     mean_loss: 4.932019146508537e-05
step: 228
Epoch: 0      loss: 0.13105185329914093     mean_loss: 0.00022145468392409384
step: 229
Epoch: 0      loss: 0.20600077509880066     mean_loss: 0.0001787021174095571
step: 230
Epoch: 0      loss: 0.4203639030456543      mean_loss: 0.00016916435561142862
step: 231
Epoch: 0      loss: 0.6143816113471985      mean_loss: 0.00023094730568118393
step: 232
Epoch: 0      loss: 0.3134359121322632      mean_loss: 0.00011087552411481738
step: 233
Epoch: 0      loss: 0.3431245982646942      mean_loss: 0.00012404606968630105
step: 234
Epoch: 0      loss: 0.1769925355911255      mean_loss: 0.00023805993259884417
step: 235
Epoch: 0      loss: 0.35015249252319336     mean_loss: 0.000134506932226941
step: 236
Epoch: 0      loss: 0.3772035837173462      mean_loss: 0.0002558224368840456
step: 237
Epoch: 0      loss: 0.12645603716373444     mean_loss: 5.629136285278946e-05
step: 238
Epoch: 0      loss: 0.3995130658149719      mean_loss: 0.003995693754404783
step: 239
```

```
Epoch: 0       loss: 0.48225274682044983    mean_loss: 0.0031370867509394884
step: 240
Epoch: 0       loss: 0.3346100449562073     mean_loss: 0.0002833449107129127
step: 241
Epoch: 0       loss: 0.12398490309715271    mean_loss: 4.958828867529519e-05
step: 242
Epoch: 0       loss: 0.12348946928977966    mean_loss: 7.692344661336392e-05
step: 243
Epoch: 0       loss: 0.1229960024356842     mean_loss: 7.834049756638706e-05
step: 244
Epoch: 0       loss: 0.20563901960849762    mean_loss: 0.00015170896949712187
step: 245
Epoch: 0       loss: 0.32530927658081055    mean_loss: 0.00014820627984590828
step: 246
Epoch: 0       loss: 0.4345608949661255     mean_loss: 0.00015575389261357486
step: 247
Epoch: 0       loss: 0.4181705713272095     mean_loss: 0.00024194696743506938
step: 248
Epoch: 0       loss: 0.13321536779403687    mean_loss: 0.00017066152940969914
step: 249
Epoch: 0       loss: 0.28633949160575867    mean_loss: 0.0005026493454352021
step: 250
Epoch: 0       loss: 0.5384729504585266     mean_loss: 0.007699651177972555
step: 251
Epoch: 0       loss: 0.21172873675823212    mean_loss: 0.00013536606275010854
step: 252
Epoch: 0       loss: 0.11887327581644058    mean_loss: 4.21269542130176e-05
step: 253
Epoch: 0       loss: 0.3261803090572357     mean_loss: 0.0017633646493777633
step: 254
Epoch: 0       loss: 0.31568777561187744    mean_loss: 0.0001210721384268254
step: 255
Epoch: 0       loss: 0.5060817003250122     mean_loss: 0.007129616104066372
step: 256
Epoch: 0       loss: 0.34977486729621887    mean_loss: 0.00013596360804513097
step: 257
Epoch: 0       loss: 0.21836262941360474    mean_loss: 0.00019936003081966192
step: 258
Epoch: 0       loss: 0.25908559560775757    mean_loss: 0.00016891527047846466
step: 259
Epoch: 0       loss: 0.22862887382507324    mean_loss: 0.0005635413690470159
step: 260
Epoch: 0       loss: 0.11515931040048599    mean_loss: 4.159699892625213e-05
step: 261
Epoch: 0       loss: 0.11469913274049759    mean_loss: 4.133311449550092e-05
step: 262
Epoch: 0       loss: 0.3240199089050293     mean_loss: 0.00013200051034800708
step: 263
```

```
Epoch: 0       loss: 0.13531430065631866     mean_loss: 0.000152701570186764
step: 264
Epoch: 0       loss: 0.11354976147413254     mean_loss: 6.527121877297759e-05
step: 265
Epoch: 0       loss: 0.5387074947357178      mean_loss: 0.001966323936358094
step: 266
Epoch: 0       loss: 0.5129172205924988      mean_loss: 0.00024127625511027873
step: 267
Epoch: 0       loss: 0.1392349898815155      mean_loss: 7.924788224045187e-05
step: 268
Epoch: 0       loss: 0.4797065258026123      mean_loss: 0.0008613748359493911
step: 269
Epoch: 0       loss: 0.2273906171321869      mean_loss: 0.00021331962489057332
step: 270
Epoch: 0       loss: 0.472343385219574       mean_loss: 0.00023675186093896627
step: 271
Epoch: 0       loss: 0.30340075492858887     mean_loss: 0.0002326724206795916
step: 272
Epoch: 0       loss: 0.2642192244529724      mean_loss: 0.00010776360431918874
step: 273
Epoch: 0       loss: 0.3473759889602661      mean_loss: 0.0006128461100161076
step: 274
Epoch: 0       loss: 0.256329208612442       mean_loss: 0.00037509790854528546
step: 275
Epoch: 0       loss: 0.2827155590057373      mean_loss: 0.018872709944844246
step: 276
Epoch: 0       loss: 0.11808861047029495     mean_loss: 4.8056605010060593e-05
step: 277
Epoch: 0       loss: 0.10767871886491776     mean_loss: 0.00013121409574523568
step: 278
Epoch: 0       loss: 0.5487842559814453      mean_loss: 0.00027432056958787143
step: 279
Epoch: 0       loss: 0.19916142523288727     mean_loss: 7.706172618782148e-05
step: 280
Epoch: 0       loss: 0.28957900404930115     mean_loss: 0.0002986144972965121
step: 281
Epoch: 0       loss: 0.49800074100494385     mean_loss: 0.003534038085490465
step: 282
Epoch: 0       loss: 0.3699686825275421      mean_loss: 0.0002814639883581549
step: 283
Epoch: 0       loss: 0.30263471603393555     mean_loss: 0.0009997233282774687
step: 284
Epoch: 0       loss: 0.3892877697944641      mean_loss: 0.0002559262211434543
step: 285
Epoch: 0       loss: 0.19238829612731934     mean_loss: 0.00015560923202428967
step: 286
Epoch: 0       loss: 0.4124656319618225      mean_loss: 0.00032160658156499267
step: 287
```

```
Epoch: 0      loss: 0.2981627583503723    mean_loss: 0.0005674607236869633
step: 288
Epoch: 0      loss: 0.30673298239707947    mean_loss: 0.00013407523510977626
step: 289
Epoch: 0      loss: 0.2981013059616089    mean_loss: 0.0002106182073475793
step: 290
Epoch: 0      loss: 0.32742494344711304    mean_loss: 0.00013691415369976312
step: 291
Epoch: 0      loss: 0.1687692105770111    mean_loss: 6.534085696330294e-05
step: 292
Epoch: 0      loss: 0.2504723072052002    mean_loss: 0.00016713651712052524
step: 293
Epoch: 0      loss: 0.17948347330093384    mean_loss: 0.0001318052818533033
step: 294
Epoch: 0      loss: 0.20315758883953094    mean_loss: 0.00019679515389725566
step: 295
Epoch: 0      loss: 0.31606292724609375    mean_loss: 0.0004988323780708015
step: 296
Epoch: 0      loss: 0.501699686050415    mean_loss: 0.0005680978647433221
step: 297
Epoch: 0      loss: 0.1516255885362625    mean_loss: 6.560072506545112e-05
step: 298
Epoch: 0      loss: 0.24019621312618256    mean_loss: 0.0004748257051687686
step: 299
Epoch: 0      loss: 0.5148374438285828    mean_loss: 0.00026631125365383923
step: 300
Epoch: 0      loss: 0.10104288160800934    mean_loss: 6.452814704971388e-05
step: 301
Epoch: 0      loss: 0.2980046570301056    mean_loss: 0.0007906344253569841
step: 302
Epoch: 0      loss: 0.3001059293746948    mean_loss: 0.0005592872621491551
step: 303
Epoch: 0      loss: 0.0972403883934021    mean_loss: 6.515634595416486e-05
step: 304
Epoch: 0      loss: 0.258082777261734    mean_loss: 0.00021602337074000388
step: 305
Epoch: 0      loss: 0.22624394297599792    mean_loss: 0.00030154455453157425
step: 306
Epoch: 0      loss: 0.3633144795894623    mean_loss: 0.0004090168804395944
step: 307
Epoch: 0      loss: 0.4020739793777466    mean_loss: 0.0003179170598741621
step: 308
Epoch: 0      loss: 0.1303938776254654    mean_loss: 5.270636756904423e-05
step: 309
Epoch: 0      loss: 0.18690921366214752    mean_loss: 0.0006583165959455073
step: 310
Epoch: 0      loss: 0.24196931719779968    mean_loss: 9.628080442780629e-05
step: 311
```

```
Epoch: 0       loss: 0.09453099966049194    mean_loss: 0.00014359223132487386
step: 312
Epoch: 0       loss: 0.2283289134502411     mean_loss: 0.00022824425832368433
step: 313
Epoch: 0       loss: 0.2305188924074173     mean_loss: 0.00019374235125724226
step: 314
Epoch: 0       loss: 0.09359300136566162    mean_loss: 3.64645202353131e-05
step: 315
Epoch: 0       loss: 0.44233474135398865    mean_loss: 0.0001563149126013741
step: 316
Epoch: 0       loss: 0.4408654570579529     mean_loss: 0.000333349802531302
step: 317
Epoch: 0       loss: 0.26331090927124023    mean_loss: 0.00046580255730077624
step: 318
Epoch: 0       loss: 0.1326311230659485     mean_loss: 0.00011184615141246468
step: 319
Epoch: 0       loss: 0.2289411723613739     mean_loss: 0.00010435216972837225
step: 320
Epoch: 0       loss: 0.09134619683027267    mean_loss: 3.543221464497037e-05
step: 321
Epoch: 0       loss: 0.1623626947402954     mean_loss: 9.118367597693577e-05
step: 322
Epoch: 0       loss: 0.47833555936813354    mean_loss: 0.00024175176804419607
step: 323
Epoch: 0       loss: 0.5325955152511597     mean_loss: 0.0002491057966835797
step: 324
Epoch: 0       loss: 0.1335916519165039     mean_loss: 0.00010828539961948991
step: 325
Epoch: 0       loss: 0.08942671865224838    mean_loss: 9.24948399187997e-05
step: 326
Epoch: 0       loss: 0.16762425005435944    mean_loss: 0.0002906702575273812
step: 327
Epoch: 0       loss: 0.16210362315177917    mean_loss: 7.799918239470571e-05
step: 328
Epoch: 0       loss: 0.2682938277721405     mean_loss: 0.00026106208679266274
step: 329
Epoch: 0       loss: 0.11919344961643219    mean_loss: 4.576801075018011e-05
step: 330
Epoch: 0       loss: 0.08852880448102951    mean_loss: 5.699779649148695e-05
step: 331
Epoch: 0       loss: 0.08817503601312637    mean_loss: 7.24996134522371e-05
step: 332
Epoch: 0       loss: 0.38228464126586914    mean_loss: 0.00014924166316632181
step: 333
Epoch: 0       loss: 0.48116302490234375    mean_loss: 0.0011654050322249532
step: 334
Epoch: 0       loss: 0.25730380415916443    mean_loss: 0.00011807639384642243
step: 335
```

```
Epoch: 0       loss: 0.41371965408325195    mean_loss: 0.0006059117731638253
step: 336
Epoch: 0       loss: 0.12030259519815445    mean_loss: 5.798969141324051e-05
step: 337
Epoch: 0       loss: 0.08610013127326965    mean_loss: 7.039061893010512e-05
step: 338
Epoch: 0       loss: 0.08575607091188431    mean_loss: 6.694732292089611e-05
step: 339
Epoch: 0       loss: 0.0854133889079094     mean_loss: 6.456219125539064e-05
step: 340
Epoch: 0       loss: 0.15670710802078247    mean_loss: 0.0001309704821323976
step: 341
Epoch: 0       loss: 0.08498891443014145    mean_loss: 8.712373528396711e-05
step: 342
Epoch: 0       loss: 0.47086066007614136    mean_loss: 0.0006737450021319091
step: 343
Epoch: 0       loss: 0.1336570680141449     mean_loss: 0.0004224239382892847
step: 344
Epoch: 0       loss: 0.12222318351268768    mean_loss: 5.1880546379834414e-05
step: 345
Epoch: 0       loss: 0.4815022349357605     mean_loss: 0.0007465955568477511
step: 346
Epoch: 0       loss: 0.5362992286682129     mean_loss: 0.00021690057474188507
step: 347
Epoch: 0       loss: 0.41323575377464294    mean_loss: 0.00016779734869487584
step: 348
Epoch: 0       loss: 0.29303500056266785    mean_loss: 0.00029616442043334246
step: 349
Epoch: 0       loss: 0.36932572722435       mean_loss: 0.0002267618983751163
step: 350
Epoch: 0       loss: 0.3640182316303253     mean_loss: 0.00018679231288842857
step: 351
Epoch: 0       loss: 0.13042747974395752    mean_loss: 9.178795880870894e-05
step: 352
Epoch: 0       loss: 0.32740306854248047    mean_loss: 0.00016881177725736052
step: 353
Epoch: 0       loss: 0.08049031347036362    mean_loss: 8.526335295755416e-05
step: 354
Epoch: 0       loss: 0.23783713579177856    mean_loss: 0.0003058128640986979
step: 355
Epoch: 0       loss: 0.07995640486478806    mean_loss: 0.00010491793364053592
step: 356
Epoch: 0       loss: 0.10028820484876633    mean_loss: 0.0003732086333911866
step: 357
Epoch: 0       loss: 0.2543317377567291     mean_loss: 0.0002117248077411 2046
step: 358
Epoch: 0       loss: 0.07924775779247284    mean_loss: 9.41463076742366e-05
step: 359
```

```
Epoch: 0       loss: 0.176143079996109     mean_loss: 0.00022002150944899768
step: 360
Epoch: 0       loss: 0.07883982360363007   mean_loss: 0.0008687895024195313
step: 361
Epoch: 0       loss: 0.1438402533531189    mean_loss: 0.001929453806951642
step: 362
Epoch: 0       loss: 0.07849746197462082   mean_loss: 4.366282155388035e-05
step: 363
Epoch: 0       loss: 0.07818379253149033   mean_loss: 3.420526991249062e-05
step: 364
Epoch: 0       loss: 0.24955278635025024   mean_loss: 0.00015531237295363098
step: 365
Epoch: 0       loss: 0.29454129934310913   mean_loss: 0.00012132425035815686
step: 366
Epoch: 0       loss: 0.07733099162578583   mean_loss: 3.339901377330534e-05
step: 367
Epoch: 0       loss: 0.07702197134494781   mean_loss: 4.5730190322501585e-05
step: 368
Epoch: 0       loss: 0.07698768377304077   mean_loss: 0.00014134572120383382
step: 369
Epoch: 0       loss: 0.07668336480855942   mean_loss: 3.194374585291371e-05
step: 370
Epoch: 0       loss: 0.9384279251098633    mean_loss: 0.0005329130217432976
step: 371
Epoch: 0       loss: 0.07613774389028549   mean_loss: 3.784336513490416e-05
step: 372
Epoch: 0       loss: 0.22223439812660217   mean_loss: 0.00010943980305455625
step: 373
Epoch: 0       loss: 0.07565895467996597   mean_loss: 3.171552816638723e-05
step: 374
Epoch: 0       loss: 0.0753566175699234    mean_loss: 5.18132874276489e-05
step: 375
Epoch: 0       loss: 0.07505549490451813   mean_loss: 0.00021459230629261583
step: 376
Epoch: 0       loss: 0.4057592451572418    mean_loss: 0.00019068758410867304
step: 377
Epoch: 0       loss: 0.07395440340042114   mean_loss: 9.314710041508079e-05
step: 378
Epoch: 0       loss: 0.0820489376783371    mean_loss: 0.00020281996694393456
step: 379
Epoch: 0       loss: 0.1799493134021759    mean_loss: 0.0002243488561362028
step: 380
Epoch: 0       loss: 0.07368995249271393   mean_loss: 3.1043386115925387e-05
step: 381
Epoch: 0       loss: 0.2746005654335022    mean_loss: 9.829334885580465e-05
step: 382
Epoch: 0       loss: 0.07309957593679428   mean_loss: 4.1875213355524465e-05
step: 383
```

```
Epoch: 0        loss: 0.07280746102333069      mean_loss: 3.0165356292854995e-05
step: 384
Epoch: 0        loss: 0.23932206630706787      mean_loss: 0.00017470965394750237
step: 385
Epoch: 0        loss: 0.0722789466381073       mean_loss: 4.1354825953021646e-05
step: 386
Epoch: 0        loss: 0.07199011743068695      mean_loss: 6.88637446728535e-05
step: 387
Epoch: 0        loss: 0.4579685628414154       mean_loss: 0.0002485281729605049
step: 388
Epoch: 0        loss: 0.4023493528366089       mean_loss: 0.00040997748146764934
step: 389
Epoch: 0        loss: 0.07056514918804169      mean_loss: 3.496311546768993e-05
step: 390
Epoch: 0        loss: 0.07028316706418991      mean_loss: 2.72868182946695e-05
step: 391
Epoch: 0        loss: 0.2642093300819397       mean_loss: 0.00018439401173964143
step: 392
Epoch: 0        loss: 0.3618793487548828       mean_loss: 0.00013766682241111994
step: 393
Epoch: 0        loss: 0.3113199472427368       mean_loss: 0.0003743480774573982
step: 394
Epoch: 0        loss: 0.4464891850948334       mean_loss: 0.00022683427960146219
step: 395
Epoch: 0        loss: 0.06828312575817108      mean_loss: 8.979025005828589e-05
step: 396
Epoch: 0        loss: 0.06801027059555054      mean_loss: 3.5635821404866874e-05
step: 397
Epoch: 0        loss: 0.19406133890151978      mean_loss: 6.944435153855011e-05
step: 398
Epoch: 0        loss: 0.06750284880399704      mean_loss: 2.3544353098259307e-05
step: 399
Epoch: 0        loss: 0.0672331154346466       mean_loss: 7.940573414089158e-05
step: 400
Epoch: 0        loss: 0.5618428587913513       mean_loss: 0.000647375884000212
step: 401
Epoch: 0        loss: 0.3631935119628906       mean_loss: 0.0005160863511264324
step: 402
Epoch: 0        loss: 0.15851260721683502      mean_loss: 6.576869054697454e-05
step: 403
Epoch: 0        loss: 0.18915429711341858      mean_loss: 0.0007249811314977705
step: 404
Epoch: 0        loss: 0.2577577829360962       mean_loss: 0.00020115388906560838
step: 405
Epoch: 0        loss: 0.35330304503440857      mean_loss: 0.0001393394632032141
step: 406
Epoch: 0        loss: 0.19131223857402802      mean_loss: 0.00041261117439717054
step: 407
```

```
Epoch: 0      loss: 0.48832225799560547    mean_loss: 0.0005832158494740725
step: 408
Epoch: 0      loss: 0.23449194431304932    mean_loss: 0.0004969876608811319
step: 409
Epoch: 0      loss: 0.12406741082668304    mean_loss: 0.00025266612647101283
step: 410
Epoch: 0      loss: 0.3079856038093567     mean_loss: 0.00015435066598001868
step: 411
Epoch: 0      loss: 0.1250104308128357     mean_loss: 0.00032765648211352527
step: 412
Epoch: 0      loss: 0.23440255224704742    mean_loss: 0.00019495864398777485
step: 413
Epoch: 0      loss: 0.12071632593870163    mean_loss: 5.510997652891092e-05
step: 414
Epoch: 0      loss: 0.4389236867427826     mean_loss: 0.00020824420789722353
step: 415
Epoch: 0      loss: 0.4928460419178009     mean_loss: 0.0008471723413094878
step: 416
Epoch: 0      loss: 0.06287982314825058    mean_loss: 3.515002754284069e-05
step: 417
Epoch: 0      loss: 0.10133866965770721    mean_loss: 4.7106794227147475e-05
step: 418
Epoch: 0      loss: 0.21200153231620789    mean_loss: 0.0004240972630213946
step: 419
Epoch: 0      loss: 0.06261423975229263    mean_loss: 4.311787415645085e-05
step: 420
Epoch: 0      loss: 0.2900254726409912     mean_loss: 0.00010775207920232788
step: 421
Epoch: 0      loss: 0.06192200630903244    mean_loss: 2.6095816792803816e-05
step: 422
Epoch: 0      loss: 0.061674565076828      mean_loss: 2.3740154574625194e-05
step: 423
Epoch: 0      loss: 0.08002272248268127    mean_loss: 0.0001530525041744113
step: 424
Epoch: 0      loss: 0.3855692744255066     mean_loss: 0.00014333792205434293
step: 425
Epoch: 0      loss: 0.19993622601032257    mean_loss: 6.995788862695917e-05
step: 426
Epoch: 0      loss: 0.060986850410699844   mean_loss: 3.150506017846055e-05
step: 427
Epoch: 0      loss: 0.32559841871261597    mean_loss: 0.00012592031271196902
step: 428
Epoch: 0      loss: 0.06028556823730469    mean_loss: 3.3102183806477115e-05
step: 429
Epoch: 0      loss: 0.3990579843521118     mean_loss: 0.002752352273091674
step: 430
Epoch: 0      loss: 0.3258723020553589     mean_loss: 0.0002789683057926595
step: 431
```

```
Epoch: 0      loss: 0.4841615855693817    mean_loss: 0.00021071794617455453
step: 432
Epoch: 0      loss: 0.1539396345615387    mean_loss: 0.000132317902171053
step: 433
Epoch: 0      loss: 0.28748199343681335   mean_loss: 0.00011504572466947138
step: 434
Epoch: 0      loss: 0.07661333680152893   mean_loss: 0.00040597026236355305
step: 435
Epoch: 0      loss: 0.13116991519927979   mean_loss: 0.0001260305434698239
step: 436
Epoch: 0      loss: 0.5485959649085999    mean_loss: 0.0003153574652969837
step: 437
Epoch: 0      loss: 0.05832430347800255   mean_loss: 3.419222048250958e-05
step: 438
Epoch: 0      loss: 0.09394167363643646   mean_loss: 0.00022259035245515406
step: 439
Epoch: 0      loss: 0.24395215511322021   mean_loss: 0.0004530205042101443
step: 440
Epoch: 0      loss: 0.2227158397436142    mean_loss: 0.00010089008719660342
step: 441
Epoch: 0      loss: 0.17683565616607666   mean_loss: 8.29908749437891e-05
step: 442
Epoch: 0      loss: 0.058145374059677124  mean_loss: 5.3031297284178436e-05
step: 443
Epoch: 0      loss: 0.2504950761795044    mean_loss: 0.000103191145171877
step: 444
Epoch: 0      loss: 0.15386830270290375   mean_loss: 7.981933595146984e-05
step: 445
Epoch: 0      loss: 0.2790710926055908    mean_loss: 0.000448795675765723
step: 446
Epoch: 0      loss: 0.057194650173187256  mean_loss: 5.4690179240424186e-05
step: 447
Epoch: 0      loss: 0.05696609988808632   mean_loss: 7.789725350448862e-05
step: 448
Epoch: 0      loss: 0.25673845410346985   mean_loss: 9.466139454161748e-05
step: 449
Epoch: 0      loss: 0.17663739621639252   mean_loss: 0.0021818773820996284
step: 450
Epoch: 0      loss: 0.12638558447360992   mean_loss: 6.283844413701445e-05
step: 451
Epoch: 0      loss: 0.056374747306108475  mean_loss: 2.9735292628174648e-05
step: 452
Epoch: 0      loss: 0.44835537672042847   mean_loss: 0.00017885325360111892
step: 453
Epoch: 0      loss: 0.05548625811934471   mean_loss: 3.007299528690055e-05
step: 454
Epoch: 0      loss: 0.5265333652496338    mean_loss: 0.00020275836868677288
step: 455
```

```
Epoch: 0        loss: 0.24951434135437012    mean_loss: 0.00011309651017654687
step: 456
Epoch: 0        loss: 0.05820387229323387    mean_loss: 0.00019971565052401274
step: 457
Epoch: 0        loss: 0.054785389453172684   mean_loss: 3.944412310374901e-05
step: 458
Epoch: 0        loss: 0.19927576184272766    mean_loss: 7.390256359940395e-05
step: 459
Epoch: 0        loss: 0.0544293075799942     mean_loss: 2.7779413358075544e-05
step: 460
Epoch: 0        loss: 0.0542118065059185     mean_loss: 4.584918497130275e-05
step: 461
Epoch: 0        loss: 0.053995173424482346   mean_loss: 5.792178490082733e-05
step: 462
Epoch: 0        loss: 0.2317795753479004     mean_loss: 0.00020736806618515402
step: 463
Epoch: 0        loss: 0.05355272814631462    mean_loss: 0.0033600060269236565
step: 464
Epoch: 0        loss: 0.053338732570409775   mean_loss: 0.0001597147638676688
step: 465
Epoch: 0        loss: 0.053125590085983276   mean_loss: 2.186512210755609e-05
step: 466
Epoch: 0        loss: 0.05423284322023392    mean_loss: 4.176651782472618e-05
step: 467
Epoch: 0        loss: 0.11657671630382538    mean_loss: 6.0549577028723434e-05
step: 468
Epoch: 0        loss: 0.05270358547568321    mean_loss: 3.606571044656448e-05
step: 469
Epoch: 0        loss: 0.052492979913949966   mean_loss: 2.426283754175529e-05
step: 470
Epoch: 0        loss: 0.7024136781692505     mean_loss: 0.0002669851528480649
step: 471
Epoch: 0        loss: 0.05186835303902626    mean_loss: 0.0001560938253533095
step: 472
Epoch: 0        loss: 0.05166108161211014    mean_loss: 9.220137872034684e-05
step: 473
Epoch: 0        loss: 0.19350431859493256    mean_loss: 7.327650382649153e-05
step: 474
Epoch: 0        loss: 0.051286764442920685   mean_loss: 1.8662805814528838e-05
step: 475
Epoch: 0        loss: 0.5248271822929382     mean_loss: 0.00022410154633689672
step: 476
Epoch: 0        loss: 0.050703275948762894   mean_loss: 2.7662888896884397e-05
step: 477
Epoch: 0        loss: 0.050500668585300446   mean_loss: 0.00018373939383309335
step: 478
Epoch: 0        loss: 0.050298869609832764   mean_loss: 1.934940883074887e-05
step: 479
```

```
Epoch: 0        loss: 0.12741848826408386      mean_loss: 5.0192142225569114e-05
step: 480
Epoch: 0        loss: 0.14556904137134552      mean_loss: 7.208872557384893e-05
step: 481
Epoch: 0        loss: 0.6045575737953186       mean_loss: 0.00039725995156913996
step: 482
Epoch: 0        loss: 0.2801918089389801       mean_loss: 0.00012771465117111802
step: 483
Epoch: 0        loss: 0.04931618645787239      mean_loss: 2.463572491251398e-05
step: 484
Epoch: 0        loss: 0.049119118601083755      mean_loss: 0.00014937311061657965
step: 485
Epoch: 0        loss: 0.22017519176006317      mean_loss: 0.0006461130687966943
step: 486
Epoch: 0        loss: 0.04879222810268402      mean_loss: 4.2952513467753306e-05
step: 487
Epoch: 0        loss: 0.28447142243385315      mean_loss: 0.00012210916611365974
step: 488
Epoch: 0        loss: 0.04867254197597504      mean_loss: 8.284320938400924e-05
step: 489
Epoch: 0        loss: 0.04847804456949234      mean_loss: 4.900190469925292e-05
step: 490
Epoch: 0        loss: 0.4259670674800873       mean_loss: 0.00031486773514188826
step: 491
Epoch: 0        loss: 0.04815230891108513       mean_loss: 2.8678803573711775e-05
step: 492
Epoch: 0        loss: 0.20971696078777313      mean_loss: 0.00010684954031603411
step: 493
Epoch: 0        loss: 0.22370919585227966      mean_loss: 0.0004549106815829873
step: 494
Epoch: 0        loss: 0.4820673167705536       mean_loss: 0.028383659198880196
step: 495
Epoch: 0        loss: 0.42796918749809265       mean_loss: 0.004430610220879316
step: 496
Epoch: 0        loss: 0.3689136505126953       mean_loss: 0.0004356409190222621
step: 497
Epoch: 0        loss: 0.5108144283294678       mean_loss: 0.0002466232981532812
step: 498
Epoch: 0        loss: 0.21647614240646362       mean_loss: 0.0003303700650576502
step: 499
Epoch: 0        loss: 0.17577670514583588      mean_loss: 0.0004048438568133861
step: 500
Epoch: 0        loss: 0.23892802000045776      mean_loss: 0.0005837387288920581
step: 501
Epoch: 0        loss: 0.06448297202587128       mean_loss: 7.829928654246032e-05
step: 502
Epoch: 0        loss: 0.045358218252658844      mean_loss: 3.40348451572936e-05
step: 503
```

```
Epoch: 0        loss: 0.11086389422416687    mean_loss: 7.72807834437117e-05
step: 504
Epoch: 0        loss: 0.29777854681015015    mean_loss: 0.00011482491390779614
step: 505
Epoch: 0        loss: 0.04512258246541023    mean_loss: 3.8434500311268494e-05
step: 506
Epoch: 0        loss: 0.2498515397310257     mean_loss: 0.00018442064174450934
step: 507
Epoch: 0        loss: 0.17651589214801788    mean_loss: 7.991872553247958e-05
step: 508
Epoch: 0        loss: 0.04478272423148155    mean_loss: 1.773928124748636e-05
step: 509
Epoch: 0        loss: 0.32117152214050293    mean_loss: 0.00012287270510569215
step: 510
Epoch: 0        loss: 0.04420037940144539    mean_loss: 3.824266605079174e-05
step: 511
Epoch: 0        loss: 0.04402375593781471    mean_loss: 1.6633446648484096e-05
step: 512
Epoch: 0        loss: 0.25491517782211304    mean_loss: 0.00011270194954704493
step: 513
Epoch: 0        loss: 0.2857971787452698     mean_loss: 0.00010251340427203104
step: 514
Epoch: 0        loss: 0.21044306457042694    mean_loss: 0.0006247643614187837
step: 515
Epoch: 0        loss: 0.3063690662384033     mean_loss: 0.00013215404760558158
step: 516
Epoch: 0        loss: 0.23682984709739685    mean_loss: 0.0006091568502597511
step: 517
Epoch: 0        loss: 0.5133373141288757     mean_loss: 0.0002400497323833406
step: 518
Epoch: 0        loss: 0.2256268411874771     mean_loss: 0.00018348243611399084
step: 519
Epoch: 0        loss: 0.24437472224235535    mean_loss: 0.00020707721705548465
step: 520
Epoch: 0        loss: 0.30367201566696167    mean_loss: 0.00019184286065865308
step: 521
Epoch: 0        loss: 0.1076621562242508     mean_loss: 8.479088137391955e-05
step: 522
Epoch: 0        loss: 0.04444418475031853    mean_loss: 0.00012944469926878881
step: 523
Epoch: 0        loss: 0.4234445095062256     mean_loss: 0.00022920667834114283
step: 524
Epoch: 0        loss: 0.15810999274253845    mean_loss: 0.0002873669727705419
step: 525
Epoch: 0        loss: 0.3958766758441925     mean_loss: 0.00016163363761734217
step: 526
Epoch: 0        loss: 0.19074316322803497    mean_loss: 0.00011813415767392144
step: 527
```

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Epoch: 0       loss: 0.301434725522995     mean_loss: 0.00021979071607347578
step: 528
Epoch: 0       loss: 0.2428148090839386     mean_loss: 9.583383507560939e-05
step: 529
Epoch: 0       loss: 0.22033074498176575     mean_loss: 0.0006105999345891178
step: 530
Epoch: 0       loss: 0.04796772822737694     mean_loss: 9.754684288054705e-05
step: 531
Epoch: 0       loss: 0.04089891165494919     mean_loss: 1.4826929145783652e-05
step: 532
Epoch: 0       loss: 0.040735483169555664     mean_loss: 1.7896491044666618e-05
step: 533
Epoch: 0       loss: 0.3459987938404083     mean_loss: 0.00016131314623635262
step: 534
Epoch: 0       loss: 0.24025410413742065     mean_loss: 0.0001437891332898289
step: 535
Epoch: 0       loss: 0.3177288770675659     mean_loss: 0.00013032910646870732
step: 536
Epoch: 0       loss: 0.10361188650131226     mean_loss: 0.00014757071039639413
step: 537
Epoch: 0       loss: 0.06632363796234131     mean_loss: 3.1061314075486735e-05
step: 538
Epoch: 0       loss: 0.14177663624286652     mean_loss: 0.00022437925508711487
step: 539
Epoch: 0       loss: 0.4166269600391388     mean_loss: 0.0005046626320108771
step: 540
Epoch: 0       loss: 0.039814502000808716     mean_loss: 6.719860539305955e-05
step: 541
Epoch: 0       loss: 0.41502904891967773     mean_loss: 0.0001592237240402028
step: 542
Epoch: 0       loss: 0.21979321539402008     mean_loss: 0.024439159780740738
step: 543
Epoch: 0       loss: 0.21658167243003845     mean_loss: 0.00014070101315155625
step: 544
Epoch: 0       loss: 0.038950998336076736     mean_loss: 6.846182077424601e-05
step: 545
Epoch: 0       loss: 0.25642144680023193     mean_loss: 0.00020324080833233893
step: 546
Epoch: 0       loss: 0.33455535769462585     mean_loss: 0.0001403600035700947
step: 547
Epoch: 0       loss: 0.33831581473350525     mean_loss: 0.0005521308048628271
step: 548
Epoch: 0       loss: 0.19607771933078766     mean_loss: 0.0004738068673759699
step: 549
Epoch: 0       loss: 0.1736341416835785     mean_loss: 9.251219307770953e-05
step: 550
Epoch: 0       loss: 0.4503531754016876     mean_loss: 0.00018207181710749865
step: 551
```

```
Epoch: 0      loss: 0.037761762738227844    mean_loss: 1.3703082913707476e-05
step: 552
Epoch: 0      loss: 0.18008670210838318    mean_loss: 0.0001382198097417131
step: 553
Epoch: 0      loss: 0.13916747272014618    mean_loss: 6.355186633300036e-05
step: 554
Epoch: 0      loss: 0.03753367438912392    mean_loss: 1.4949196156521793e-05
step: 555
Epoch: 0      loss: 0.1495053768157959    mean_loss: 0.00012585885997395962
step: 556
Epoch: 0      loss: 0.2360966056585312    mean_loss: 0.00012538347800727934
step: 557
Epoch: 0      loss: 0.03708548843860626    mean_loss: 1.6929421690292656e-05
step: 558
Epoch: 0      loss: 0.44358688592910767    mean_loss: 0.0005829222500324249
step: 559
Epoch: 0      loss: 0.29484429955482483    mean_loss: 0.00010465009836480021
step: 560
Epoch: 0      loss: 0.1833125650882721    mean_loss: 0.00027790488093160093
step: 561
Epoch: 0      loss: 0.03637683764100075    mean_loss: 1.5190527847153135e-05
step: 562
Epoch: 0      loss: 0.05116534233093262    mean_loss: 1.849007821874693e-05
step: 563
Epoch: 0      loss: 0.17790764570236206    mean_loss: 0.00015338460798375309
step: 564
Epoch: 0      loss: 0.27161988615989685    mean_loss: 0.00012623003567568958
step: 565
Epoch: 0      loss: 0.035591237246990204    mean_loss: 2.196646346419584e-05
step: 566
Epoch: 0      loss: 0.03544901683926582    mean_loss: 3.136249870294705e-05
step: 567
Epoch: 0      loss: 0.03530736267566681    mean_loss: 1.422081550117582e-05
step: 568
Epoch: 0      loss: 0.34088683128356934    mean_loss: 0.0002112150250468403
step: 569
Epoch: 0      loss: 0.12825283408164978    mean_loss: 6.797039532102644e-05
step: 570
Epoch: 0      loss: 0.07733776420354843    mean_loss: 5.2981336921220645e-05
step: 571
Epoch: 0      loss: 0.20898836851119995    mean_loss: 0.0005855500348843634
step: 572
Epoch: 0      loss: 0.1219141036272049    mean_loss: 0.00023925713321659714
step: 573
Epoch: 0      loss: 0.03466731309890747    mean_loss: 1.5176769920799416e-05
step: 574
Epoch: 0      loss: 0.0619339682161808    mean_loss: 2.2775420802645385e-05
step: 575
```

```
Epoch: 0        loss: 0.034803081303834915     mean_loss: 3.131821722490713e-05
step: 576
Epoch: 0        loss: 0.22744779288768768      mean_loss: 0.00046048403601162136
step: 577
Epoch: 0        loss: 0.034540142863988876     mean_loss: 1.3682809367310256e-05
step: 578
Epoch: 0        loss: 0.3636014461517334       mean_loss: 0.00026521889958530664
step: 579
Epoch: 0        loss: 0.12704214453697205      mean_loss: 6.945300992811099e-05
step: 580
Epoch: 0        loss: 0.7564668655395508       mean_loss: 0.008405959233641624
step: 581
Epoch: 0        loss: 0.03376134857535362      mean_loss: 2.774164931906853e-05
step: 582
Epoch: 0        loss: 0.033626437187194824     mean_loss: 1.5091560271685012e-05
step: 583
Epoch: 0        loss: 0.3601580560207367       mean_loss: 0.0001823661441449076
step: 584
Epoch: 0        loss: 0.23298728466033936      mean_loss: 0.0005512284697033465
step: 585
Epoch: 0        loss: 0.03302384912967682      mean_loss: 4.3044969061156735e-05
step: 586
Epoch: 0        loss: 0.21827997267246246      mean_loss: 0.00011693788110278547
step: 587
Epoch: 0        loss: 0.323760062456131        mean_loss: 0.00017805222887545824
step: 588
Epoch: 0        loss: 0.05037107691168785      mean_loss: 2.3081795006874017e-05
step: 589
Epoch: 0        loss: 0.032899875193834305     mean_loss: 4.1940071241697297e-05
step: 590
Epoch: 0        loss: 0.4565531313419342       mean_loss: 0.0005028580198995769
step: 591
Epoch: 0        loss: 0.16472205519676208      mean_loss: 0.0023945639841258526
step: 592
Epoch: 0        loss: 0.03238717466592789      mean_loss: 1.5998959497665055e-05
step: 593
Epoch: 0        loss: 0.03225775808095932      mean_loss: 2.1910222130827606e-05
step: 594
Epoch: 0        loss: 0.28098639845848083      mean_loss: 0.0002103355509461835
step: 595
Epoch: 0        loss: 0.031915511935949326     mean_loss: 1.5809964679647237e-05
step: 596
Epoch: 0        loss: 0.03178797662258148      mean_loss: 1.2255794899829198e-05
step: 597
Epoch: 0        loss: 0.06716776639223099      mean_loss: 2.3688300643698312e-05
step: 598
Epoch: 0        loss: 0.11599105596542358      mean_loss: 6.79641161696054e-05
step: 599
```

```
Epoch: 0        loss: 0.16639280319213867     mean_loss: 0.0005902863922528923
step: 600
Epoch: 0        loss: 0.3214148283004761      mean_loss: 0.0003454990510363132
step: 601
Epoch: 0        loss: 0.25631067156791687     mean_loss: 9.470707300351933e-05
step: 602
Epoch: 0        loss: 0.43040159344673157     mean_loss: 0.00047886130050756037
step: 603
Epoch: 0        loss: 0.2300490289926529      mean_loss: 8.97694262675941e-05
step: 604
Epoch: 0        loss: 0.18901219964027405     mean_loss: 8.533482468919829e-05
step: 605
Epoch: 0        loss: 0.13569319248199463     mean_loss: 0.00034374312963336706
step: 606
Epoch: 0        loss: 0.11777901649475098     mean_loss: 6.547824887093157e-05
step: 607
Epoch: 0        loss: 0.031983159482479095    mean_loss: 0.00010612131882226095
step: 608
Epoch: 0        loss: 0.3383994698524475      mean_loss: 0.0002830314333550632
step: 609
Epoch: 0        loss: 0.3244113624095917      mean_loss: 0.0002558663545642048
step: 610
Epoch: 0        loss: 0.06206826493144035     mean_loss: 2.987734114867635e-05
step: 611
Epoch: 0        loss: 0.030901899561285973    mean_loss: 2.0059518647030927e-05
step: 612
Epoch: 0        loss: 0.14479532837867737     mean_loss: 0.00015389520558528602
step: 613
Epoch: 0        loss: 0.1815248280763626      mean_loss: 0.00032212541555054486
step: 614
Epoch: 0        loss: 0.13024362921714783     mean_loss: 0.00020561534620355815
step: 615
Epoch: 0        loss: 0.0458507314324379      mean_loss: 0.00012515310663729906
step: 616
Epoch: 0        loss: 0.77796471118927        mean_loss: 0.00028314770315773785
step: 617
Epoch: 0        loss: 0.2129441499710083      mean_loss: 8.906737639335915e-05
step: 618
Epoch: 0        loss: 0.1401897668838501      mean_loss: 0.00011958979303017259
step: 619
Epoch: 0        loss: 0.031282391399145126    mean_loss: 1.1041483958251774e-05
step: 620
Epoch: 0        loss: 0.21810348331928253     mean_loss: 0.0028699280228465796
step: 621
Epoch: 0        loss: 0.4837420880794525      mean_loss: 0.0003123312199022621
step: 622
Epoch: 0        loss: 0.2296903133392334      mean_loss: 0.0007098846836015582
step: 623
```

```
Epoch: 0      loss: 0.030310355126857758    mean_loss: 1.522839465906145e-05
step: 624
Epoch: 0      loss: 0.06237570196390152     mean_loss: 0.00024856944219209254
step: 625
Epoch: 0      loss: 0.030530160292983055    mean_loss: 1.2808460269297939e-05
step: 626
Epoch: 0      loss: 0.43179354071617126     mean_loss: 0.0014393544988706708
step: 627
Epoch: 0      loss: 0.029957229271531105    mean_loss: 1.8096012354362756e-05
step: 628
Epoch: 0      loss: 0.20636840164661407     mean_loss: 0.00010028498218161985
step: 629
Epoch: 0      loss: 0.029752377420663834    mean_loss: 7.407608791254461e-05
step: 630
Epoch: 0      loss: 0.029633482918143272    mean_loss: 3.28260321111884e-05
step: 631
Epoch: 0      loss: 0.1737060546875     mean_loss: 0.00014849477156531066
step: 632
Epoch: 0      loss: 0.11890183389186859     mean_loss: 4.9480604502605274e-05
step: 633
Epoch: 0      loss: 0.029332702979445457    mean_loss: 1.8514294424676336e-05
step: 634
Epoch: 0      loss: 0.0292154923081398    mean_loss: 0.00011932247434742749
step: 635
Epoch: 0      loss: 0.4454047977924347     mean_loss: 0.00016003022028598934
step: 636
Epoch: 0      loss: 0.14120733737945557     mean_loss: 0.0001743124012136832
step: 637
Epoch: 0      loss: 0.028950588777661324    mean_loss: 3.4631273592822254e-05
step: 638
Epoch: 0      loss: 0.1026579812169075     mean_loss: 0.00010730680514825508
step: 639
Epoch: 0      loss: 0.028862426057457924    mean_loss: 3.098367233178578e-05
step: 640
Epoch: 0      loss: 0.13585835695266724     mean_loss: 0.00015837917453609407
step: 641
Epoch: 0      loss: 0.23081675171852112     mean_loss: 0.0015501687303185463
step: 642
Epoch: 0      loss: 0.028612514957785606    mean_loss: 8.021990652196109e-05
step: 643
Epoch: 0      loss: 0.1066533699631691     mean_loss: 4.430617991602048e-05
step: 644
Epoch: 0      loss: 0.028595007956027985    mean_loss: 1.1360299140505958e-05
step: 645
Epoch: 0      loss: 0.02848074585199356     mean_loss: 3.073582047363743e-05
step: 646
Epoch: 0      loss: 0.048175763338804245    mean_loss: 2.0077675799257122e-05
step: 647
```

```
Epoch: 0        loss: 0.23010316491127014     mean_loss: 0.005753080826252699
step: 648
Epoch: 0        loss: 0.02916046231985092     mean_loss: 3.007195846294053e-05
step: 649
Epoch: 0        loss: 0.029043935239315033     mean_loss: 0.00018637184984982014
step: 650
Epoch: 0        loss: 0.20368224382400513     mean_loss: 7.286226173164323e-05
step: 651
Epoch: 0        loss: 0.028806915506720543     mean_loss: 5.8342986449133605e-05
step: 652
Epoch: 0        loss: 0.04383628070354462     mean_loss: 7.714344974374399e-05
step: 653
Epoch: 0        loss: 0.02889801189303398     mean_loss: 1.039281050907448e-05
step: 654
Epoch: 0        loss: 0.02878253348171711     mean_loss: 1.300493568123784e-05
step: 655
Epoch: 0        loss: 1.6648672819137573     mean_loss: 0.008451169356703758
step: 656
Epoch: 0        loss: 0.23540592193603516     mean_loss: 0.00012984935892745852
step: 657
Epoch: 0        loss: 0.02800636924803257     mean_loss: 1.0037894753622822e-05
step: 658
Epoch: 0        loss: 0.36472150683403015     mean_loss: 0.00029822695069015026
step: 659
Epoch: 0        loss: 0.027716491371393204     mean_loss: 1.215389056596905e-05
step: 660
Epoch: 0        loss: 0.1679103672504425     mean_loss: 0.00010932455916190052
step: 661
Epoch: 0        loss: 0.823152482509613     mean_loss: 0.0002883578999899328
step: 662
Epoch: 0        loss: 0.02674863487482071     mean_loss: 1.7015099729178473e-05
step: 663
Epoch: 0        loss: 0.09314259141683578     mean_loss: 8.897765656001866e-05
step: 664
Epoch: 0        loss: 0.026966122910380363     mean_loss: 2.181863055739086e-05
step: 665
Epoch: 0        loss: 0.026858367025852203     mean_loss: 1.0935796126432251e-05
step: 666
Epoch: 0        loss: 0.026751041412353516     mean_loss: 2.5270988771808334e-05
step: 667
Epoch: 0        loss: 0.2675033509731293     mean_loss: 0.0001606778532732278
step: 668
Epoch: 0        loss: 0.06951330602169037     mean_loss: 0.00021049541828688234
step: 669
Epoch: 0        loss: 0.16768111288547516     mean_loss: 0.00011163005547132343
step: 670
Epoch: 0        loss: 0.03843822702765465     mean_loss: 1.4826867300143931e-05
step: 671
```

```
Epoch: 0      loss: 0.027007555589079857    mean_loss: 2.32350666919956e-05
step: 672
Epoch: 0      loss: 1.2586455345153809    mean_loss: 0.0016013598069548607
step: 673
Epoch: 0      loss: 0.026630477979779243    mean_loss: 1.890946805360727e-05
step: 674
Epoch: 0      loss: 0.5686547756195068    mean_loss: 0.0007171168690547347
step: 675
Epoch: 0      loss: 0.02582271583378315    mean_loss: 1.221907587023452e-05
step: 676
Epoch: 0      loss: 0.1075475811958313    mean_loss: 7.267553883139044e-05
step: 677
Epoch: 0      loss: 0.025914466008543968    mean_loss: 3.0645212973468006e-05
step: 678
Epoch: 0      loss: 0.025810914114117622    mean_loss: 2.9035460102022626e-05
step: 679
Epoch: 0      loss: 0.029113655909895897    mean_loss: 1.3990729712531902e-05
step: 680
Epoch: 0      loss: 0.026360221207141876    mean_loss: 1.295393485634122e-05
step: 681
Epoch: 0      loss: 0.026254884898662567    mean_loss: 1.4401227417693008e-05
step: 682
Epoch: 0      loss: 0.6473931670188904    mean_loss: 0.00025240061222575605
step: 683
Epoch: 0      loss: 0.025746209546923637    mean_loss: 4.69289007014595e-05
step: 684
Epoch: 0      loss: 0.20659103989601135    mean_loss: 0.00018649635603651404
step: 685
Epoch: 0      loss: 0.025488052517175674    mean_loss: 1.3700398994842544e-05
step: 686
Epoch: 0      loss: 0.0974084734916687    mean_loss: 0.00016568397404626012
step: 687
Epoch: 0      loss: 0.03192755579948425    mean_loss: 0.0001478951016906649
step: 688
Epoch: 0      loss: 1.185712456703186    mean_loss: 0.04089173674583435    step:
689
Epoch: 0      loss: 0.2839699387550354    mean_loss: 0.0004480850766412914
step: 690
Epoch: 0      loss: 0.07930734753608704    mean_loss: 3.306609869468957e-05
step: 691
Epoch: 0      loss: 0.22544333338737488    mean_loss: 9.473798127146438e-05
step: 692
Epoch: 0      loss: 0.051494430750608444    mean_loss: 1.8712067685555667e-05
step: 693
Epoch: 0      loss: 0.6127792596817017    mean_loss: 0.00034857678110711277
step: 694
Epoch: 0      loss: 0.06257782876491547    mean_loss: 4.1426203097216785e-05
step: 695
```

```
Epoch: 0      loss: 0.10523584485054016     mean_loss: 0.00011443181574577466
step: 696
Epoch: 0      loss: 0.025529157370328903    mean_loss: 2.0287649022066034e-05
step: 697
Epoch: 0      loss: 0.13041503727436066     mean_loss: 6.2379396695178e-05
step: 698
Epoch: 0      loss: 0.1550600826740265      mean_loss: 0.0003012086672242731
step: 699
Epoch: 0      loss: 0.025958498939871788    mean_loss: 2.3362728825304657e-05
step: 700
Epoch: 0      loss: 0.025854768231511116    mean_loss: 9.057798706635367e-06
step: 701
Epoch: 0      loss: 0.025751451030373573    mean_loss: 2.1378014935180545e-05
step: 702
Epoch: 0      loss: 0.02564855106174946     mean_loss: 1.1834914403152652e-05
step: 703
Epoch: 0      loss: 0.025546059012413025    mean_loss: 4.383858322398737e-05
step: 704
Epoch: 0      loss: 0.02544397860765457     mean_loss: 1.5372628695331514e-05
step: 705
Epoch: 0      loss: 0.0253423023968935      mean_loss: 9.360529475088697e-06
step: 706
Epoch: 0      loss: 0.025241034105420113    mean_loss: 8.785801583144348e-06
step: 707
Epoch: 0      loss: 0.025140170007944107    mean_loss: 2.388314896961674e-05
step: 708
Epoch: 0      loss: 0.025039710104465485    mean_loss: 1.0309992831025738e-05
step: 709
Epoch: 0      loss: 0.024939650669693947    mean_loss: 9.975993634725455e-06
step: 710
Epoch: 0      loss: 0.024839991703629494    mean_loss: 2.8861752070952207e-05
step: 711
Epoch: 0      loss: 0.024740733206272125    mean_loss: 2.017068072746042e-05
step: 712
Epoch: 0      loss: 0.5721601843833923      mean_loss: 0.0006994869327172637
step: 713
Epoch: 0      loss: 0.9160654544830322      mean_loss: 0.0007646079175174236
step: 714
Epoch: 0      loss: 0.5527700781822205      mean_loss: 0.0007380462484434247
step: 715
Epoch: 0      loss: 0.03622812777757645     mean_loss: 4.870378688792698e-05
step: 716
Epoch: 0      loss: 0.024397611618041992    mean_loss: 3.353404099470936e-05
step: 717
Epoch: 0      loss: 0.024300117045640945    mean_loss: 1.3740062058786862e-05
step: 718
Epoch: 0      loss: 0.024203013628721237    mean_loss: 0.00010859531175810844
step: 719
```

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Epoch: 0      loss: 0.024106301367282867    mean_loss: 1.8070819351123646e-05
step: 720
Epoch: 0      loss: 0.40782108902931213     mean_loss: 0.00014165999891702086
step: 721
Epoch: 0      loss: 0.35313981771469116     mean_loss: 0.0001537343196105212
step: 722
Epoch: 0      loss: 0.02358819916844368     mean_loss: 1.0971318260999396e-05
step: 723
Epoch: 0      loss: 0.501145601272583       mean_loss: 0.00045027543092146516
step: 724
Epoch: 0      loss: 0.3441963195800781      mean_loss: 0.0013154450571164489
step: 725
Epoch: 0      loss: 0.12470702826976776     mean_loss: 0.00020035369379911572
step: 726
Epoch: 0      loss: 0.052244894206523895    mean_loss: 2.974772905872669e-05
step: 727
Epoch: 0      loss: 0.32666605710983276     mean_loss: 0.00015586632071062922
step: 728
Epoch: 0      loss: 0.2159584015607834      mean_loss: 9.21596001717262e-05
step: 729
Epoch: 0      loss: 0.05399269610643387     mean_loss: 2.6538202291703783e-05
step: 730
Epoch: 0      loss: 0.129010871052742       mean_loss: 0.00010611629113554955
step: 731
Epoch: 0      loss: 0.02331501990556717     mean_loss: 6.452103843912482e-05
step: 732
Epoch: 0      loss: 0.023221850395202637    mean_loss: 5.268409586278722e-05
step: 733
Epoch: 0      loss: 0.02312905713915825     mean_loss: 8.116856406559236e-06
step: 734
Epoch: 0      loss: 0.201103076338768       mean_loss: 0.0001695709943305701
step: 735
Epoch: 0      loss: 0.02390180714428425     mean_loss: 2.3599390260642394e-05
step: 736
Epoch: 0      loss: 0.023806298151612282    mean_loss: 5.248876186669804e-05
step: 737
Epoch: 0      loss: 0.21767982840538025     mean_loss: 8.67113922140561e-05
step: 738
Epoch: 0      loss: 0.15698376297950745     mean_loss: 0.00022029518731869757
step: 739
Epoch: 0      loss: 0.023749494925141335    mean_loss: 1.636163142393343e-05
step: 740
Epoch: 0      loss: 0.023654591292142868    mean_loss: 1.972579411813058e-05
step: 741
Epoch: 0      loss: 0.19990453124046326     mean_loss: 0.00014108981122262776
step: 742
Epoch: 0      loss: 0.02468906342983246     mean_loss: 8.59174833749421e-05
step: 743
```

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Epoch: 0      loss: 0.024590402841567993    mean_loss: 9.329422027803957e-06
step: 744
Epoch: 0      loss: 0.024492138996720314    mean_loss: 1.2571303159347735e-05
step: 745
Epoch: 0      loss: 0.024394270032644272    mean_loss: 1.1221535714867059e-05
step: 746
Epoch: 0      loss: 0.02429679036140442     mean_loss: 1.0286928954883479e-05
step: 747
Epoch: 0      loss: 0.024199699983000755    mean_loss: 1.0417378689453471e-05
step: 748
Epoch: 0      loss: 0.18443217873573303     mean_loss: 8.535057713743299e-05
step: 749
Epoch: 0      loss: 0.023966584354639053    mean_loss: 2.0698738808277994e-05
step: 750
Epoch: 0      loss: 1.4645060300827026      mean_loss: 0.0016661282861605287
step: 751
Epoch: 0      loss: 0.11052782833576202     mean_loss: 0.00014879835362080485
step: 752
Epoch: 0      loss: 0.02376016601920128     mean_loss: 1.6591926396358758e-05
step: 753
Epoch: 0      loss: 0.02366521768271923     mean_loss: 2.978843986056745e-05
step: 754
Epoch: 0      loss: 0.19671957194805145     mean_loss: 0.000204308787942864
step: 755
Epoch: 0      loss: 0.02342764101922512     mean_loss: 1.0103441127284896e-05
step: 756
Epoch: 0      loss: 0.24477623403072357     mean_loss: 0.000927220971789211
step: 757
Epoch: 0      loss: 0.2611038088798523      mean_loss: 0.000187566940439865
step: 758
Epoch: 0      loss: 0.2613641321659088      mean_loss: 9.34446943574585e-05
step: 759
Epoch: 0      loss: 0.0233945082873106      mean_loss: 2.9213872039690614e-05
step: 760
Epoch: 0      loss: 1.2193248271942139      mean_loss: 0.0022580630611628294
step: 761
Epoch: 0      loss: 0.02226376160979271     mean_loss: 9.88384726952063e-06
step: 762
Epoch: 0      loss: 0.24473504722118378     mean_loss: 0.00015296558558475226
step: 763
Epoch: 0      loss: 0.18716783821582794     mean_loss: 0.00011642063327599317
step: 764
Epoch: 0      loss: 0.16922923922538757     mean_loss: 0.00014738526078872383
step: 765
Epoch: 0      loss: 0.021907228976488113    mean_loss: 5.960706766927615e-05
step: 766
Epoch: 0      loss: 0.5589632391929626      mean_loss: 0.00030381674878299236
step: 767
```

```
Epoch: 0       loss: 0.021232886239886284    mean_loss: 2.3903110559331253e-05
step: 768
Epoch: 0       loss: 0.02634882740676403     mean_loss: 4.929482383886352e-05
step: 769
Epoch: 0       loss: 0.020749909803271294    mean_loss: 1.4985017514845822e-05
step: 770
Epoch: 0       loss: 0.02066699229180813     mean_loss: 9.375329682370648e-06
step: 771
Epoch: 0       loss: 0.020584406331181526    mean_loss: 1.9391507521504536e-05
step: 772
Epoch: 0       loss: 0.17961257696151733     mean_loss: 9.03581312741153e-05
step: 773
Epoch: 0       loss: 0.020556680858135223    mean_loss: 8.789714229351375e-06
step: 774
Epoch: 0       loss: 0.16638199985027313     mean_loss: 0.00021359536913223565
step: 775
Epoch: 0       loss: 0.805993914604187      mean_loss: 0.0013087784172967076
step: 776
Epoch: 0       loss: 0.32888278365135193     mean_loss: 0.00013357264106161892
step: 777
Epoch: 0       loss: 0.2525281608104706      mean_loss: 0.00035586158628575504
step: 778
Epoch: 0       loss: 0.019088519737124443    mean_loss: 1.8805010768119246e-05
step: 779
Epoch: 0       loss: 0.15122868120670319     mean_loss: 0.00012499792501330376
step: 780
Epoch: 0       loss: 0.14801302552223206     mean_loss: 5.249398236628622e-05
step: 781
Epoch: 0       loss: 0.38984498381614685     mean_loss: 0.00023949475144036114
step: 782
Epoch: 0       loss: 0.25973811745643616     mean_loss: 0.08665920048952103
step: 783
Epoch: 0       loss: 0.01881832629442215     mean_loss: 9.703544492367655e-05
step: 784
Epoch: 0       loss: 0.09822196513414383     mean_loss: 0.0003682359529193491
step: 785
Epoch: 0       loss: 0.721648097038269      mean_loss: 0.00030529231298714876
step: 786
Epoch: 0       loss: 0.1962924599647522      mean_loss: 8.630278898635879e-05
step: 787
Epoch: 0       loss: 0.08717076480388641     mean_loss: 7.939678471302614e-05
step: 788
Epoch: 0       loss: 0.9150142073631287      mean_loss: 0.0004345173656474799
step: 789
Epoch: 0       loss: 0.10988366603851318     mean_loss: 8.790293213678524e-05
step: 790
Epoch: 0       loss: 0.018067482858896255    mean_loss: 6.589977147086756e-06
step: 791
```

```
Epoch: 0      loss: 0.2865254282951355     mean_loss: 0.0009712949395179749
step: 792
Epoch: 0      loss: 0.01777702011168003    mean_loss: 1.4693036973767448e-05
step: 793
Epoch: 0      loss: 0.0852290615439415     mean_loss: 0.00012722949031740427
step: 794
Epoch: 0      loss: 0.018137289211153984   mean_loss: 1.3351256711757742e-05
step: 795
Epoch: 0      loss: 0.01806481182575226    mean_loss: 1.2092416909581516e-05
step: 796
Epoch: 0      loss: 1.3424625396728516     mean_loss: 0.013291827403008938
step: 797
Epoch: 0      loss: 0.3793739080429077     mean_loss: 0.0001385553041473031
step: 798
Epoch: 0      loss: 0.15837158262729645    mean_loss: 7.523025124100968e-05
step: 799
Epoch: 0      loss: 0.21690943837165833    mean_loss: 0.000554947997443378
step: 800
Epoch: 0      loss: 0.11557126045227051    mean_loss: 6.704746192554012e-05
step: 801
Epoch: 0      loss: 0.4660354256629944     mean_loss: 0.0012462632730603218
step: 802
Epoch: 0      loss: 0.16633693873882294    mean_loss: 0.0001237689721165225
step: 803
Epoch: 0      loss: 0.01660003326833248    mean_loss: 6.150718036224134e-06
step: 804
Epoch: 0      loss: 0.07412222027778625    mean_loss: 3.115946674370207e-05
step: 805
Epoch: 0      loss: 0.7000014781951904     mean_loss: 0.00036252339486964047
step: 806
Epoch: 0      loss: 0.21531899273395538    mean_loss: 8.301829075207934e-05
step: 807
Epoch: 0      loss: 0.19936975836753845    mean_loss: 0.00044421551865525544
step: 808
Epoch: 0      loss: 0.20335038006305695    mean_loss: 8.724084182176739e-05
step: 809
Epoch: 0      loss: 0.33436283469200134    mean_loss: 0.00016959942877292633
step: 810
Epoch: 0      loss: 0.17501679062843323    mean_loss: 0.0002502662828192115
step: 811
Epoch: 0      loss: 0.1883605718612671     mean_loss: 0.00011751453712349758
step: 812
Epoch: 0      loss: 0.329331636428833      mean_loss: 0.00011678452574415132
step: 813
Epoch: 0      loss: 0.015826815739274025   mean_loss: 6.637635124207009e-06
step: 814
Epoch: 0      loss: 0.1898377686738968     mean_loss: 0.0008363189408555627
step: 815
```

```
Epoch: 0        loss: 0.1253289133310318    mean_loss: 0.0001174722783616744
step: 816
Epoch: 0        loss: 0.1485888510942459    mean_loss: 5.501528721651994e-05
step: 817
Epoch: 0        loss: 0.21607038378715515   mean_loss: 8.927112503442913e-05
step: 818
Epoch: 0        loss: 0.20210695266723633   mean_loss: 0.00011547471513040364
step: 819
Epoch: 0        loss: 0.14894768595695496   mean_loss: 9.543095802655444e-05
step: 820
Epoch: 0        loss: 0.12787169218063354   mean_loss: 6.98510484653525e-05
step: 821
Epoch: 0        loss: 0.016257256269454956  mean_loss: 7.3611845436971635e-06
step: 822
Epoch: 0        loss: 0.347461074590683     mean_loss: 0.0003814143128693104
step: 823
Epoch: 0        loss: 0.13411454856395721   mean_loss: 0.00011933980567846447
step: 824
Epoch: 0        loss: 0.016067426651716232  mean_loss: 5.8668961173680145e-06
step: 825
Epoch: 0        loss: 0.09645210206508636   mean_loss: 4.432810965226963e-05
step: 826
Epoch: 0        loss: 0.5643568634986877    mean_loss: 0.0005922362906858325
step: 827
Epoch: 0        loss: 0.015794025734066963  mean_loss: 7.093619387887884e-06
step: 828
Epoch: 0        loss: 0.20820175111293793   mean_loss: 0.00011080832337029278
step: 829
Epoch: 0        loss: 0.015701547265052795  mean_loss: 2.4477330953232013e-05
step: 830
Epoch: 0        loss: 0.3038121163845062    mean_loss: 0.00012820109259337187
step: 831
Epoch: 0        loss: 0.19684019684791565   mean_loss: 7.929484127089381e-05
step: 832
Epoch: 0        loss: 0.1601254791021347    mean_loss: 0.0001493054733145982
step: 833
Epoch: 0        loss: 0.2737498879432678    mean_loss: 0.00012060730659868568
step: 834
Epoch: 0        loss: 0.015272542834281921  mean_loss: 6.219454462552676e-06
step: 835
Epoch: 0        loss: 0.02073291316628456   mean_loss: 1.270002030651085e-05
step: 836
Epoch: 0        loss: 0.19919680058956146   mean_loss: 0.00014372979057952762
step: 837
Epoch: 0        loss: 0.5325270891189575    mean_loss: 0.0003978124004788697
step: 838
Epoch: 0        loss: 0.45675086975097656   mean_loss: 0.00018300587544217706
step: 839
```

```
Epoch: 0      loss: 0.2887899577617645     mean_loss: 0.0003452484670560807
step: 840
Epoch: 0      loss: 0.1628931313753128     mean_loss: 0.00022703529975842685
step: 841
Epoch: 0      loss: 0.01485784538090229     mean_loss: 5.257888005871791e-06
step: 842
Epoch: 0      loss: 0.3951411247253418     mean_loss: 0.00036119413562119007
step: 843
Epoch: 0      loss: 0.21415501832962036     mean_loss: 0.00013120257062837481
step: 844
Epoch: 0      loss: 0.15060605108737946     mean_loss: 8.825366239761934e-05
step: 845
Epoch: 0      loss: 0.19469477236270905     mean_loss: 9.382612188346684e-05
step: 846
Epoch: 0      loss: 0.190260112285614     mean_loss: 0.00018480965809430927
step: 847
Epoch: 0      loss: 0.175771102309227     mean_loss: 0.00013209902681410313
step: 848
Epoch: 0      loss: 0.05928168445825577     mean_loss: 3.5555825888877735e-05
step: 849
Epoch: 0      loss: 0.14252056181430817     mean_loss: 0.00010117538477061316
step: 850
Epoch: 0      loss: 0.015214833430945873     mean_loss: 6.151007255539298e-05
step: 851
Epoch: 0      loss: 0.21887122094631195     mean_loss: 0.0001804886560421437
step: 852
Epoch: 0      loss: 0.04973997920751572     mean_loss: 3.308182203909382e-05
step: 853
Epoch: 0      loss: 0.30914971232414246     mean_loss: 0.00023893569596111774
step: 854
Epoch: 0      loss: 0.015289167873561382     mean_loss: 8.443775186606217e-06
step: 855
Epoch: 0      loss: 0.015228073112666607     mean_loss: 1.4213168469723314e-05
step: 856
Epoch: 0      loss: 0.12043542414903641     mean_loss: 7.118772919056937e-05
step: 857
Epoch: 0      loss: 0.01547932717949152     mean_loss: 1.6793212125776336e-05
step: 858
Epoch: 0      loss: 0.015417470596730709     mean_loss: 6.110160029493272e-06
step: 859
Epoch: 0      loss: 0.015355863608419895     mean_loss: 9.465172297495883e-06
step: 860
Epoch: 0      loss: 0.015294501557946205     mean_loss: 5.834527655679267e-06
step: 861
Epoch: 0      loss: 0.015233385376632214     mean_loss: 2.056574885500595e-05
step: 862
Epoch: 0      loss: 0.13999250531196594     mean_loss: 0.00011138668924104422
step: 863
```

```
Epoch: 0      loss: 0.015432726591825485      mean_loss: 6.770084382878849e-06
step: 864
Epoch: 0      loss: 0.015371057204902172      mean_loss: 1.7534581274958327e-05
step: 865
Epoch: 0      loss: 0.015309634618461132      mean_loss: 5.84114695811877e-06
step: 866
Epoch: 0      loss: 0.4124850332736969      mean_loss: 0.00026223197346553206
step: 867
Epoch: 0      loss: 0.014503936283290386      mean_loss: 5.179294021218084e-06
step: 868
Epoch: 0      loss: 0.01444597914814949      mean_loss: 9.071662134374492e-06
step: 869
Epoch: 0      loss: 0.0143882529810071      mean_loss: 3.6727869883179665e-05
step: 870
Epoch: 0      loss: 0.8380156755447388      mean_loss: 0.0006813434301875532
step: 871
Epoch: 0      loss: 0.21924526989459991      mean_loss: 0.00027559726731851697
step: 872
Epoch: 0      loss: 0.1706235110759735      mean_loss: 0.00044621177949011326
step: 873
Epoch: 0      loss: 0.16548550128936768      mean_loss: 7.768339128233492e-05
step: 874
Epoch: 0      loss: 0.32716941833496094      mean_loss: 0.00031496354495175183
step: 875
Epoch: 0      loss: 0.013925693929195404      mean_loss: 5.781834261142649e-06
step: 876
Epoch: 0      loss: 0.16684973239898682      mean_loss: 0.0006157030002214015
step: 877
Epoch: 0      loss: 0.0556211955845356      mean_loss: 5.361000876291655e-05
step: 878
Epoch: 0      loss: 0.0729428231716156      mean_loss: 7.128557626856491e-05
step: 879
Epoch: 0      loss: 0.22957171499729156      mean_loss: 8.260539470938966e-05
step: 880
Epoch: 0      loss: 0.3620343506336212      mean_loss: 0.0003768126480281353
step: 881
Epoch: 0      loss: 0.03547927364706993      mean_loss: 1.3576708624896128e-05
step: 882
Epoch: 0      loss: 0.08088316023349762      mean_loss: 3.376324457349256e-05
step: 883
Epoch: 0      loss: 0.01553748082369566      mean_loss: 8.555628301110119e-05
step: 884
Epoch: 0      loss: 0.14020922780036926      mean_loss: 9.211739234160632e-05
step: 885
Epoch: 0      loss: 0.01567503809928894      mean_loss: 1.661449459788855e-05
step: 886
Epoch: 0      loss: 0.015612402930855751      mean_loss: 0.0002520809357520193
step: 887
```

```
Epoch: 0      loss: 0.015550014562904835     mean_loss: 6.423615559469908e-05
step: 888
Epoch: 0      loss: 0.07113786041736603     mean_loss: 4.009127223980613e-05
step: 889
Epoch: 0      loss: 0.22141647338867188     mean_loss: 8.391684968955815e-05
step: 890
Epoch: 0      loss: 0.14917831122875214     mean_loss: 0.00403411453589797
step: 891
Epoch: 0      loss: 0.6870707273483276     mean_loss: 0.00031399584258906543
step: 892
Epoch: 0      loss: 0.1645970642566681     mean_loss: 0.000555256090592593
step: 893
Epoch: 0      loss: 0.015402904711663723     mean_loss: 1.5568935850751586e-05
step: 894
Epoch: 0      loss: 0.09038740396499634     mean_loss: 0.00013452823623083532
step: 895
Epoch: 0      loss: 0.015759360045194626     mean_loss: 4.787315629073419e-05
step: 896
Epoch: 0      loss: 0.07850393652915955     mean_loss: 0.00010335764090996236
step: 897
Epoch: 0      loss: 0.01601262018084526     mean_loss: 5.6626768127898686e-06
step: 898
Epoch: 0      loss: 0.2056788057088852     mean_loss: 8.831449667923152e-05
step: 899
Epoch: 0      loss: 0.01596488244831562     mean_loss: 7.404610641970066e-06
step: 900
Epoch: 0      loss: 0.5333109498023987     mean_loss: 0.0002042582636931911
step: 901
Epoch: 0      loss: 0.015575594268739223     mean_loss: 1.0089420356962364e-05
step: 902
Epoch: 0      loss: 0.2509942650794983     mean_loss: 0.00022592653112951666
step: 903
Epoch: 0      loss: 0.14177745580673218     mean_loss: 6.507946091005579e-05
step: 904
Epoch: 0      loss: 0.015627436339855194     mean_loss: 1.6244839571299963e-05
step: 905
Epoch: 0      loss: 0.015564989298582077     mean_loss: 5.425220933830133e-06
step: 906
Epoch: 0      loss: 0.015502791851758957     mean_loss: 6.149174168967875e-06
step: 907
Epoch: 0      loss: 0.04797873646020889     mean_loss: 3.6573845136445016e-05
step: 908
Epoch: 0      loss: 0.2919168174266815     mean_loss: 0.00011781815555877984
step: 909
Epoch: 0      loss: 0.015597094781696796     mean_loss: 5.8031437220051885e-06
step: 910
Epoch: 0      loss: 0.1679309904575348     mean_loss: 7.260561687871814e-05
step: 911
```

```
Epoch: 0        loss: 0.015591870993375778      mean_loss: 5.542985491047148e-06
step: 912
Epoch: 0        loss: 0.4602639973163605        mean_loss: 0.00025542150251567364
step: 913
Epoch: 0        loss: 0.2807060182094574        mean_loss: 0.0001231207133969292
step: 914
Epoch: 0        loss: 0.07453826069831848       mean_loss: 0.00039925871533341706
step: 915
Epoch: 0        loss: 0.1448432356119156        mean_loss: 0.00027560244780033827
step: 916
Epoch: 0        loss: 0.21265581250190735       mean_loss: 0.0002041528350673616
step: 917
Epoch: 0        loss: 0.015371174551546574      mean_loss: 5.536909611691954e-06
step: 918
Epoch: 0        loss: 0.015309751033782959      mean_loss: 1.1899990568053909e-05
step: 919
Epoch: 0        loss: 0.015248573385179043      mean_loss: 6.213547749212012e-06
step: 920
Epoch: 0        loss: 0.11236304044723511       mean_loss: 6.120329635450616e-05
step: 921
Epoch: 0        loss: 0.08884114772081375       mean_loss: 4.674151205108501e-05
step: 922
Epoch: 0        loss: 0.016167152673006058      mean_loss: 2.173444227082655e-05
step: 923
Epoch: 0        loss: 0.01610255055129528       mean_loss: 4.700958015746437e-05
step: 924
Epoch: 0        loss: 0.016038203611969948      mean_loss: 0.00024007780302781612
step: 925
Epoch: 0        loss: 0.01597411371767521       mean_loss: 9.628380212234333e-06
step: 926
Epoch: 0        loss: 0.11294633895158768       mean_loss: 0.0003608816768974066
step: 927
Epoch: 0        loss: 0.016349248588085175      mean_loss: 2.669349851203151e-05
step: 928
Epoch: 0        loss: 0.016283918172121048      mean_loss: 1.1608975910348818e-05
step: 929
Epoch: 0        loss: 0.016218848526477814      mean_loss: 1.4714831195306033e-05
step: 930
Epoch: 0        loss: 0.016154037788510323      mean_loss: 1.3028809917159379e-05
step: 931
Epoch: 0        loss: 0.016089484095573425      mean_loss: 1.4909734090906568e-05
step: 932
Epoch: 0        loss: 0.131294384598732         mean_loss: 0.00038848904659971595
step: 933
Epoch: 0        loss: 0.01615149714052677       mean_loss: 8.400195838476066e-06
step: 934
Epoch: 0        loss: 1.2833389043807983        mean_loss: 0.000636265380308032
step: 935
```

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Epoch: 0        loss: 0.03428162634372711      mean_loss: 4.890461059403606e-05
step: 936
Epoch: 0        loss: 0.015489640645682812     mean_loss: 8.309382792504039e-06
step: 937
Epoch: 0        loss: 0.015427744016051292     mean_loss: 5.936943489359692e-05
step: 938
Epoch: 0        loss: 0.015366094186902046     mean_loss: 1.195772347273305e-05
step: 939
Epoch: 0        loss: 0.015304691158235073     mean_loss: 7.190915312094148e-06
step: 940
Epoch: 0        loss: 1.0767873525619507       mean_loss: 0.011334679089486599
step: 941
Epoch: 0        loss: 0.6186389923095703       mean_loss: 0.00120223977137357
step: 942
Epoch: 0        loss: 0.015036329627037048     mean_loss: 6.999383913353086e-05
step: 943
Epoch: 0        loss: 0.014976246282458305     mean_loss: 4.348624133854173e-05
step: 944
Epoch: 0        loss: 0.12991710007190704      mean_loss: 0.00018539313168730587
step: 945
Epoch: 0        loss: 0.015603659674525261     mean_loss: 7.874838956922758e-06
step: 946
Epoch: 0        loss: 0.015541307628154755     mean_loss: 7.588669177494012e-06
step: 947
Epoch: 0        loss: 0.01547920424491167      mean_loss: 0.0003366694145370275
step: 948
Epoch: 0        loss: 0.015417348593473434     mean_loss: 2.8853512048954144e-05
step: 949
Epoch: 0        loss: 0.01535574160516262      mean_loss: 7.28437271391158e-06
step: 950
Epoch: 0        loss: 0.01529437955468893      mean_loss: 1.3022692655795254e-05
step: 951
Epoch: 0        loss: 0.12797515094280243      mean_loss: 0.00011582640581764281
step: 952
Epoch: 0        loss: 0.3445183336734772       mean_loss: 0.0009416233515366912
step: 953
Epoch: 0        loss: 0.015087990090250969     mean_loss: 2.9850303690182045e-05
step: 954
Epoch: 0        loss: 0.015027699060738087     mean_loss: 8.531189450877719e-06
step: 955
Epoch: 0        loss: 0.014967648312449455     mean_loss: 1.540759149065707e-05
step: 956
Epoch: 0        loss: 0.04862526059150696      mean_loss: 1.7649008441367187e-05
step: 957
Epoch: 0        loss: 0.014647996053099632     mean_loss: 8.8828855950851e-06
step: 958
Epoch: 0        loss: 0.014589463360607624     mean_loss: 1.1576801625778899e-05
step: 959
```

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Epoch: 0      loss: 0.01453116349875927    mean_loss: 8.574728781240992e-06
step: 960
Epoch: 0      loss: 0.014473097398877144   mean_loss: 9.073729415831622e-06
step: 961
Epoch: 0      loss: 0.014415264129638672   mean_loss: 1.5183513824013062e-05
step: 962
Epoch: 0      loss: 0.01435765903443098    mean_loss: 9.242985470336862e-06
step: 963
Epoch: 0      loss: 0.014300286769866943   mean_loss: 1.4195962648955174e-05
step: 964
Epoch: 0      loss: 0.37827661633491516    mean_loss: 0.00021955356351099908
step: 965
Epoch: 0      loss: 0.015108385123312473   mean_loss: 6.02276577410521e-06
step: 966
Epoch: 0      loss: 0.5827367901802063     mean_loss: 0.0004917660844512284
step: 967
Epoch: 0      loss: 0.014187267981469631   mean_loss: 3.0773655453231186e-05
step: 968
Epoch: 0      loss: 0.014130576513707638   mean_loss: 2.1989673768985085e-05
step: 969
Epoch: 0      loss: 0.027178756892681122   mean_loss: 3.930743696400896e-05
step: 970
Epoch: 0      loss: 0.9920576214790344     mean_loss: 0.001362770446576178
step: 971
Epoch: 0      loss: 0.2437536120414734     mean_loss: 0.0005375359323807061
step: 972
Epoch: 0      loss: 0.12121883779764175    mean_loss: 0.0015412198845297098
step: 973
Epoch: 0      loss: 0.11351355165243149    mean_loss: 5.017652438255027e-05
step: 974
Epoch: 0      loss: 0.8028491139411926     mean_loss: 0.00411743251606822
step: 975
Epoch: 0      loss: 0.013029491528868675   mean_loss: 7.5106986514583696e-06
step: 976
Epoch: 0      loss: 0.21397291123867035    mean_loss: 8.823935058899224e-05
step: 977
Epoch: 0      loss: 0.012983941473066807   mean_loss: 5.379498361435253e-06
step: 978
Epoch: 0      loss: 0.11817384511232376    mean_loss: 0.0007386201759800315
step: 979
Epoch: 0      loss: 0.31914955377578735    mean_loss: 0.00019553066522348672
step: 980
Epoch: 0      loss: 0.1486150175333023     mean_loss: 0.0003468777285888791
step: 981
Epoch: 0      loss: 0.01319971214979887    mean_loss: 4.746527793031419e-06
step: 982
Epoch: 0      loss: 0.013146966695785522   mean_loss: 8.971155693870969e-06
step: 983
```

```
Epoch: 0      loss: 0.013094431720674038      mean_loss: 8.103526852210052e-06
step: 984
Epoch: 0      loss: 0.06708070635795593       mean_loss: 0.00042194221168756485
step: 985
Epoch: 0      loss: 0.013330362737178802      mean_loss: 5.22305526828859e-06
step: 986
Epoch: 0      loss: 0.19083905220031738       mean_loss: 0.00028273227508179843
step: 987
Epoch: 0      loss: 0.013182259164750576      mean_loss: 7.04235935700126e-06
step: 988
Epoch: 0      loss: 0.013129581697285175      mean_loss: 8.524740223947447e-06
step: 989
Epoch: 0      loss: 0.013077118434011936      mean_loss: 9.846232387644704e-06
step: 990
Epoch: 0      loss: 0.013024861924350262      mean_loss: 6.321390628727386e-06
step: 991
Epoch: 0      loss: 0.012972813099622726      mean_loss: 1.6704163499525748e-05
step: 992
Epoch: 0      loss: 0.01292097382247448       mean_loss: 2.431894426990766e-05
step: 993
Epoch: 0      loss: 0.012869342230260372      mean_loss: 1.0465633749845438e-05
step: 994
Epoch: 0      loss: 0.012817916460335255      mean_loss: 4.82814539282117e-06
step: 995
Epoch: 0      loss: 0.012766695581376553      mean_loss: 8.694025382283144e-06
step: 996
Epoch: 0      loss: 0.2665958106517792        mean_loss: 0.00025758889387361705
step: 997
Epoch: 0      loss: 0.2609281539916992        mean_loss: 0.00045344745740294456
step: 998
Epoch: 0      loss: 0.013406231999397278      mean_loss: 0.00016902048082556576
step: 999
Epoch: 0      loss: 0.013352660462260246      mean_loss: 4.43333774455823e-05
step: 1000
Epoch: 0      loss: 0.013299303129315376      mean_loss: 1.0280151400365867e-05
step: 1001
Epoch: 0      loss: 0.013246159069240093      mean_loss: 5.85014959142427e-06
step: 1002
Epoch: 0      loss: 0.38376614451408386       mean_loss: 0.0002244280622107908
step: 1003
Epoch: 0      loss: 0.2272724211215973        mean_loss: 0.00011267798254266381
step: 1004
Epoch: 0      loss: 0.012928018346428871      mean_loss: 1.0759650649561081e-05
step: 1005
Epoch: 0      loss: 0.01287635788321495       mean_loss: 1.946694465004839e-05
step: 1006
Epoch: 0      loss: 0.4526185393333435        mean_loss: 0.0007083537057042122
step: 1007
```

```
Epoch: 0      loss: 0.39305180311203003    mean_loss: 0.0012500322191044688
step: 1008
Epoch: 0      loss: 0.4467448592185974     mean_loss: 0.00017884027329273522
step: 1009
Epoch: 0      loss: 0.1161993145942688     mean_loss: 0.000200651993509382
step: 1010
Epoch: 0      loss: 0.12568414211273193    mean_loss: 0.00042964096064679325
step: 1011
Epoch: 0      loss: 0.6773110032081604     mean_loss: 0.004429677501320839
step: 1012
Epoch: 0      loss: 0.012024340219795704   mean_loss: 1.0740221114247106e-05
step: 1013
Epoch: 0      loss: 0.1458674967288971     mean_loss: 0.00016558256174903363
step: 1014
Epoch: 0      loss: 0.01215021125972271    mean_loss: 4.373506271804217e-06
step: 1015
Epoch: 0      loss: 0.18426060676574707    mean_loss: 0.00010357784776715562
step: 1016
Epoch: 0      loss: 0.27299734950065613    mean_loss: 0.0003363311698194593
step: 1017
Epoch: 0      loss: 0.012044928036630154   mean_loss: 8.161673576978501e-06
step: 1018
Epoch: 0      loss: 0.011996795423328876   mean_loss: 7.992648534127511e-06
step: 1019
Epoch: 0      loss: 0.4887823760509491     mean_loss: 0.00028517525061033666
step: 1020
Epoch: 0      loss: 0.7392696738243103     mean_loss: 0.03215455636382103
step: 1021
Epoch: 0      loss: 0.4970704913139343     mean_loss: 0.00039464954170398414
step: 1022
Epoch: 0      loss: 0.1932578980922699     mean_loss: 0.00017107115127146244
step: 1023
Epoch: 0      loss: 0.18196558952331543    mean_loss: 0.0002526167081668973
step: 1024
Epoch: 0      loss: 0.20549090206623077    mean_loss: 0.00021566406940110028
step: 1025
Epoch: 0      loss: 0.16099277138710022    mean_loss: 9.455039980821311e-05
step: 1026
Epoch: 0      loss: 0.0776672512292862     mean_loss: 2.9477558200596832e-05
step: 1027
Epoch: 0      loss: 0.4270457625389099     mean_loss: 0.0007681209244765341
step: 1028
Epoch: 0      loss: 0.24281029403209686    mean_loss: 0.0001902956428239122
step: 1029
Epoch: 0      loss: 0.1129378229379654     mean_loss: 9.25761996768415e-05
step: 1030
Epoch: 0      loss: 0.3340523838996887     mean_loss: 0.00017179688438773155
step: 1031
```

```
Epoch: 0      loss: 0.19400998950004578      mean_loss: 9.646387479733676e-05
step: 1032
Epoch: 0      loss: 0.14652204513549805      mean_loss: 0.00011472497135400772
step: 1033
Epoch: 0      loss: 0.010056795552372932      mean_loss: 5.976216471026419e-06
step: 1034
Epoch: 0      loss: 0.1798265427350998      mean_loss: 7.213498611235991e-05
step: 1035
Epoch: 0      loss: 0.14193551242351532      mean_loss: 9.524322376819327e-05
step: 1036
Epoch: 0      loss: 0.01028642151504755      mean_loss: 4.044279194204137e-06
step: 1037
Epoch: 0      loss: 0.5975793600082397      mean_loss: 0.00043365993769839406
step: 1038
Epoch: 0      loss: 0.15439695119857788      mean_loss: 0.00011051435285480693
step: 1039
Epoch: 0      loss: 0.07388057559728622      mean_loss: 5.323100049281493e-05
step: 1040
Epoch: 0      loss: 0.2450522929430008      mean_loss: 0.00015947008796501905
step: 1041
Epoch: 0      loss: 0.38382139801979065      mean_loss: 0.0003771914343815297
step: 1042
Epoch: 0      loss: 0.14471295475959778      mean_loss: 0.00010153264156542718
step: 1043
Epoch: 0      loss: 0.05455860123038292      mean_loss: 2.5004635972436517e-05
step: 1044
Epoch: 0      loss: 0.5475162863731384      mean_loss: 0.006152149755507708
step: 1045
Epoch: 0      loss: 0.010134332813322544      mean_loss: 1.7818909327615984e-05
step: 1046
Epoch: 0      loss: 0.01009383611381054      mean_loss: 1.4913945960870478e-05
step: 1047
Epoch: 0      loss: 0.16547197103500366      mean_loss: 6.929936353117228e-05
step: 1048
Epoch: 0      loss: 0.13307438790798187      mean_loss: 0.00019695812079589814
step: 1049
Epoch: 0      loss: 0.08235631138086319      mean_loss: 4.5735883759334683e-05
step: 1050
Epoch: 0      loss: 0.3208445608615875      mean_loss: 0.00016439052706118673
step: 1051
Epoch: 0      loss: 0.010699140839278698      mean_loss: 5.708634489565156e-06
step: 1052
Epoch: 0      loss: 0.14967544376850128      mean_loss: 0.00045357923954725266
step: 1053
Epoch: 0      loss: 0.01071155071258545      mean_loss: 4.007584266219055e-06
step: 1054
Epoch: 0      loss: 0.5077782273292542      mean_loss: 0.0002497699169907719
step: 1055
```

```
Epoch: 0        loss: 0.25700774788856506       mean_loss: 9.055175178218633e-05
step: 1056
Epoch: 0        loss: 0.05817374587059021       mean_loss: 4.863463982474059e-05
step: 1057
Epoch: 0        loss: 0.27750879526138306       mean_loss: 0.00021616622689180076
step: 1058
Epoch: 0        loss: 0.010321596637368202      mean_loss: 4.269757937436225e-06
step: 1059
Epoch: 0        loss: 0.21733151376247406       mean_loss: 0.0001282973971683532
step: 1060
Epoch: 0        loss: 0.01900547556579113       mean_loss: 1.2336410691204946e-05
step: 1061
Epoch: 0        loss: 0.010733003728091717      mean_loss: 4.2981359001714736e-05
step: 1062
Epoch: 0        loss: 0.01069011352956295       mean_loss: 4.64435106550809e-06
step: 1063
Epoch: 0        loss: 0.6021870374679565        mean_loss: 0.0003133151330985129
step: 1064
Epoch: 0        loss: 0.01025647297501564        mean_loss: 4.161333890806418e-06
step: 1065
Epoch: 0        loss: 0.07442668080329895       mean_loss: 0.0001865434751380235
step: 1066
Epoch: 0        loss: 0.1995101273059845        mean_loss: 8.174239337677136e-05
step: 1067
Epoch: 0        loss: 0.25790852308273315       mean_loss: 0.00038563567795790073
step: 1068
Epoch: 0        loss: 0.15556912124156952       mean_loss: 7.059971540002152e-05
step: 1069
Epoch: 0        loss: 0.22333846986293793       mean_loss: 0.00011795621685450897
step: 1070
Epoch: 0        loss: 0.06004184111952782       mean_loss: 2.6654763132683e-05
step: 1071
Epoch: 0        loss: 0.05604754760861397       mean_loss: 5.798779966426082e-05
step: 1072
Epoch: 0        loss: 0.011002554558217525       mean_loss: 6.185985512274783e-06
step: 1073
Epoch: 0        loss: 0.010958588682115078       mean_loss: 4.170701686234679e-06
step: 1074
Epoch: 0        loss: 0.025373157113790512       mean_loss: 4.6649500291096047e-05
step: 1075
Epoch: 0        loss: 0.011262414045631886       mean_loss: 2.426837818347849e-05
step: 1076
Epoch: 0        loss: 0.23881694674491882       mean_loss: 0.00054405746050179
step: 1077
Epoch: 0        loss: 0.029749732464551926       mean_loss: 2.247313932457473e-05
step: 1078
Epoch: 0        loss: 0.01143163163214922       mean_loss: 1.748718204908073e-05
step: 1079
```

```
Epoch: 0       loss: 0.41420093178749084    mean_loss: 0.0002106909523718059
step: 1080
Epoch: 0       loss: 0.2856929898262024     mean_loss: 0.00033794762566685677
step: 1081
Epoch: 0       loss: 0.16285382211208344    mean_loss: 0.0001638471585465595
step: 1082
Epoch: 0       loss: 0.011565089225769043   mean_loss: 4.179948973614955e-06
step: 1083
Epoch: 0       loss: 0.011518875136971474   mean_loss: 6.630066309298854e-06
step: 1084
Epoch: 0       loss: 0.011472846381366253   mean_loss: 5.553689788939664e-06
step: 1085
Epoch: 0       loss: 0.09475741535425186    mean_loss: 9.871142538031563e-05
step: 1086
Epoch: 0       loss: 0.011628319509327412   mean_loss: 1.1905615792784374e-05
step: 1087
Epoch: 0       loss: 0.19077159464359283    mean_loss: 7.686683966312557e-05
step: 1088
Epoch: 0       loss: 0.011554770171642303   mean_loss: 7.070903848216403e-06
step: 1089
Epoch: 0       loss: 0.02739192172884941    mean_loss: 1.328114012721926e-05
step: 1090
Epoch: 0       loss: 0.012824135832488537   mean_loss: 5.516724286280805e-06
step: 1091
Epoch: 0       loss: 0.01277289167046547    mean_loss: 5.555829920922406e-05
step: 1092
Epoch: 0       loss: 0.15809570252895355    mean_loss: 0.0001062130686477758
step: 1093
Epoch: 0       loss: 0.012623624876141548   mean_loss: 1.0159486919292249e-05
step: 1094
Epoch: 0       loss: 0.0125731797888875     mean_loss: 1.903682277770713e-05
step: 1095
Epoch: 0       loss: 0.01252293772995472    mean_loss: 8.283999704872258e-06
step: 1096
Epoch: 0       loss: 0.01247289590537548    mean_loss: 6.0588252381421626e-05
step: 1097
Epoch: 0       loss: 0.01242305338382721    mean_loss: 8.212921966332942e-05
step: 1098
Epoch: 0       loss: 0.01237341109663248    mean_loss: 7.326788818318164e-06
step: 1099
Epoch: 0       loss: 0.01232396811246872    mean_loss: 7.775091035000514e-06
step: 1100
Epoch: 0       loss: 0.012274720706045628   mean_loss: 4.598463419824839e-06
step: 1101
Epoch: 0       loss: 0.705190896987915      mean_loss: 0.0004302595916669816
step: 1102
Epoch: 0       loss: 0.011464862152934074   mean_loss: 7.476506652892567e-06
step: 1103
```

```
Epoch: 0        loss: 0.06797928363084793      mean_loss: 2.59392436419148e-05
step: 1104
Epoch: 0        loss: 0.01158885657787323      mean_loss: 8.260878530563787e-06
step: 1105
Epoch: 0        loss: 0.011542548425495625      mean_loss: 1.6291691281367093e-05
step: 1106
Epoch: 0        loss: 0.011496424674987793      mean_loss: 6.33262743576779e-06
step: 1107
Epoch: 0        loss: 0.011450483463704586      mean_loss: 6.202932581800269e-06
step: 1108
Epoch: 0        loss: 0.03730542212724686      mean_loss: 3.982030466431752e-05
step: 1109
Epoch: 0        loss: 0.011596388183534145      mean_loss: 6.881258741486818e-06
step: 1110
Epoch: 0        loss: 0.011550049297511578      mean_loss: 4.098202225577552e-06
step: 1111
Epoch: 0        loss: 0.011503893882036209      mean_loss: 0.0003487270150799304
step: 1112
Epoch: 0        loss: 0.28104662895202637      mean_loss: 0.00015633074508514255
step: 1113
Epoch: 0        loss: 1.0360945463180542      mean_loss: 0.0008343404624611139
step: 1114
Epoch: 0        loss: 0.5809241533279419      mean_loss: 0.0004170311731286347
step: 1115
Epoch: 0        loss: 0.48927730321884155      mean_loss: 0.0020838056225329638
step: 1116
Epoch: 0        loss: 0.010359866544604301      mean_loss: 8.76314879860729e-06
step: 1117
Epoch: 0        loss: 0.13334104418754578      mean_loss: 5.003745172871277e-05
step: 1118
Epoch: 0        loss: 0.01046614907681942      mean_loss: 7.625950729561737e-06
step: 1119
Epoch: 0        loss: 0.15674743056297302      mean_loss: 0.00013798860891256481
step: 1120
Epoch: 0        loss: 0.010545523837208748      mean_loss: 6.892588771734154e-06
step: 1121
Epoch: 0        loss: 0.17304731905460358      mean_loss: 0.00010197655501542613
step: 1122
Epoch: 0        loss: 0.054183173924684525      mean_loss: 2.3819724447093904e-05
step: 1123
Epoch: 0        loss: 0.4400697350502014      mean_loss: 0.0004956008633598685
step: 1124
Epoch: 0        loss: 0.010630578733980656      mean_loss: 3.869975444104057e-06
step: 1125
Epoch: 0        loss: 0.16700421273708344      mean_loss: 0.00020243405015207827
step: 1126
Epoch: 0        loss: 0.1909179985523224      mean_loss: 0.0002722513163462281
step: 1127
```

```
Epoch: 0      loss: 0.010660882107913494      mean_loss: 1.0208341336692683e-05
step: 1128
Epoch: 0      loss: 0.010618281550705433      mean_loss: 8.264766620413866e-06
step: 1129
Epoch: 0      loss: 0.010575849562883377      mean_loss: 2.484533797542099e-05
step: 1130
Epoch: 0      loss: 0.01053358893841505      mean_loss: 3.919240498362342e-06
step: 1131
Epoch: 0      loss: 0.01049149688333273      mean_loss: 4.218414687784389e-06
step: 1132
Epoch: 0      loss: 0.2103196382522583      mean_loss: 0.00018728750001173466
step: 1133
Epoch: 0      loss: 0.010408120229840279      mean_loss: 2.3286609575734474e-05
step: 1134
Epoch: 0      loss: 0.586734414100647      mean_loss: 0.0029936619102954865
step: 1135
Epoch: 0      loss: 0.06252755224704742      mean_loss: 4.1442890506004915e-05
step: 1136
Epoch: 0      loss: 0.29850926995277405      mean_loss: 0.00015224411617964506
step: 1137
Epoch: 0      loss: 0.34570857882499695      mean_loss: 0.00013579144433606416
step: 1138
Epoch: 0      loss: 0.30221912264823914      mean_loss: 0.00016816178685985506
step: 1139
Epoch: 0      loss: 0.19795462489128113      mean_loss: 0.000673887028824538
step: 1140
Epoch: 0      loss: 0.20895345509052277      mean_loss: 0.00016506090469192713
step: 1141
Epoch: 0      loss: 0.17553386092185974      mean_loss: 0.0013944358797743917
step: 1142
Epoch: 0      loss: 0.13556760549545288      mean_loss: 5.1181628805352375e-05
step: 1143
Epoch: 0      loss: 0.12360917776823044      mean_loss: 0.00012316768697928637
step: 1144
Epoch: 0      loss: 0.21364201605319977      mean_loss: 9.521834726911038e-05
step: 1145
Epoch: 0      loss: 0.009600861929357052      mean_loss: 1.561365570523776e-05
step: 1146
Epoch: 0      loss: 0.054394353181123734      mean_loss: 2.522483373468276e-05
step: 1147
Epoch: 0      loss: 0.22871161997318268      mean_loss: 0.00011814919707830995
step: 1148
Epoch: 0      loss: 0.07649458199739456      mean_loss: 3.746344009414315e-05
step: 1149
Epoch: 0      loss: 0.7010480761528015      mean_loss: 0.0005516015226021409
step: 1150
Epoch: 0      loss: 0.1558459848165512      mean_loss: 0.0002269921387778595
step: 1151
```

```
Epoch: 0      loss: 0.1772403120994568     mean_loss: 0.001207260531373322
step: 1152
Epoch: 0      loss: 0.01001439057290554    mean_loss: 5.37178129889071e-06
step: 1153
Epoch: 0      loss: 0.15980814397335052    mean_loss: 0.00041189047624357045
step: 1154
Epoch: 0      loss: 0.01005027536302805    mean_loss: 7.559368441434344e-06
step: 1155
Epoch: 0      loss: 0.1787787824869156     mean_loss: 0.0020789108239114285
step: 1156
Epoch: 0      loss: 0.010275939479470253   mean_loss: 7.402546998491744e-06
step: 1157
Epoch: 0      loss: 0.15921704471111298    mean_loss: 0.00010523757373448461
step: 1158
Epoch: 0      loss: 0.01012913417071104    mean_loss: 3.70810562344559e-06
step: 1159
Epoch: 0      loss: 0.24088242650032043    mean_loss: 0.00031905449577607214
step: 1160
Epoch: 0      loss: 0.010178430937230587   mean_loss: 7.371829724434065e-06
step: 1161
Epoch: 0      loss: 0.43352243304252625    mean_loss: 0.00026338384486734867
step: 1162
Epoch: 0      loss: 0.1565050631761551     mean_loss: 0.00010049258708022535
step: 1163
Epoch: 0      loss: 0.4293317496776581     mean_loss: 0.0002428915468044579
step: 1164
Epoch: 0      loss: 0.33246755599975586    mean_loss: 0.002326646354049444
step: 1165
Epoch: 0      loss: 0.5227198600769043     mean_loss: 0.00028706755256280303
step: 1166
Epoch: 0      loss: 0.0610271655023098     mean_loss: 0.00028386220219545066
step: 1167
Epoch: 0      loss: 0.00918649137020111    mean_loss: 3.945980643038638e-05
step: 1168
Epoch: 0      loss: 0.009149781428277493   mean_loss: 3.7769179925817298e-06
step: 1169
Epoch: 0      loss: 0.19440898299217224    mean_loss: 0.0002854812773875892
step: 1170
Epoch: 0      loss: 0.033924832940101624   mean_loss: 3.0490475182887167e-05
step: 1171
Epoch: 0      loss: 0.41410505771636963    mean_loss: 0.00026211110525764525
step: 1172
Epoch: 0      loss: 0.008850205689668655   mean_loss: 1.8672781152417883e-05
step: 1173
Epoch: 0      loss: 0.2274922877550125     mean_loss: 0.00016379478620365262
step: 1174
Epoch: 0      loss: 0.23075322806835175    mean_loss: 0.0003907225327566266
step: 1175
```

```
Epoch: 0        loss: 0.008698910474777222     mean_loss: 1.0054903214040678e-05
step: 1176
Epoch: 0        loss: 0.22760102152824402      mean_loss: 0.0005791630246676505
step: 1177
Epoch: 0        loss: 0.008804265409708023     mean_loss: 7.034054760879371e-06
step: 1178
Epoch: 0        loss: 0.008769085630774498     mean_loss: 0.00019502488430589437
step: 1179
Epoch: 0        loss: 0.24417732656002045      mean_loss: 0.00033475665259175
step: 1180
Epoch: 0        loss: 0.10738135129213333      mean_loss: 8.241477189585567e-05
step: 1181
Epoch: 0        loss: 0.18302196264266968      mean_loss: 7.906061364337802e-05
step: 1182
Epoch: 0        loss: 0.10766583681106567      mean_loss: 3.879902578773908e-05
step: 1183
Epoch: 0        loss: 0.09903570264577866      mean_loss: 4.3818887206725776e-05
step: 1184
Epoch: 0        loss: 0.008989821188151836     mean_loss: 1.1263889973633923e-05
step: 1185
Epoch: 0        loss: 0.008953898213803768     mean_loss: 9.348448656965047e-06
step: 1186
Epoch: 0        loss: 0.2132306545972824       mean_loss: 0.0003807856992352754
step: 1187
Epoch: 0        loss: 0.008881834335625172     mean_loss: 7.592311885673553e-05
step: 1188
Epoch: 0        loss: 0.00884634256362915      mean_loss: 9.141665941569954e-06
step: 1189
Epoch: 0        loss: 0.17161494493484497      mean_loss: 0.0003232091839890927
step: 1190
Epoch: 0        loss: 0.13380540907382965      mean_loss: 0.00010373442637501284
step: 1191
Epoch: 0        loss: 0.28220510482788086      mean_loss: 0.00010111348092323169
step: 1192
Epoch: 0        loss: 0.06495298445224762      mean_loss: 0.00015058818098623306
step: 1193
Epoch: 0        loss: 0.009244337677955627     mean_loss: 0.00018067166092805564
step: 1194
Epoch: 0        loss: 0.23122243583202362      mean_loss: 0.0008476304356008768
step: 1195
Epoch: 0        loss: 0.009057095274329185     mean_loss: 3.346191078890115e-05
step: 1196
Epoch: 0        loss: 0.009020903147757053     mean_loss: 5.745155249314848e-06
step: 1197
Epoch: 0        loss: 0.008984856307506561     mean_loss: 3.486080458969809e-06
step: 1198
Epoch: 0        loss: 0.17700821161270142      mean_loss: 0.00023823916853871197
step: 1199
```

```
Epoch: 0      loss: 0.008984698913991451    mean_loss: 5.249253263173159e-06
step: 1200
Epoch: 0      loss: 0.008948796428740025    mean_loss: 3.961967195209581e-06
step: 1201
Epoch: 0      loss: 0.008913037367165089    mean_loss: 3.163178234899533e-06
step: 1202
Epoch: 0      loss: 0.17366187274456024     mean_loss: 7.312211528187618e-05
step: 1203
Epoch: 0      loss: 0.008960911072790623    mean_loss: 8.28050724521745e-06
step: 1204
Epoch: 0      loss: 0.008925102651119232    mean_loss: 1.0174696399189997e-05
step: 1205
Epoch: 0      loss: 0.04896417260169983     mean_loss: 1.804507883207407e-05
step: 1206
Epoch: 0      loss: 0.009161327965557575    mean_loss: 3.86662713935948e-06
step: 1207
Epoch: 0      loss: 0.00912471953779459     mean_loss: 6.184679023135686e-06
step: 1208
Epoch: 0      loss: 0.00908825732767582     mean_loss: 0.00014435622142627835
step: 1209
Epoch: 0      loss: 0.009051940403878689    mean_loss: 5.628088274534093e-06
step: 1210
Epoch: 0      loss: 0.009015768766403198    mean_loss: 4.444037767825648e-05
step: 1211
Epoch: 0      loss: 0.4456961750984192      mean_loss: 0.007307223044335842
step: 1212
Epoch: 0      loss: 0.00844106450676918     mean_loss: 6.154079073894536e-06
step: 1213
Epoch: 0      loss: 0.008407332934439182    mean_loss: 5.766612048319075e-06
step: 1214
Epoch: 0      loss: 0.31714731454849243     mean_loss: 0.00011379729403415695
step: 1215
Epoch: 0      loss: 0.3493427038192749      mean_loss: 0.0005094117950648069
step: 1216
Epoch: 0      loss: 0.1952447146177292      mean_loss: 0.000167454345501028
step: 1217
Epoch: 0      loss: 0.12164507806301117     mean_loss: 0.0024859700351953506
step: 1218
Epoch: 0      loss: 0.06605397909879684     mean_loss: 0.00011291589180473238
step: 1219
Epoch: 0      loss: 0.008534776046872139    mean_loss: 5.178259016247466e-06
step: 1220
Epoch: 0      loss: 0.00850067101418972     mean_loss: 3.5648990888148546e-06
step: 1221
Epoch: 0      loss: 0.0638090968132019      mean_loss: 0.00028487792587839067
step: 1222
Epoch: 0      loss: 0.009349919855594635    mean_loss: 5.4433883633464575e-05
step: 1223
```

```
Epoch: 0      loss: 0.6638468503952026      mean_loss: 0.0005818591453135014
step: 1224
Epoch: 0      loss: 0.06454569101333618      mean_loss: 0.00017138829571194947
step: 1225
Epoch: 0      loss: 0.009753428399562836      mean_loss: 4.333981269155629e-05
step: 1226
Epoch: 0      loss: 0.10086469352245331      mean_loss: 0.0005901054828427732
step: 1227
Epoch: 0      loss: 0.01114744320511818      mean_loss: 9.947075159288943e-05
step: 1228
Epoch: 0      loss: 0.40440043807029724      mean_loss: 0.00020786223467439413
step: 1229
Epoch: 0      loss: 0.011716904118657112      mean_loss: 4.752796485263389e-06
step: 1230
Epoch: 0      loss: 0.2593022584915161      mean_loss: 0.00039893382927402854
step: 1231
Epoch: 0      loss: 0.011651398614048958      mean_loss: 7.55506744098966e-06
step: 1232
Epoch: 0      loss: 0.011604840867221355      mean_loss: 9.891307854559273e-06
step: 1233
Epoch: 0      loss: 0.011558468453586102      mean_loss: 5.5061209423001856e-06
step: 1234
Epoch: 0      loss: 0.011512279510498047      mean_loss: 4.664959760702914e-06
step: 1235
Epoch: 0      loss: 0.011466276831924915      mean_loss: 6.735726401529973e-06
step: 1236
Epoch: 0      loss: 0.011420456692576408      mean_loss: 6.337877039186424e-06
step: 1237
Epoch: 0      loss: 0.41875654458999634      mean_loss: 0.00016377116844523698
step: 1238
Epoch: 0      loss: 0.010620621964335442      mean_loss: 1.5146619261940941e-05
step: 1239
Epoch: 0      loss: 0.010578181594610214      mean_loss: 2.622111060190946e-05
step: 1240
Epoch: 0      loss: 0.010535909794270992      mean_loss: 3.7925067317701178e-06
step: 1241
Epoch: 0      loss: 0.010493808425962925      mean_loss: 4.889427600573981e-06
step: 1242
Epoch: 0      loss: 0.010451876558363438      mean_loss: 4.113598151889164e-06
step: 1243
Epoch: 0      loss: 0.010410110466182232      mean_loss: 1.0648491297615692e-05
step: 1244
Epoch: 0      loss: 0.7500253915786743      mean_loss: 0.0010027219541370869
step: 1245
Epoch: 0      loss: 0.011136094108223915      mean_loss: 9.680075891083106e-06
step: 1246
Epoch: 0      loss: 0.011091594584286213      mean_loss: 2.9842136427760124e-05
step: 1247
```

```
Epoch: 0      loss: 0.07044646143913269      mean_loss: 0.00017023261170834303
step: 1248
Epoch: 0      loss: 0.016691749915480614     mean_loss: 6.235940418264363e-06
step: 1249
Epoch: 0      loss: 0.5552467107772827       mean_loss: 0.000244389520958066
step: 1250
Epoch: 0      loss: 0.00939499493688345      mean_loss: 3.568820602595224e-06
step: 1251
Epoch: 0      loss: 0.009357452392578125     mean_loss: 6.878046406200156e-06
step: 1252
Epoch: 0      loss: 0.009320060722529888     mean_loss: 3.899221610481618e-06
step: 1253
Epoch: 0      loss: 0.6939941644668579       mean_loss: 0.000357546639861539
step: 1254
Epoch: 0      loss: 0.21783529222011566      mean_loss: 0.00010092175944009796
step: 1255
Epoch: 0      loss: 0.316287636756897        mean_loss: 0.00020571427012328058
step: 1256
Epoch: 0      loss: 0.314807265996933        mean_loss: 0.0001295283727813512
step: 1257
Epoch: 0      loss: 0.009390296414494514     mean_loss: 3.4256295293744188e-06
step: 1258
Epoch: 0      loss: 0.009352771565318108     mean_loss: 1.755384073476307e-05
step: 1259
Epoch: 0      loss: 0.009315397590398788     mean_loss: 3.764804887396167e-06
step: 1260
Epoch: 0      loss: 0.03809018060564995      mean_loss: 3.817028846242465e-05
step: 1261
Epoch: 0      loss: 0.009356657974421978     mean_loss: 9.033488458953798e-05
step: 1262
Epoch: 0      loss: 0.00931926816701889      mean_loss: 4.470120074984152e-06
step: 1263
Epoch: 0      loss: 0.009282028302550316     mean_loss: 6.10552160651423e-06
step: 1264
Epoch: 0      loss: 0.00924493744969368      mean_loss: 5.606692866422236e-06
step: 1265
Epoch: 0      loss: 0.009207993745803833     mean_loss: 6.581142952200025e-05
step: 1266
Epoch: 0      loss: 0.009171199053525925     mean_loss: 1.5369401808129624e-05
step: 1267
Epoch: 0      loss: 0.17842015624046326      mean_loss: 7.083585660438985e-05
step: 1268
Epoch: 0      loss: 0.5569165349006653       mean_loss: 0.0015094508416950703
step: 1269
Epoch: 0      loss: 0.008446667343378067     mean_loss: 1.6084197341115214e-05
step: 1270
Epoch: 0      loss: 0.008412914350628853     mean_loss: 1.4214162547432352e-05
step: 1271
```

```
Epoch: 0        loss: 0.008379295468330383      mean_loss: 1.793484807421919e-05
step: 1272
Epoch: 0        loss: 0.008345812559127808      mean_loss: 4.4370012801664416e-06
step: 1273
Epoch: 0        loss: 0.008312462829053402      mean_loss: 4.8074565711431205e-05
step: 1274
Epoch: 0        loss: 0.008279246278107166      mean_loss: 6.136566753411898e-06
step: 1275
Epoch: 0        loss: 0.008246161974966526      mean_loss: 7.283581908268388e-06
step: 1276
Epoch: 0        loss: 0.7702354192733765       mean_loss: 0.0002835945051629096
step: 1277
Epoch: 0        loss: 0.20750963687896729      mean_loss: 0.0005541152786463499
step: 1278
Epoch: 0        loss: 0.28375306725502014      mean_loss: 0.0001629267499083653
step: 1279
Epoch: 0        loss: 0.2041924148797989      mean_loss: 7.398817979265004e-05
step: 1280
Epoch: 0        loss: 0.007327112834900618      mean_loss: 3.0697224246978294e-06
step: 1281
Epoch: 0        loss: 0.007297833915799856      mean_loss: 5.9502067415451165e-06
step: 1282
Epoch: 0        loss: 0.007268671877682209      mean_loss: 2.7063326797360787e-06
step: 1283
Epoch: 0        loss: 0.20248526334762573      mean_loss: 0.00013225863222032785
step: 1284
Epoch: 0        loss: 0.26989737153053284      mean_loss: 0.0011843404499813914
step: 1285
Epoch: 0        loss: 0.007159349042922258      mean_loss: 5.389980287873186e-06
step: 1286
Epoch: 0        loss: 0.007130740210413933      mean_loss: 2.3474112822441384e-05
step: 1287
Epoch: 0        loss: 0.007102245464920998      mean_loss: 3.118476797681069e-06
step: 1288
Epoch: 0        loss: 0.00707386527210474      mean_loss: 4.44534180132905e-06
step: 1289
Epoch: 0        loss: 0.30042389035224915      mean_loss: 0.0004405107465572655
step: 1290
Epoch: 0        loss: 0.006943388842046261      mean_loss: 1.737388265610207e-05
step: 1291
Epoch: 0        loss: 0.006915642879033165      mean_loss: 6.135412695584819e-05
step: 1292
Epoch: 0        loss: 0.4308108389377594      mean_loss: 0.0005117246764712036
step: 1293
Epoch: 0        loss: 0.044830068945884705      mean_loss: 1.9343768144608475e-05
step: 1294
Epoch: 0        loss: 0.041519276797771454      mean_loss: 6.993034185143188e-05
step: 1295
```

```
Epoch: 0      loss: 0.2519298493862152     mean_loss: 0.00033510607318021357
step: 1296
Epoch: 0      loss: 0.13490352034568787     mean_loss: 6.075410419725813e-05
step: 1297
Epoch: 0      loss: 0.014940141700208187     mean_loss: 8.886786417861003e-06
step: 1298
Epoch: 0      loss: 0.00794232077896595     mean_loss: 1.897662878036499e-05
step: 1299
Epoch: 0      loss: 0.12502305209636688     mean_loss: 4.946282570017502e-05
step: 1300
Epoch: 0      loss: 0.008411621674895287     mean_loss: 0.00021695088071282953
step: 1301
Epoch: 0      loss: 0.43654823303222656     mean_loss: 0.00018761391402222216
step: 1302
Epoch: 0      loss: 0.13586276769638062     mean_loss: 0.0002027576556429267
step: 1303
Epoch: 0      loss: 0.008930901065468788     mean_loss: 3.603021013987018e-06
step: 1304
Epoch: 0      loss: 0.008895213715732098     mean_loss: 4.063386586494744e-05
step: 1305
Epoch: 0      loss: 0.008859667927026749     mean_loss: 3.5374807794141816e-06
step: 1306
Epoch: 0      loss: 0.008824264630675316     mean_loss: 7.81221388024278e-06
step: 1307
Epoch: 0      loss: 1.051591396331787     mean_loss: 0.0020823748782277107
step: 1308
Epoch: 0      loss: 0.0077194105833768845     mean_loss: 2.242971459054388e-05
step: 1309
Epoch: 0      loss: 0.057335298508405685     mean_loss: 2.6048015570268035e-05
step: 1310
Epoch: 0      loss: 0.008511308580636978     mean_loss: 2.8363310775603168e-05
step: 1311
Epoch: 0      loss: 0.5030077695846558     mean_loss: 0.00025354643003083766
step: 1312
Epoch: 0      loss: 0.27023446559906006     mean_loss: 0.00014441432722378522
step: 1313
Epoch: 0      loss: 0.3540107011795044     mean_loss: 0.00018768156587611884
step: 1314
Epoch: 0      loss: 0.25112637877464294     mean_loss: 0.0002044866414507851
step: 1315
Epoch: 0      loss: 0.11897020041942596     mean_loss: 0.0002248578966828063
step: 1316
Epoch: 0      loss: 0.008961832150816917     mean_loss: 7.349352017627098e-06
step: 1317
Epoch: 0      loss: 0.008926020003855228     mean_loss: 3.501908622638439e-06
step: 1318
Epoch: 0      loss: 0.13390308618545532     mean_loss: 0.00011140315473312512
step: 1319
```

```
Epoch: 0      loss: 0.1667277067899704    mean_loss: 0.0001610416074981913
step: 1320
Epoch: 0      loss: 0.009919194504618645   mean_loss: 3.865121016133344e-06
step: 1321
Epoch: 0      loss: 0.00987955741584301    mean_loss: 3.71557216567453e-05
step: 1322
Epoch: 0      loss: 0.009840079583227634    mean_loss: 5.8688269746198785e-06
step: 1323
Epoch: 0      loss: 1.1409738063812256    mean_loss: 0.0005780038773082197
step: 1324
Epoch: 0      loss: 0.009626961313188076    mean_loss: 1.2885057003586553e-05
step: 1325
Epoch: 0      loss: 0.009588493034243584    mean_loss: 1.0727796507126186e-05
step: 1326
Epoch: 0      loss: 0.20204991102218628    mean_loss: 7.545206608483568e-05
step: 1327
Epoch: 0      loss: 0.3729001581668854    mean_loss: 0.0008796594920568168
step: 1328
Epoch: 0      loss: 0.7311415076255798    mean_loss: 0.003978375811129808
step: 1329
Epoch: 0      loss: 0.009624110534787178    mean_loss: 3.134213329758495e-05
step: 1330
Epoch: 0      loss: 0.009585653431713581    mean_loss: 6.385786946339067e-06
step: 1331
Epoch: 0      loss: 0.009547348134219646    mean_loss: 4.891825028607855e-06
step: 1332
Epoch: 0      loss: 0.20745790004730225    mean_loss: 0.0001858985488070175
step: 1333
Epoch: 0      loss: 0.18905797600746155    mean_loss: 0.0001112544778152369
step: 1334
Epoch: 0      loss: 0.24041426181793213    mean_loss: 9.02196261449717e-05
step: 1335
Epoch: 0      loss: 0.2842635214328766    mean_loss: 0.00034013602999038994
step: 1336
Epoch: 0      loss: 0.20186477899551392    mean_loss: 9.555997530696914e-05
step: 1337
Epoch: 0      loss: 0.059499651193618774    mean_loss: 9.982447954826057e-05
step: 1338
Epoch: 0      loss: 0.009777477011084557    mean_loss: 1.0048120202554855e-05
step: 1339
Epoch: 0      loss: 0.009738406166434288    mean_loss: 5.6349445003434084e-06
step: 1340
Epoch: 0      loss: 0.00969949085265398    mean_loss: 3.553689339241828e-06
step: 1341
Epoch: 0      loss: 0.12841105461120605    mean_loss: 4.952356539433822e-05
step: 1342
Epoch: 0      loss: 0.9007138609886169    mean_loss: 0.0003382513823453337
step: 1343
```

```
Epoch: 0        loss: 0.009372426196932793      mean_loss: 4.415951934788609e-06
step: 1344
Epoch: 0        loss: 0.009334973990917206      mean_loss: 7.982384704519063e-05
step: 1345
Epoch: 0        loss: 0.009297671727836132      mean_loss: 6.422941805794835e-05
step: 1346
Epoch: 0        loss: 0.009260518476366997      mean_loss: 4.2327501432737336e-06
step: 1347
Epoch: 0        loss: 0.11579969525337219       mean_loss: 5.465027061291039e-05
step: 1348
Epoch: 0        loss: 0.009297309443354607      mean_loss: 3.4611248338478617e-06
step: 1349
Epoch: 0        loss: 0.00926015805453062       mean_loss: 8.39095901028486e-06
step: 1350
Epoch: 0        loss: 0.009223154745995998      mean_loss: 1.964158764167223e-05
step: 1351
Epoch: 0        loss: 0.009186298586428165      mean_loss: 5.154501650395105e-06
step: 1352
Epoch: 0        loss: 0.4641074240207672        mean_loss: 0.00016492985014338046
step: 1353
Epoch: 0        loss: 0.04664017632603645       mean_loss: 4.282260488253087e-05
step: 1354
Epoch: 0        loss: 0.009077092632651329      mean_loss: 9.092636901186779e-06
step: 1355
Epoch: 0        loss: 0.00904082041233778       mean_loss: 7.298316631931812e-05
step: 1356
Epoch: 0        loss: 0.009004692547023296      mean_loss: 5.009754659113241e-06
step: 1357
Epoch: 0        loss: 0.31452441215515137       mean_loss: 0.00022908188111614436
step: 1358
Epoch: 0        loss: 0.2273576557636261        mean_loss: 0.00025542842922732234
step: 1359
Epoch: 0        loss: 0.008879942819476128      mean_loss: 5.092179890198167e-06
step: 1360
Epoch: 0        loss: 0.008844458498060703      mean_loss: 2.5429744709981605e-05
step: 1361
Epoch: 0        loss: 0.00880911573767662       mean_loss: 3.591278755266103e-06
step: 1362
Epoch: 0        loss: 0.42793983221054077       mean_loss: 0.00025548861594870687
step: 1363
Epoch: 0        loss: 0.20401108264923096       mean_loss: 0.00020993482030462474
step: 1364
Epoch: 0        loss: 0.008440202102065086      mean_loss: 0.0002016598170716316
step: 1365
Epoch: 0        loss: 0.11810483783483505       mean_loss: 8.604073082096875e-05
step: 1366
Epoch: 0        loss: 0.008472349494695663      mean_loss: 8.301058187498711e-06
step: 1367
```

```
Epoch: 0       loss: 0.25916558504104614    mean_loss: 0.0001697275001788512
step: 1368
Epoch: 0       loss: 0.24123655259609222    mean_loss: 0.00011735842417692766
step: 1369
Epoch: 0       loss: 0.008756592869758606   mean_loss: 4.532150796876522e-06
step: 1370
Epoch: 0       loss: 0.008721602149307728   mean_loss: 3.936009761673631e-06
step: 1371
Epoch: 0       loss: 0.008686750195920467   mean_loss: 5.260705620457884e-06
step: 1372
Epoch: 0       loss: 0.2528309226036072     mean_loss: 0.0023195981048047543
step: 1373
Epoch: 0       loss: 0.36962467432022095    mean_loss: 0.00014472540351562202
step: 1374
Epoch: 0       loss: 0.21712663769721985    mean_loss: 0.0001253006630577147
step: 1375
Epoch: 0       loss: 0.055190011858940125   mean_loss: 0.00010536250192672014
step: 1376
Epoch: 0       loss: 0.17635661363601685    mean_loss: 0.00013368332292884588
step: 1377
Epoch: 0       loss: 0.0733535885810852     mean_loss: 6.373570795403793e-05
step: 1378
Epoch: 0       loss: 0.02855662629008293    mean_loss: 2.8563235900946893e-05
step: 1379
Epoch: 0       loss: 0.5308783054351807     mean_loss: 0.0017756081651896238
step: 1380
Epoch: 0       loss: 0.18417106568813324    mean_loss: 0.00024180320906452835
step: 1381
Epoch: 0       loss: 0.008950663730502129   mean_loss: 4.835595518670743e-06
step: 1382
Epoch: 0       loss: 0.13895635306835175    mean_loss: 6.554773426614702e-05
step: 1383
Epoch: 0       loss: 0.154892235994339      mean_loss: 0.00024872837821021676
step: 1384
Epoch: 0       loss: 0.009161574766039848   mean_loss: 5.522478204511572e-06
step: 1385
Epoch: 0       loss: 0.009124964475631714   mean_loss: 5.797134690510575e-06
step: 1386
Epoch: 0       loss: 0.009088501334190369   mean_loss: 1.2845054698118474e-05
step: 1387
Epoch: 0       loss: 0.009052183479070663   mean_loss: 4.310522399464389e-06
step: 1388
Epoch: 0       loss: 0.009016011841595173   mean_loss: 7.87801036494784e-06
step: 1389
Epoch: 0       loss: 0.008979982696473598   mean_loss: 6.913739071023883e-06
step: 1390
Epoch: 0       loss: 0.008944099768996239   mean_loss: 3.115563458777615e-06
step: 1391
```

```
Epoch: 0        loss: 0.1818726509809494     mean_loss: 0.004133540205657482
step: 1392
Epoch: 0        loss: 0.010272921063005924    mean_loss: 3.637995177996345e-05
step: 1393
Epoch: 0        loss: 0.010231871157884598    mean_loss: 6.104786734795198e-06
step: 1394
Epoch: 0        loss: 0.01574527472257614     mean_loss: 8.169801731128246e-06
step: 1395
Epoch: 0        loss: 0.18154840171337128     mean_loss: 9.48076049098745e-05
step: 1396
Epoch: 0        loss: 0.009694915264844894    mean_loss: 4.1272019188909326e-06
step: 1397
Epoch: 0        loss: 0.10118195414543152     mean_loss: 7.948631537146866e-05
step: 1398
Epoch: 0        loss: 0.2254406362771988      mean_loss: 0.0008809379651211202
step: 1399
Epoch: 0        loss: 0.21025484800338745     mean_loss: 0.00010150759044336155
step: 1400
Epoch: 0        loss: 0.00953600648790598     mean_loss: 8.308202086482197e-05
step: 1401
Epoch: 0        loss: 0.1980704665184021      mean_loss: 9.342459088657051e-05
step: 1402
Epoch: 0        loss: 0.5373499989509583      mean_loss: 0.00018930729129351676
step: 1403
Epoch: 0        loss: 0.44233080744743347     mean_loss: 0.0004385729553177953
step: 1404
Epoch: 0        loss: 0.22948917746543884     mean_loss: 0.00024356752692256123
step: 1405
Epoch: 0        loss: 0.00863602664321661     mean_loss: 4.9801428758655675e-06
step: 1406
Epoch: 0        loss: 0.21422801911830902     mean_loss: 9.992210834752768e-05
step: 1407
Epoch: 0        loss: 0.1817520260810852      mean_loss: 0.00010659551480785012
step: 1408
Epoch: 0        loss: 0.2312624454498291      mean_loss: 9.378558752359822e-05
step: 1409
Epoch: 0        loss: 0.3577866852283478      mean_loss: 0.00013220556138549
step: 1410
Epoch: 0        loss: 0.008573380298912525    mean_loss: 6.204979399626609e-06
step: 1411
Epoch: 0        loss: 0.10540635138750076     mean_loss: 0.00012102475011488423
step: 1412
Epoch: 0        loss: 0.00848494190722704     mean_loss: 5.492001491802512e-06
step: 1413
Epoch: 0        loss: 0.10908954590559006     mean_loss: 3.886534977937117e-05
step: 1414
Epoch: 0        loss: 0.008366933092474937    mean_loss: 1.2094673365936615e-05
step: 1415
```

```
Epoch: 0      loss: 0.0887429490685463      mean_loss: 6.254759500734508e-05
step: 1416
Epoch: 0      loss: 0.0671716257929802      mean_loss: 3.690130324685015e-05
step: 1417
Epoch: 0      loss: 0.03564219921827316      mean_loss: 4.351109964773059e-05
step: 1418
Epoch: 0      loss: 0.163773775100708      mean_loss: 0.00010348533396609128
step: 1419
Epoch: 0      loss: 0.008254390209913254      mean_loss: 1.160816100309603e-05
step: 1420
Epoch: 0      loss: 0.09119710326194763      mean_loss: 6.821893475716934e-05
step: 1421
Epoch: 0      loss: 0.008597730658948421      mean_loss: 1.2972978765901644e-05
step: 1422
Epoch: 0      loss: 0.17624817788600922      mean_loss: 8.691378752700984e-05
step: 1423
Epoch: 0      loss: 0.028561638668179512      mean_loss: 1.3111464795656502e-05
step: 1424
Epoch: 0      loss: 0.554996907711029      mean_loss: 0.00034515548031777143
step: 1425
Epoch: 0      loss: 0.2851109504699707      mean_loss: 0.00013483990915119648
step: 1426
Epoch: 0      loss: 0.007760220672935247      mean_loss: 2.789774225675501e-05
step: 1427
Epoch: 0      loss: 0.007729210890829563      mean_loss: 2.372204471612349e-05
step: 1428
Epoch: 0      loss: 0.007698324974626303      mean_loss: 2.709490217966959e-05
step: 1429
Epoch: 0      loss: 0.007667561527341604      mean_loss: 4.0370705391978845e-06
step: 1430
Epoch: 0      loss: 0.007636922411620617      mean_loss: 3.429515118114068e-06
step: 1431
Epoch: 0      loss: 0.6670295000076294      mean_loss: 0.0010230566840618849
step: 1432
Epoch: 0      loss: 0.377856969833374      mean_loss: 0.0002539410488680005
step: 1433
Epoch: 0      loss: 0.01733739674091339      mean_loss: 1.2073671314283274e-05
step: 1434
Epoch: 0      loss: 0.2699984610080719      mean_loss: 0.00025281886337324977
step: 1435
Epoch: 0      loss: 0.3352210521697998      mean_loss: 0.0001477858459111303
step: 1436
Epoch: 0      loss: 0.2928347885608673      mean_loss: 0.0003359891998115927
step: 1437
Epoch: 0      loss: 0.29905974864959717      mean_loss: 0.0002943910949397832
step: 1438
Epoch: 0      loss: 0.20274625718593597      mean_loss: 0.0002020304964389652
step: 1439
```

```
Epoch: 0       loss: 0.19847330451011658     mean_loss: 0.0005549590568989515
step: 1440
Epoch: 0       loss: 0.31422510743141174     mean_loss: 0.00014806211402174085
step: 1441
Epoch: 0       loss: 0.20882001519203186     mean_loss: 8.80607112776488e-05
step: 1442
Epoch: 0       loss: 0.20716549456119537     mean_loss: 0.0001457479374948889
step: 1443
Epoch: 0       loss: 0.11206568777561188     mean_loss: 7.770874799462035e-05
step: 1444
Epoch: 0       loss: 0.19452489912509918     mean_loss: 0.0003179781197104603
step: 1445
Epoch: 0       loss: 0.13482004404067993     mean_loss: 0.0001185421206173487
step: 1446
Epoch: 0       loss: 0.050259530544281006    mean_loss: 6.242636300157756e-05
step: 1447
Epoch: 0       loss: 0.37737706303596497     mean_loss: 0.00013119203504174948
step: 1448
Epoch: 0       loss: 0.005666280630975962    mean_loss: 2.0285069695091806e-06
step: 1449
Epoch: 0       loss: 0.1264953911304474      mean_loss: 5.521493585547432e-05
step: 1450
Epoch: 0       loss: 0.4971958100795746      mean_loss: 0.00028220831882208586
step: 1451
Epoch: 0       loss: 0.07267746329307556     mean_loss: 0.00015792135673109442
step: 1452
Epoch: 0       loss: 0.005783510860055685    mean_loss: 7.272255061252508e-06
step: 1453
Epoch: 0       loss: 0.09602724015712738     mean_loss: 0.00014594910317100585
step: 1454
Epoch: 0       loss: 0.07119255512952805     mean_loss: 3.0151522878441028e-05
step: 1455
Epoch: 0       loss: 0.42749515175819397     mean_loss: 0.0002443001721985638
step: 1456
Epoch: 0       loss: 0.006168477237224579    mean_loss: 4.4317744141153526e-06
step: 1457
Epoch: 0       loss: 0.207790806889534       mean_loss: 0.00015730145969428122
step: 1458
Epoch: 0       loss: 0.011532453820109367    mean_loss: 1.3451962331600953e-05
step: 1459
Epoch: 0       loss: 0.3328944146633148      mean_loss: 0.0002332921139895916
step: 1460
Epoch: 0       loss: 0.006389710120856762    mean_loss: 2.709902673814213e-06
step: 1461
Epoch: 0       loss: 0.19874632358551025     mean_loss: 7.320406439248472e-05
step: 1462
Epoch: 0       loss: 0.6521425843238831      mean_loss: 0.0002538792323321104
step: 1463
```

```
Epoch: 0      loss: 0.26756760478019714    mean_loss: 0.00015598222671542317
step: 1464
Epoch: 0      loss: 0.005237164441496134   mean_loss: 2.1116470634297e-06
step: 1465
Epoch: 0      loss: 0.06206194683909416    mean_loss: 0.00010091716831084341
step: 1466
Epoch: 0      loss: 0.2603594958782196     mean_loss: 0.000330114591633901
step: 1467
Epoch: 0      loss: 0.12849554419517517    mean_loss: 5.486612644745037e-05
step: 1468
Epoch: 0      loss: 0.46503037214279175    mean_loss: 0.002541449386626482
step: 1469
Epoch: 0      loss: 0.0593523308634758     mean_loss: 2.313786171725951e-05
step: 1470
Epoch: 0      loss: 0.005816956516355276   mean_loss: 3.9195265344460495e-06
step: 1471
Epoch: 0      loss: 0.1725844442844391     mean_loss: 0.000731306616216898
step: 1472
Epoch: 0      loss: 0.12745824456214905    mean_loss: 0.00026322290068492293
step: 1473
Epoch: 0      loss: 0.006069093942642212   mean_loss: 3.653962494354346e-06
step: 1474
Epoch: 0      loss: 0.0060448418371379375   mean_loss: 1.884266566776205e-05
step: 1475
Epoch: 0      loss: 0.2060864418745041     mean_loss: 8.64535613800399e-05
step: 1476
Epoch: 0      loss: 0.22064483165740967    mean_loss: 0.00020287802908569574
step: 1477
Epoch: 0      loss: 0.005917674396187067   mean_loss: 4.2123551793338265e-06
step: 1478
Epoch: 0      loss: 0.301615446805954      mean_loss: 0.005200338549911976
step: 1479
Epoch: 0      loss: 0.4126881957054138     mean_loss: 0.0002838916552718729
step: 1480
Epoch: 0      loss: 0.1102878674864769     mean_loss: 4.70118029625155e-05
step: 1481
Epoch: 0      loss: 0.20698712766170502    mean_loss: 0.02070341445505619
step: 1482
Epoch: 0      loss: 0.18865461647510529    mean_loss: 9.5859904831741e-05
step: 1483
Epoch: 0      loss: 0.12885549664497375    mean_loss: 6.229533755686134e-05
step: 1484
Epoch: 0      loss: 0.2761329412460327     mean_loss: 0.00018004904268309474
step: 1485
Epoch: 0      loss: 0.2481721043586731     mean_loss: 8.853909093886614e-05
step: 1486
Epoch: 0      loss: 0.005417602136731148   mean_loss: 2.3591007902723504e-06
step: 1487
```

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Epoch: 0      loss: 0.03308430686593056    mean_loss: 0.0006242766976356506
step: 1488
Epoch: 0      loss: 0.07249616086483002    mean_loss: 3.6670229746960104e-05
step: 1489
Epoch: 0      loss: 0.24080318212509155    mean_loss: 0.0001649588084546849
step: 1490
Epoch: 0      loss: 0.27358707785606384    mean_loss: 0.00012270372826606035
step: 1491
Epoch: 0      loss: 0.028378978371620178    mean_loss: 3.87251129723154e-05
step: 1492
Epoch: 0      loss: 0.36399567127227783    mean_loss: 0.028002645820379257
step: 1493
Epoch: 0      loss: 0.03569282591342926    mean_loss: 6.0317684983601794e-05
step: 1494
Epoch: 0      loss: 0.008610708639025688    mean_loss: 7.832905794202816e-06
step: 1495
Epoch: 0      loss: 0.08867374062538147    mean_loss: 3.158175604767166e-05
step: 1496
Epoch: 0      loss: 0.007047766353935003    mean_loss: 4.2983292587450705e-06
step: 1497
Epoch: 0      loss: 0.007019604090601206    mean_loss: 1.5105167221918236e-05
step: 1498
Epoch: 0      loss: 0.006991553120315075    mean_loss: 1.429930216545472e-05
step: 1499
Epoch: 0      loss: 0.85282301902771    mean_loss: 0.0009539567399770021
step: 1500
Epoch: 0      loss: 0.28973162174224854    mean_loss: 0.0002497298701200634
step: 1501
Epoch: 0      loss: 0.06304419040679932    mean_loss: 9.349175525130704e-05
step: 1502
Epoch: 0      loss: 0.0064568123780190945    mean_loss: 5.069894996267976e-06
step: 1503
Epoch: 0      loss: 0.24160358309745789    mean_loss: 0.00017123221186921
step: 1504
Epoch: 0      loss: 0.006458789110183716    mean_loss: 1.78706777660409e-05
step: 1505
Epoch: 0      loss: 0.00643297890201211    mean_loss: 3.481300382190966e-06
step: 1506
Epoch: 0      loss: 0.042209308594465256    mean_loss: 2.0343513824627735e-05
step: 1507
Epoch: 0      loss: 0.19835855066776276    mean_loss: 7.102717063389719e-05
step: 1508
Epoch: 0      loss: 0.44187062978744507    mean_loss: 0.0003732615150511265
step: 1509
Epoch: 0      loss: 0.006460271775722504    mean_loss: 2.6548302685114322e-06
step: 1510
Epoch: 0      loss: 0.13844938576221466    mean_loss: 0.001412775949575007
step: 1511
```

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Epoch: 0       loss: 0.006518767215311527      mean_loss: 8.852169230522122e-06
step: 1512
Epoch: 0       loss: 0.006492718122899532      mean_loss: 9.747482181410305e-06
step: 1513
Epoch: 0       loss: 0.06408385932445526       mean_loss: 0.00012793134374078363
step: 1514
Epoch: 0       loss: 0.006572051905095577      mean_loss: 4.478598384594079e-06
step: 1515
Epoch: 0       loss: 0.00654579047113657       mean_loss: 2.3976094780664425e-06
step: 1516
Epoch: 0       loss: 0.00651963334530592       mean_loss: 2.7741518806578824e-06
step: 1517
Epoch: 0       loss: 0.18132612109184265       mean_loss: 0.00017435470363125205
step: 1518
Epoch: 0       loss: 0.19116899371147156       mean_loss: 0.0009519569575786591
step: 1519
Epoch: 0       loss: 0.28150811791419983       mean_loss: 0.00010323832975700498
step: 1520
Epoch: 0       loss: 0.3132205605506897        mean_loss: 0.0002557745319791138
step: 1521
Epoch: 0       loss: 0.006589426659047604      mean_loss: 1.0466668754816055e-05
step: 1522
Epoch: 0       loss: 0.006563094910234213      mean_loss: 1.1432281098677777e-05
step: 1523
Epoch: 0       loss: 0.006536868866533041      mean_loss: 2.4343128188775154e-06
step: 1524
Epoch: 0       loss: 0.03202236816287041       mean_loss: 1.1692151019815356e-05
step: 1525
Epoch: 0       loss: 0.5782997608184814        mean_loss: 0.0002410635497653857
step: 1526
Epoch: 0       loss: 0.08607111871242523       mean_loss: 4.4837495806859806e-05
step: 1527
Epoch: 0       loss: 0.3141735792160034        mean_loss: 0.0002301966305822134
step: 1528
Epoch: 0       loss: 0.008705642074346542      mean_loss: 7.235496923385654e-06
step: 1529
Epoch: 0       loss: 0.18877485394477844       mean_loss: 7.778413419146091e-05
step: 1530
Epoch: 0       loss: 0.008680949918925762      mean_loss: 2.4195398509618826e-05
step: 1531
Epoch: 0       loss: 0.00864626094698906       mean_loss: 3.7550701108557405e-06
step: 1532
Epoch: 0       loss: 0.008611710742115974      mean_loss: 4.198569968139054e-06
step: 1533
Epoch: 0       loss: 0.07578600943088531       mean_loss: 2.8269381800782867e-05
step: 1534
Epoch: 0       loss: 0.4111259877681732        mean_loss: 0.0029793786681629896
step: 1535
```

```
Epoch: 0      loss: 0.007673338055610657      mean_loss: 1.2850081475335173e-05
step: 1536
Epoch: 0      loss: 0.21340510249137878      mean_loss: 7.721343718003482e-05
step: 1537
Epoch: 0      loss: 0.007707362994551659      mean_loss: 3.627482101364876e-06
step: 1538
Epoch: 0      loss: 0.007676564157009125      mean_loss: 2.4459208361804485e-05
step: 1539
Epoch: 0      loss: 0.2036067098379135      mean_loss: 0.00020885247795376927
step: 1540
Epoch: 0      loss: 0.46149325370788574      mean_loss: 0.00048549118218943477
step: 1541
Epoch: 0      loss: 0.713941216468811      mean_loss: 0.0012446457985788584
step: 1542
Epoch: 0      loss: 0.007302606478333473      mean_loss: 4.622635060513858e-06
step: 1543
Epoch: 0      loss: 0.20531265437602997      mean_loss: 0.00011195053230039775
step: 1544
Epoch: 0      loss: 0.10523566603660583      mean_loss: 0.00013934870366938412
step: 1545
Epoch: 0      loss: 0.0074531883001327515      mean_loss: 2.0033079636050388e-05
step: 1546
Epoch: 0      loss: 0.2275359034538269      mean_loss: 0.0006712564500048757
step: 1547
Epoch: 0      loss: 0.10183876007795334      mean_loss: 5.577259071287699e-05
step: 1548
Epoch: 0      loss: 0.3238002359867096      mean_loss: 0.005783142987638712
step: 1549
Epoch: 0      loss: 0.16214175522327423      mean_loss: 8.084973524091765e-05
step: 1550
Epoch: 0      loss: 0.007895116694271564      mean_loss: 6.971999027882703e-06
step: 1551
Epoch: 0      loss: 0.007863566279411316      mean_loss: 2.9971583899168763e-06
step: 1552
Epoch: 0      loss: 0.11987530440092087      mean_loss: 4.892991637461819e-05
step: 1553
Epoch: 0      loss: 0.2423461675643921      mean_loss: 8.601671288488433e-05
step: 1554
Epoch: 0      loss: 0.007631166838109493      mean_loss: 1.2734625670418609e-05
step: 1555
Epoch: 0      loss: 0.2424037605524063      mean_loss: 0.0001199487887788564
step: 1556
Epoch: 0      loss: 0.09257175773382187      mean_loss: 3.562325218808837e-05
step: 1557
Epoch: 0      loss: 0.6075989603996277      mean_loss: 0.0004504333483055234
step: 1558
Epoch: 0      loss: 0.00682242214679718      mean_loss: 5.383312782214489e-06
step: 1559
```

```
Epoch: 0      loss: 0.015492952428758144    mean_loss: 2.3376071112579666e-05
step: 1560
Epoch: 0      loss: 0.1933952122926712     mean_loss: 0.00013746879994869232
step: 1561
Epoch: 0      loss: 0.21414636075496674    mean_loss: 0.00015197433822322637
step: 1562
Epoch: 0      loss: 0.006544720381498337   mean_loss: 4.1594375943532214e-05
step: 1563
Epoch: 0      loss: 0.08254461735486984    mean_loss: 0.0002393803297309205
step: 1564
Epoch: 0      loss: 0.1266399770975113     mean_loss: 5.1999741117469966e-05
step: 1565
Epoch: 0      loss: 0.006627675611525774   mean_loss: 2.5092695068451576e-06
step: 1566
Epoch: 0      loss: 0.10575107485055923    mean_loss: 0.00033047996112145483
step: 1567
Epoch: 0      loss: 0.008081507869064808   mean_loss: 7.913440640550107e-06
step: 1568
Epoch: 0      loss: 0.008049213327467442   mean_loss: 1.027694725053152e-05
step: 1569
Epoch: 0      loss: 0.5624668598175049     mean_loss: 0.0029918996151536703
step: 1570
Epoch: 0      loss: 0.1794232875108719     mean_loss: 8.02530485088937e-05
step: 1571
Epoch: 0      loss: 0.20499588549137115    mean_loss: 0.000164719793247059
step: 1572
Epoch: 0      loss: 0.25006037950515747    mean_loss: 0.0001161676409537904
step: 1573
Epoch: 0      loss: 0.4856407940387726     mean_loss: 0.00025286671007052064
step: 1574
Epoch: 0      loss: 0.20336000621318817    mean_loss: 7.156867650337517e-05
step: 1575
Epoch: 0      loss: 0.21373672783374786    mean_loss: 0.00011427488061599433
step: 1576
Epoch: 0      loss: 0.1365681141614914     mean_loss: 6.987852248130366e-05
step: 1577
Epoch: 0      loss: 0.20892378687858582    mean_loss: 0.00010603432747302577
step: 1578
Epoch: 0      loss: 0.1872607171535492     mean_loss: 0.0003316225775051862
step: 1579
Epoch: 0      loss: 0.05175849422812462    mean_loss: 9.106663492275402e-05
step: 1580
Epoch: 0      loss: 0.00920097529888153    mean_loss: 4.362460822449066e-05
step: 1581
Epoch: 0      loss: 0.21328772604465485    mean_loss: 0.00020220981969032437
step: 1582
Epoch: 0      loss: 0.19393235445022583    mean_loss: 8.025405986700207e-05
step: 1583
```

```
Epoch: 0      loss: 0.008918802253901958      mean_loss: 5.843543112860061e-05
step: 1584
Epoch: 0      loss: 0.008883162401616573      mean_loss: 3.963474227930419e-06
step: 1585
Epoch: 0      loss: 0.008847665973007679      mean_loss: 5.968732239125529e-06
step: 1586
Epoch: 0      loss: 0.24841389060020447      mean_loss: 9.29715097299777e-05
step: 1587
Epoch: 0      loss: 0.5010020732879639      mean_loss: 0.0002075787342619151
step: 1588
Epoch: 0      loss: 0.5196304321289062      mean_loss: 0.0007724190945737064
step: 1589
Epoch: 0      loss: 0.006498798727989197      mean_loss: 8.097124009509571e-06
step: 1590
Epoch: 0      loss: 0.07373279333114624      mean_loss: 0.00010032774298451841
step: 1591
Epoch: 0      loss: 0.0067408024333417416      mean_loss: 2.49040044764115e-06
step: 1592
Epoch: 0      loss: 0.006713866256177425      mean_loss: 1.7628231944399886e-05
step: 1593
Epoch: 0      loss: 0.1904781460762024      mean_loss: 0.00019068646361120045
step: 1594
Epoch: 0      loss: 0.006685651373118162      mean_loss: 1.2525205420388374e-05
step: 1595
Epoch: 0      loss: 0.0066589354537427425      mean_loss: 3.0051625799387693e-05
step: 1596
Epoch: 0      loss: 0.006632326170802116      mean_loss: 1.1369244930392597e-05
step: 1597
Epoch: 0      loss: 0.006605823058634996      mean_loss: 4.729944521386642e-06
step: 1598
Epoch: 0      loss: 0.00657942658290267      mean_loss: 1.2147889719926752e-05
step: 1599
Epoch: 0      loss: 0.006553134880959988      mean_loss: 5.957606845186092e-06
step: 1600
Epoch: 0      loss: 0.006526948884129524      mean_loss: 2.5639351406425703e-06
step: 1601
Epoch: 0      loss: 0.006500867661088705      mean_loss: 3.1447927995031932e-06
step: 1602
Epoch: 0      loss: 0.006474889349192381      mean_loss: 5.4483043641084805e-06
step: 1603
Epoch: 0      loss: 0.006449016276746988      mean_loss: 2.8259476039238507e-06
step: 1604
Epoch: 0      loss: 0.006423245649784803      mean_loss: 3.346912490087561e-05
step: 1605
Epoch: 0      loss: 0.09218782186508179      mean_loss: 6.668206333415583e-05
step: 1606
Epoch: 0      loss: 0.006535777822136879      mean_loss: 6.288057193160057e-06
step: 1607
```

```
Epoch: 0       loss: 0.006509661674499512      mean_loss: 5.521991624846123e-06
step: 1608
Epoch: 0       loss: 0.0064836484380066395      mean_loss: 2.467365084157791e-05
step: 1609
Epoch: 0       loss: 0.0064577399753034115      mean_loss: 4.001489651273005e-05
step: 1610
Epoch: 0       loss: 0.006431934889405966      mean_loss: 1.3483228030963801e-05
step: 1611
Epoch: 0       loss: 0.2953653335571289      mean_loss: 0.00018790000467561185
step: 1612
Epoch: 0       loss: 0.006485190708190203      mean_loss: 2.8887838197988458e-05
step: 1613
Epoch: 0       loss: 0.006459275726228952      mean_loss: 5.80856158194365e-06
step: 1614
Epoch: 0       loss: 0.6962830424308777      mean_loss: 0.0002552378282416612
step: 1615
Epoch: 0       loss: 0.005817838944494724      mean_loss: 1.9846656869049184e-05
step: 1616
Epoch: 0       loss: 0.005794591270387173      mean_loss: 2.392772694292944e-05
step: 1617
Epoch: 0       loss: 0.32652682065963745      mean_loss: 0.00016601462266407907
step: 1618
Epoch: 0       loss: 0.005096850451081991      mean_loss: 1.9363005776540376e-06
step: 1619
Epoch: 0       loss: 0.005076483357697725      mean_loss: 1.77443030224822e-06
step: 1620
Epoch: 0       loss: 0.3105201721191406      mean_loss: 0.0004493805463425815
step: 1621
Epoch: 0       loss: 0.5917764902114868      mean_loss: 0.0034035968128591776
step: 1622
Epoch: 0       loss: 0.0046022310853004456      mean_loss: 3.03596038975229e-06
step: 1623
Epoch: 0       loss: 0.3312271237373352      mean_loss: 0.00017506879521533847
step: 1624
Epoch: 0       loss: 0.3948488235473633      mean_loss: 0.00014427461428567767
step: 1625
Epoch: 0       loss: 0.20094990730285645      mean_loss: 7.270216156030074e-05
step: 1626
Epoch: 0       loss: 0.0037647841963917017      mean_loss: 2.9293787520145997e-05
step: 1627
Epoch: 0       loss: 0.3670082688331604      mean_loss: 0.0001765452470863238
step: 1628
Epoch: 0       loss: 0.20195092260837555      mean_loss: 7.188032759586349e-05
step: 1629
Epoch: 0       loss: 0.199022114276886      mean_loss: 9.29477100726217e-05
step: 1630
Epoch: 0       loss: 0.0034730168990790844      mean_loss: 1.3843030046700733e-06
step: 1631
```

```
Epoch: 0        loss: 0.17943710088729858    mean_loss: 0.00016357199638150632
step: 1632
Epoch: 0        loss: 0.31177380681037903    mean_loss: 0.00020963534188922495
step: 1633
Epoch: 0        loss: 0.031887393444776535   mean_loss: 3.165387533954345e-05
step: 1634
Epoch: 0        loss: 0.010558976791799068   mean_loss: 7.97487246018136e-06
step: 1635
Epoch: 0        loss: 0.004212546162307262   mean_loss: 1.6158196558535565e-06
step: 1636
Epoch: 0        loss: 0.004195712506771088   mean_loss: 5.436953870230354e-06
step: 1637
Epoch: 0        loss: 0.0041789463721215725  mean_loss: 2.2186550268088467e-06
step: 1638
Epoch: 0        loss: 0.21025778353214264    mean_loss: 0.00019724202866200358
step: 1639
Epoch: 0        loss: 0.2756710946559906     mean_loss: 0.002704591490328312
step: 1640
Epoch: 0        loss: 0.09489326924085617    mean_loss: 5.5897973652463406e-05
step: 1641
Epoch: 0        loss: 0.004183141980320215   mean_loss: 2.061789928120561e-06
step: 1642
Epoch: 0        loss: 0.004166426602751017   mean_loss: 2.585911033747834e-06
step: 1643
Epoch: 0        loss: 0.32512667775154114    mean_loss: 0.00011682690092129633
step: 1644
Epoch: 0        loss: 0.0037248714361339808  mean_loss: 2.8123706670157844e-06
step: 1645
Epoch: 0        loss: 0.04633532464504242    mean_loss: 0.0003068750665988773
step: 1646
Epoch: 0        loss: 0.004350014962255955   mean_loss: 1.7139823285106104e-06
step: 1647
Epoch: 0        loss: 0.18693691492080688    mean_loss: 0.00018563916091807187
step: 1648
Epoch: 0        loss: 0.17473788559436798    mean_loss: 6.209567800397053e-05
step: 1649
Epoch: 0        loss: 0.004357224330306053   mean_loss: 4.777642971021123e-06
step: 1650
Epoch: 0        loss: 0.14300040900707245    mean_loss: 0.00027395630604587495
step: 1651
Epoch: 0        loss: 0.004554568324238062   mean_loss: 2.372739345446462e-06
step: 1652
Epoch: 0        loss: 0.48532113432884216    mean_loss: 0.0005339092458598316
step: 1653
Epoch: 0        loss: 0.2687581479549408     mean_loss: 0.0024481096770614386
step: 1654
Epoch: 0        loss: 0.0038750225212424994  mean_loss: 2.584034518804401e-06
step: 1655
```

```
Epoch: 0      loss: 0.0038595376536250114     mean_loss: 1.4481146308753523e-06
step: 1656
Epoch: 0      loss: 0.020230520516633987      mean_loss: 1.1620889381447341e-05
step: 1657
Epoch: 0      loss: 0.004266289062798023      mean_loss: 1.8050253856927156e-05
step: 1658
Epoch: 0      loss: 0.0042492407374084      mean_loss: 1.0641623703122605e-05
step: 1659
Epoch: 0      loss: 0.23275822401046753      mean_loss: 0.00010761390149127692
step: 1660
Epoch: 0      loss: 0.004139689262956381      mean_loss: 1.4955293181628804e-06
step: 1661
Epoch: 0      loss: 0.004294272046536207      mean_loss: 5.5429259191441815e-06
step: 1662
Epoch: 0      loss: 0.23956730961799622      mean_loss: 0.00010984541586367413
step: 1663
Epoch: 0      loss: 0.39873600006103516      mean_loss: 0.0004252087965141982
step: 1664
Epoch: 0      loss: 0.004431006032973528      mean_loss: 1.960522695299005e-06
step: 1665
Epoch: 0      loss: 0.004413299262523651      mean_loss: 3.0597780096286442e-06
step: 1666
Epoch: 0      loss: 0.00439566420391202      mean_loss: 3.210747672710568e-05
step: 1667
Epoch: 0      loss: 0.24737069010734558      mean_loss: 0.0002927843888755888
step: 1668
Epoch: 0      loss: 0.26678338646888733      mean_loss: 0.0005267774686217308
step: 1669
Epoch: 0      loss: 0.004086773376911879      mean_loss: 2.8165757157694316e-06
step: 1670
Epoch: 0      loss: 0.2669333219528198      mean_loss: 0.0005667434306815267
step: 1671
Epoch: 0      loss: 0.19861172139644623      mean_loss: 7.605134305777028e-05
step: 1672
Epoch: 0      loss: 0.003924068063497543      mean_loss: 1.4094853213464376e-06
step: 1673
Epoch: 0      loss: 0.00390838785097003      mean_loss: 1.4877463172524585e-06
step: 1674
Epoch: 0      loss: 0.05772304907441139      mean_loss: 4.908549090032466e-05
step: 1675
Epoch: 0      loss: 0.06088928505778313      mean_loss: 0.0003627284022513777
step: 1676
Epoch: 0      loss: 0.004799834452569485      mean_loss: 9.667720405559521e-06
step: 1677
Epoch: 0      loss: 0.004780654329806566      mean_loss: 2.9352463570830878e-06
step: 1678
Epoch: 0      loss: 0.023044604808092117      mean_loss: 1.122080811910564e-05
step: 1679
```

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Epoch: 0      loss: 0.005235510878264904     mean_loss: 2.195285333073116e-06
step: 1680
Epoch: 0      loss: 0.28290337324142456      mean_loss: 0.0001863673096522689
step: 1681
Epoch: 0      loss: 0.10422836989164352      mean_loss: 0.00013051842688582838
step: 1682
Epoch: 0      loss: 0.00506622064858675      mean_loss: 1.994143985939445e-06
step: 1683
Epoch: 0      loss: 0.005045976024121046     mean_loss: 1.9497758785291808e-06
step: 1684
Epoch: 0      loss: 0.1822703331708908       mean_loss: 0.0002066579181700945
step: 1685
Epoch: 0      loss: 0.004396047908812761     mean_loss: 4.834775154449744e-06
step: 1686
Epoch: 0      loss: 0.004378481302410364     mean_loss: 6.380373179126764e-06
step: 1687
Epoch: 0      loss: 0.172624409198761        mean_loss: 0.00020214378309901804
step: 1688
Epoch: 0      loss: 0.004438177682459354     mean_loss: 1.6484267462146818e-06
step: 1689
Epoch: 0      loss: 0.004420442972332239     mean_loss: 1.5354484276031144e-05
step: 1690
Epoch: 0      loss: 0.004402779042720795     mean_loss: 1.9259518921899144e-06
step: 1691
Epoch: 0      loss: 0.004385184962302446     mean_loss: 1.027426424116129e-05
step: 1692
Epoch: 0      loss: 0.07772752642631531      mean_loss: 7.009720866335556e-05
step: 1693
Epoch: 0      loss: 0.004758281167596579     mean_loss: 5.2425393732846715e-06
step: 1694
Epoch: 0      loss: 0.004739267285913229     mean_loss: 2.7991206934530055e-06
step: 1695
Epoch: 0      loss: 0.004720328841358423     mean_loss: 2.5434183044126257e-06
step: 1696
Epoch: 0      loss: 0.004701466299593449     mean_loss: 2.7096830308437347e-06
step: 1697
Epoch: 0      loss: 0.004682679194957018     mean_loss: 1.7019211782098864e-06
step: 1698
Epoch: 0      loss: 0.004663967527449131     mean_loss: 2.460796167724766e-06
step: 1699
Epoch: 0      loss: 0.004645330365747213     mean_loss: 1.7759997490429669e-06
step: 1700
Epoch: 0      loss: 0.06893402338027954      mean_loss: 7.114117033779621e-05
step: 1701
Epoch: 0      loss: 0.00470918836072087      mean_loss: 1.6696925513315364e-06
step: 1702
Epoch: 0      loss: 0.00469037052243948      mean_loss: 2.4944392862380482e-06
step: 1703
```

```
Epoch: 0      loss: 0.08507760614156723     mean_loss: 8.690510730957612e-05
step: 1704
Epoch: 0      loss: 0.005157464649528265    mean_loss: 1.0222942364634946e-05
step: 1705
Epoch: 0      loss: 0.1910039782524109    mean_loss: 0.00224722595885396
step: 1706
Epoch: 0      loss: 0.006852289196103811    mean_loss: 7.770721822453197e-06
step: 1707
Epoch: 0      loss: 0.006824908312410116    mean_loss: 6.211526397237321e-06
step: 1708
Epoch: 0      loss: 0.0067976354621350765    mean_loss: 0.00013340875739231706
step: 1709
Epoch: 0      loss: 0.0067704725079238415    mean_loss: 2.8457877760956762e-06
step: 1710
Epoch: 0      loss: 0.15391060709953308    mean_loss: 0.0001520883961347863
step: 1711
Epoch: 0      loss: 0.006658944766968489    mean_loss: 2.583851710369345e-06
step: 1712
Epoch: 0      loss: 0.0066323354840278625    mean_loss: 2.2800410079071298e-05
step: 1713
Epoch: 0      loss: 0.7829288244247437    mean_loss: 0.00046939548337832093
step: 1714
Epoch: 0      loss: 0.00758253363892436    mean_loss: 6.498732091131387e-06
step: 1715
Epoch: 0      loss: 0.162125825881958    mean_loss: 0.0005832097958773375
step: 1716
Epoch: 0      loss: 0.008008942939341068    mean_loss: 2.7896599931409582e-05
step: 1717
Epoch: 0      loss: 0.007976939901709557    mean_loss: 1.7140977433882654e-05
step: 1718
Epoch: 0      loss: 0.007945063523948193    mean_loss: 2.057417259493377e-05
step: 1719
Epoch: 0      loss: 0.007913314737379551    mean_loss: 2.3334965590038337e-05
step: 1720
Epoch: 0      loss: 0.13892382383346558    mean_loss: 0.0001400676992489025
step: 1721
Epoch: 0      loss: 0.0077178035862743855    mean_loss: 6.548225792357698e-05
step: 1722
Epoch: 0      loss: 0.007686964236199856    mean_loss: 4.9410109568270855e-06
step: 1723
Epoch: 0      loss: 0.0076562464237213135    mean_loss: 2.7341855002305238e-06
step: 1724
Epoch: 0      loss: 0.08134818077087402    mean_loss: 3.9877901144791394e-05
step: 1725
Epoch: 0      loss: 0.03365708142518997    mean_loss: 3.9182512409752235e-05
step: 1726
Epoch: 0      loss: 0.007024220656603575    mean_loss: 3.68461314792512e-06
step: 1727
```

```
Epoch: 0        loss: 0.40724503993988037      mean_loss: 0.00018511306552682072
step: 1728
Epoch: 0        loss: 0.009301722049713135     mean_loss: 6.629514700762229e-06
step: 1729
Epoch: 0        loss: 0.009264552965760231     mean_loss: 3.9135425140557345e-06
step: 1730
Epoch: 0        loss: 0.009227531962096691     mean_loss: 4.8105498535733204e-06
step: 1731
Epoch: 0        loss: 0.009190659038722515     mean_loss: 5.951760158495745e-06
step: 1732
Epoch: 0        loss: 0.18663924932479858      mean_loss: 0.0003840436111204326
step: 1733
Epoch: 0        loss: 0.009117328561842442     mean_loss: 4.036267000628868e-06
step: 1734
Epoch: 0        loss: 0.12768088281154633      mean_loss: 6.387439498212188e-05
step: 1735
Epoch: 0        loss: 0.008774899877607822     mean_loss: 7.927152182674035e-06
step: 1736
Epoch: 0        loss: 0.00873983558267355      mean_loss: 4.179533334536245e-06
step: 1737
Epoch: 0        loss: 0.375971257686615        mean_loss: 0.00014612336235586554
step: 1738
Epoch: 0        loss: 0.009240388870239258     mean_loss: 4.7890371206449345e-06
step: 1739
Epoch: 0        loss: 0.009203463792800903     mean_loss: 3.982808266300708e-06
step: 1740
Epoch: 0        loss: 0.009166686795651913     mean_loss: 4.070426257385407e-06
step: 1741
Epoch: 0        loss: 0.1720101237297058       mean_loss: 0.00012419797712936997
step: 1742
Epoch: 0        loss: 1.3301068544387817       mean_loss: 0.00272030895575881
step: 1743
Epoch: 0        loss: 0.17673088610172272      mean_loss: 0.00012700013758148998
step: 1744
Epoch: 0        loss: 0.966404914855957        mean_loss: 0.0006508632795885205
step: 1745
Epoch: 0        loss: 0.005992736667394638     mean_loss: 7.918473784229718e-06
step: 1746
Epoch: 0        loss: 0.1405240148305893       mean_loss: 0.00023579182743560523
step: 1747
Epoch: 0        loss: 0.0243015243589878       mean_loss: 7.368151273112744e-05
step: 1748
Epoch: 0        loss: 0.006360556930303574     mean_loss: 2.4446194402116816e-06
step: 1749
Epoch: 0        loss: 0.006335139740258455     mean_loss: 2.5710282898216974e-06
step: 1750
Epoch: 0        loss: 0.2723372280597687       mean_loss: 0.00013916187162976712
step: 1751
```

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Epoch: 0      loss: 0.007894362322986126      mean_loss: 4.162447658018209e-05
step: 1752
Epoch: 0      loss: 0.007862815633416176      mean_loss: 3.163041355946916e-06
step: 1753
Epoch: 0      loss: 0.28075021505355835      mean_loss: 0.00013803016918245703
step: 1754
Epoch: 0      loss: 0.04624146968126297      mean_loss: 6.477583519881591e-05
step: 1755
Epoch: 0      loss: 0.00822408776730299      mean_loss: 1.964185867109336e-05
step: 1756
Epoch: 0      loss: 0.008191224187612534      mean_loss: 7.298547188838711e-06
step: 1757
Epoch: 0      loss: 0.5726199150085449      mean_loss: 0.0004198146634735167
step: 1758
Epoch: 0      loss: 0.007691981736570597      mean_loss: 4.351822099124547e-06
step: 1759
Epoch: 0      loss: 0.007661244831979275      mean_loss: 5.100197085994296e-06
step: 1760
Epoch: 0      loss: 0.007630629930645227      mean_loss: 8.345060450665187e-06
step: 1761
Epoch: 0      loss: 0.5337560176849365      mean_loss: 0.0006959118181839585
step: 1762
Epoch: 0      loss: 0.3010997176170349      mean_loss: 0.00011825847468571737
step: 1763
Epoch: 0      loss: 0.008486627601087093      mean_loss: 9.424848030903377e-06
step: 1764
Epoch: 0      loss: 0.008452714420855045      mean_loss: 6.3817037698754575e-06
step: 1765
Epoch: 0      loss: 0.4053899943828583      mean_loss: 0.000402978505007922265
step: 1766
Epoch: 0      loss: 0.008659232407808304      mean_loss: 5.111230166221503e-06
step: 1767
Epoch: 0      loss: 0.1572367399930954      mean_loss: 0.00012039957800880075
step: 1768
Epoch: 0      loss: 0.19394412636756897      mean_loss: 0.0002248719974886626
step: 1769
Epoch: 0      loss: 0.20357969403266907      mean_loss: 0.00014433750766329467
step: 1770
Epoch: 0      loss: 0.21477612853050232      mean_loss: 0.00015307725698221475
step: 1771
Epoch: 0      loss: 0.1082359105348587      mean_loss: 0.0016422574408352375
step: 1772
Epoch: 0      loss: 0.009774013422429562      mean_loss: 5.665643129759701e-06
step: 1773
Epoch: 0      loss: 0.009734956547617912      mean_loss: 4.9071140892920084e-06
step: 1774
Epoch: 0      loss: 0.2161737084388733      mean_loss: 0.0003573200083337724
step: 1775
```

```
Epoch: 0      loss: 0.00965387187898159      mean_loss: 2.2099760826677084e-05
step: 1776
Epoch: 0      loss: 0.009615295566618443     mean_loss: 4.845346666115802e-06
step: 1777
Epoch: 0      loss: 0.009576871991157532     mean_loss: 5.6066223805828486e-06
step: 1778
Epoch: 0      loss: 0.009538603946566582     mean_loss: 7.252439445437631e-06
step: 1779
Epoch: 0      loss: 0.00950048677623272      mean_loss: 5.473655164678348e-06
step: 1780
Epoch: 0      loss: 0.009462523274123669     mean_loss: 3.978149834438227e-05
step: 1781
Epoch: 0      loss: 0.043240662664175034     mean_loss: 8.621602319180965e-05
step: 1782
Epoch: 0      loss: 0.055315762758255005     mean_loss: 2.0138850231887773e-05
step: 1783
Epoch: 0      loss: 0.0072365328669548035    mean_loss: 3.70427346751967e-06
step: 1784
Epoch: 0      loss: 0.2875059247016907       mean_loss: 0.020536402240395546
step: 1785
Epoch: 0      loss: 0.0074632251635193825    mean_loss: 1.0207666491623968e-05
step: 1786
Epoch: 0      loss: 0.19887518882751465      mean_loss: 0.00019910522551042959
step: 1787
Epoch: 0      loss: 0.007370881736278534     mean_loss: 3.5452105748845497e-06
step: 1788
Epoch: 0      loss: 0.007341427728533745     mean_loss: 3.373896561242873e-06
step: 1789
Epoch: 0      loss: 0.25744983553886414      mean_loss: 0.0008386097615584731
step: 1790
Epoch: 0      loss: 0.0072362665086984634    mean_loss: 8.156440162565559e-05
step: 1791
Epoch: 0      loss: 0.007207350339740515     mean_loss: 3.648105348474928e-06
step: 1792
Epoch: 0      loss: 0.7353610396385193       mean_loss: 0.000277915591141209
step: 1793
Epoch: 0      loss: 0.0071594906039536       mean_loss: 2.9109221486578463e-06
step: 1794
Epoch: 0      loss: 0.0071308808401227       mean_loss: 3.4782017337420257e-06
step: 1795
Epoch: 0      loss: 0.2753696143627167       mean_loss: 0.0001743971515679732
step: 1796
Epoch: 0      loss: 0.2547813653945923       mean_loss: 0.0001290262007387355
step: 1797
Epoch: 0      loss: 0.06667677313089371      mean_loss: 3.018788993358612e-05
step: 1798
Epoch: 0      loss: 0.006901569198817015     mean_loss: 6.189068699313793e-06
step: 1799
```

```
Epoch: 0        loss: 0.0068739899434149265     mean_loss: 4.960475052939728e-06
step: 1800
Epoch: 0        loss: 0.006846521981060505      mean_loss: 1.924573734868318e-05
step: 1801
Epoch: 0        loss: 0.35888370871543884       mean_loss: 0.00013857257727067918
step: 1802
Epoch: 0        loss: 0.006720585748553276      mean_loss: 2.412647972960258e-06
step: 1803
Epoch: 0        loss: 0.006693730596452951      mean_loss: 0.00014247113722376525
step: 1804
Epoch: 0        loss: 0.1337195187807083        mean_loss: 6.617003964493051e-05
step: 1805
Epoch: 0        loss: 0.2813468277454376        mean_loss: 0.0001061134971678257
step: 1806
Epoch: 0        loss: 0.5869887471199036        mean_loss: 0.00025121730868704617
step: 1807
Epoch: 0        loss: 0.37068066000938416       mean_loss: 0.00013247565948404372
step: 1808
Epoch: 0        loss: 0.8212559223175049        mean_loss: 0.0003644136886578053
step: 1809
Epoch: 0        loss: 0.12365536391735077       mean_loss: 0.0001353927655145526
step: 1810
Epoch: 0        loss: 0.006769949570298195      mean_loss: 6.730353106831899e-06
step: 1811
Epoch: 0        loss: 0.006742896977812052      mean_loss: 9.01151815924095e-06
step: 1812
Epoch: 0        loss: 0.006715951953083277      mean_loss: 6.169691005197819e-06
step: 1813
Epoch: 0        loss: 0.006689115427434444      mean_loss: 2.5910544536600355e-06
step: 1814
Epoch: 0        loss: 0.006662385538220406      mean_loss: 3.2073996862891363e-06
step: 1815
Epoch: 0        loss: 0.33810073137283325       mean_loss: 0.0002489719772711396
step: 1816
Epoch: 0        loss: 0.21950751543045044       mean_loss: 0.00012256357877049595
step: 1817
Epoch: 0        loss: 0.007953937165439129      mean_loss: 9.347802006232087e-06
step: 1818
Epoch: 0        loss: 0.007922152988612652      mean_loss: 3.143678441119846e-06
step: 1819
Epoch: 0        loss: 0.007890495471656322      mean_loss: 3.1958052204572596e-06
step: 1820
Epoch: 0        loss: 0.23331744968891144       mean_loss: 0.00025115246535278857
step: 1821
Epoch: 0        loss: 0.007930431514978409      mean_loss: 3.477086238490301e-06
step: 1822
Epoch: 0        loss: 0.007898741401731968      mean_loss: 3.873636160278693e-05
step: 1823
```

```
Epoch: 0       loss: 0.00786717887967825     mean_loss: 2.8832660063926596e-06
step: 1824
Epoch: 0       loss: 0.00783574115484953     mean_loss: 2.1475683752214536e-05
step: 1825
Epoch: 0       loss: 0.007804429158568382    mean_loss: 5.6833005146472715e-06
step: 1826
Epoch: 0       loss: 0.007773242890834808    mean_loss: 1.0512062544876244e-05
step: 1827
Epoch: 0       loss: 0.007742180489003658    mean_loss: 4.478736173041398e-06
step: 1828
Epoch: 0       loss: 0.8685741424560547     mean_loss: 0.0005759805208072066
step: 1829
Epoch: 0       loss: 0.006422960199415684    mean_loss: 7.290563371498138e-05
step: 1830
Epoch: 0       loss: 0.006397293880581856    mean_loss: 6.156231847853633e-06
step: 1831
Epoch: 0       loss: 0.20794138312339783    mean_loss: 0.0002761587384156883
step: 1832
Epoch: 0       loss: 0.0063404361717402935   mean_loss: 3.3165888453368098e-06
step: 1833
Epoch: 0       loss: 0.006315099541097879    mean_loss: 3.7609618175338255e-06
step: 1834
Epoch: 0       loss: 0.2282770276069641     mean_loss: 0.000174127213540487
step: 1835
Epoch: 0       loss: 0.006395597942173481    mean_loss: 3.660013817352592e-06
step: 1836
Epoch: 0       loss: 0.006370040122419596    mean_loss: 2.3321258595387917e-06
step: 1837
Epoch: 0       loss: 0.006344586610794067    mean_loss: 2.989598897329415e-06
step: 1838
Epoch: 0       loss: 0.1460379809141159     mean_loss: 0.00012788176536560059
step: 1839
Epoch: 0       loss: 0.15003100037574768    mean_loss: 6.542870687553659e-05
step: 1840
Epoch: 0       loss: 0.09795743972063065    mean_loss: 3.595849921111949e-05
step: 1841
Epoch: 0       loss: 0.006306394934654236    mean_loss: 3.691707433972624e-06
step: 1842
Epoch: 0       loss: 0.006281194742769003    mean_loss: 2.6962190986523638e-06
step: 1843
Epoch: 0       loss: 0.8247910141944885     mean_loss: 0.00047429194091819227
step: 1844
Epoch: 0       loss: 0.08259142190217972    mean_loss: 8.35671162349172e-05
step: 1845
Epoch: 0       loss: 0.042777169495821     mean_loss: 2.505010888853576e-05
step: 1846
Epoch: 0       loss: 0.1972823143005371     mean_loss: 0.00041277692071162164
step: 1847
```

```
Epoch: 0      loss: 0.006802576594054699    mean_loss: 1.5719724615337327e-05
step: 1848
Epoch: 0      loss: 0.10674312710762024     mean_loss: 0.0010167509317398071
step: 1849
Epoch: 0      loss: 0.009628059342503548    mean_loss: 6.2875428739062045e-06
step: 1850
Epoch: 0      loss: 0.009589584544301033    mean_loss: 4.2857845983235165e-06
step: 1851
Epoch: 0      loss: 0.00955126527696848     mean_loss: 5.201715339353541e-06
step: 1852
Epoch: 0      loss: 0.009513099677860737    mean_loss: 5.685962605639361e-06
step: 1853
Epoch: 0      loss: 0.009475085884332657    mean_loss: 7.0124051489983685e-06
step: 1854
Epoch: 0      loss: 0.3066670596599579      mean_loss: 0.00018050268408842385
step: 1855
Epoch: 0      loss: 0.008025437593460083    mean_loss: 7.031653694866691e-06
step: 1856
Epoch: 0      loss: 0.007993369363248348    mean_loss: 4.57427131550503e-06
step: 1857
Epoch: 0      loss: 0.007961426861584187    mean_loss: 3.965157702623401e-06
step: 1858
Epoch: 0      loss: 0.2900778651237488      mean_loss: 0.00010430846305098385
step: 1859
Epoch: 0      loss: 0.008590725250542164    mean_loss: 3.820313395408448e-06
step: 1860
Epoch: 0      loss: 0.17446789145469666     mean_loss: 0.00025176291819661856
step: 1861
Epoch: 0      loss: 0.008588617667555809    mean_loss: 2.0183517335681245e-05
step: 1862
Epoch: 0      loss: 0.16296999156475067     mean_loss: 0.00010758426651591435
step: 1863
Epoch: 0      loss: 0.008665703237056732    mean_loss: 7.770848242216744e-06
step: 1864
Epoch: 0      loss: 0.008631073869764805    mean_loss: 0.00033226326922886074
step: 1865
Epoch: 0      loss: 0.12256422638893127     mean_loss: 5.304121441440657e-05
step: 1866
Epoch: 0      loss: 0.008157303556799889    mean_loss: 5.898236395296408e-06
step: 1867
Epoch: 0      loss: 0.24099180102348328     mean_loss: 0.0001631670311326161
step: 1868
Epoch: 0      loss: 0.008244365453720093    mean_loss: 9.89121417660499e-06
step: 1869
Epoch: 0      loss: 0.00821142178028822     mean_loss: 4.655330485547893e-06
step: 1870
Epoch: 0      loss: 0.008178607560694218    mean_loss: 5.639740265905857e-06
step: 1871
```

```
Epoch: 0      loss: 0.2251603603363037    mean_loss: 0.00014064084098208696
step: 1872
Epoch: 0      loss: 0.008167949505150318   mean_loss: 7.418384484481066e-05
step: 1873
Epoch: 0      loss: 1.2345178127288818    mean_loss: 0.0004724806402971745
step: 1874
Epoch: 0      loss: 0.8612478375434875    mean_loss: 0.0011368341511115432
step: 1875
Epoch: 0      loss: 0.6768057942390442    mean_loss: 0.00525536946952343
step: 1876
Epoch: 0      loss: 0.040754035115242004   mean_loss: 1.6042331481003202e-05
step: 1877
Epoch: 0      loss: 0.19482415914535522    mean_loss: 0.00014896040374878794
step: 1878
Epoch: 0      loss: 0.2741507887840271    mean_loss: 0.00015324007836170495
step: 1879
Epoch: 0      loss: 0.008436748757958412   mean_loss: 2.7183508791495115e-05
step: 1880
Epoch: 0      loss: 0.008403034880757332   mean_loss: 3.280240707681514e-05
step: 1881
Epoch: 0      loss: 0.14771641790866852    mean_loss: 0.000264309870544821
step: 1882
Epoch: 0      loss: 0.008263028226792812   mean_loss: 9.690157457953319e-05
step: 1883
Epoch: 0      loss: 0.008230009116232395   mean_loss: 3.6425678899831837e-06
step: 1884
Epoch: 0      loss: 0.23919019103050232    mean_loss: 0.00012609058467205614
step: 1885
Epoch: 0      loss: 0.008197447285056114   mean_loss: 4.128738964936929e-06
step: 1886
Epoch: 0      loss: 0.008164690807461739   mean_loss: 3.307214137748815e-05
step: 1887
Epoch: 0      loss: 0.008132063783705235   mean_loss: 2.8489657779573463e-06
step: 1888
Epoch: 0      loss: 0.21563979983329773    mean_loss: 0.0002128752676071599
step: 1889
Epoch: 0      loss: 0.24407081305980682    mean_loss: 0.00029718209407292306
step: 1890
Epoch: 0      loss: 0.007639031391590834   mean_loss: 3.252546230214648e-05
step: 1891
Epoch: 0      loss: 0.007608506362885237   mean_loss: 2.818528855641489e-06
step: 1892
Epoch: 0      loss: 0.09916172921657562    mean_loss: 3.691904203151353e-05
step: 1893
Epoch: 0      loss: 0.007449849508702755   mean_loss: 7.766357157379389e-06
step: 1894
Epoch: 0      loss: 0.26876169443130493    mean_loss: 0.0005541638820432127
step: 1895
```

```
Epoch: 0      loss: 0.007289671339094639    mean_loss: 0.00026146118761971593
step: 1896
Epoch: 0      loss: 0.007260540965944529    mean_loss: 9.693301763036288e-06
step: 1897
Epoch: 0      loss: 0.007231528405100107    mean_loss: 4.005100436188513e-06
step: 1898
Epoch: 0      loss: 0.2067754715681076    mean_loss: 0.00021427925094030797
step: 1899
Epoch: 0      loss: 0.2727903127670288    mean_loss: 0.00013809034135192633
step: 1900
Epoch: 0      loss: 0.1686571091413498    mean_loss: 9.493542893324047e-05
step: 1901
Epoch: 0      loss: 0.007278377655893564    mean_loss: 9.440861504117493e-06
step: 1902
Epoch: 0      loss: 0.053549449890851974    mean_loss: 1.9954877643613145e-05
step: 1903
Epoch: 0      loss: 0.0072766575030982494    mean_loss: 2.5370698040205752e-06
step: 1904
Epoch: 0      loss: 0.007247580215334892    mean_loss: 5.722270998376189e-06
step: 1905
Epoch: 0      loss: 0.35297974944114685    mean_loss: 0.0006096467841416597
step: 1906
Epoch: 0      loss: 0.006653367541730404    mean_loss: 8.42577082948992e-06
step: 1907
Epoch: 0      loss: 0.006626781076192856    mean_loss: 2.133507041435223e-05
step: 1908
Epoch: 0      loss: 0.006600300315767527    mean_loss: 1.0218573152087629e-05
step: 1909
Epoch: 0      loss: 0.006573925260454416    mean_loss: 6.945299446670106e-06
step: 1910
Epoch: 0      loss: 0.006547655910253525    mean_loss: 5.714560757041909e-06
step: 1911
Epoch: 0      loss: 0.32971319556236267    mean_loss: 0.00012930153752677143
step: 1912
Epoch: 0      loss: 0.006491166073828936    mean_loss: 7.938210728752892e-06
step: 1913
Epoch: 0      loss: 0.2629150450229645    mean_loss: 0.0001548427389934659
step: 1914
Epoch: 0      loss: 0.006661376915872097    mean_loss: 1.087116379494546e-05
step: 1915
Epoch: 0      loss: 0.07751208543777466    mean_loss: 9.535418939776719e-05
step: 1916
Epoch: 0      loss: 0.00722053786739707    mean_loss: 3.885232217726298e-06
step: 1917
Epoch: 0      loss: 0.14217114448547363    mean_loss: 6.649908027611673e-05
step: 1918
Epoch: 0      loss: 0.007148521952331066    mean_loss: 1.2065253031323664e-05
step: 1919
```

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Epoch: 0      loss: 0.0071199568919837475    mean_loss: 5.784283985121874e-06
step: 1920
Epoch: 0      loss: 0.007091505452990532     mean_loss: 2.6083387183462037e-06
step: 1921
Epoch: 0      loss: 0.6081892848014832       mean_loss: 0.0011241994798183441
step: 1922
Epoch: 0      loss: 0.005541738122701645     mean_loss: 2.865837359422585e-06
step: 1923
Epoch: 0      loss: 0.005519593600183725     mean_loss: 0.0001022677679429762
step: 1924
Epoch: 0      loss: 0.10299547761678696      mean_loss: 9.467194468015805e-05
step: 1925
Epoch: 0      loss: 0.2702716588973999       mean_loss: 0.00021138884767424315
step: 1926
Epoch: 0      loss: 0.006371208466589451     mean_loss: 4.053323664265918e-06
step: 1927
Epoch: 0      loss: 0.45576411485671997      mean_loss: 0.0008971814531832933
step: 1928
Epoch: 0      loss: 0.006681244820356369     mean_loss: 3.0995606721262448e-06
step: 1929
Epoch: 0      loss: 0.006654546596109867     mean_loss: 3.7956933738314547e-06
step: 1930
Epoch: 0      loss: 0.09017372131347656      mean_loss: 0.00019603807595558465
step: 1931
Epoch: 0      loss: 0.1388789564371109       mean_loss: 4.8441306716995314e-05
step: 1932
Epoch: 0      loss: 0.5815325975418091       mean_loss: 0.0006519966991618276
step: 1933
Epoch: 0      loss: 0.006325270980596542     mean_loss: 2.8987401492486242e-06
step: 1934
Epoch: 0      loss: 0.45647117495536804      mean_loss: 0.00018135640129912645
step: 1935
Epoch: 0      loss: 0.1810765564441681       mean_loss: 0.0013731661019846797
step: 1936
Epoch: 0      loss: 0.23069578409194946      mean_loss: 8.864360279403627e-05
step: 1937
Epoch: 0      loss: 0.006430516019463539     mean_loss: 6.8192048274795525e-06
step: 1938
Epoch: 0      loss: 0.2066432386636734       mean_loss: 0.00019495289598125964
step: 1939
Epoch: 0      loss: 0.006496713496744633     mean_loss: 3.7934617012069793e-06
step: 1940
Epoch: 0      loss: 0.029039664193987846     mean_loss: 1.3508585652743932e-05
step: 1941
Epoch: 0      loss: 0.006840966176241636     mean_loss: 2.421220187898143e-06
step: 1942
Epoch: 0      loss: 0.1585875302553177       mean_loss: 0.0001550243905512616
step: 1943
```

```
Epoch: 0      loss: 0.006844730116426945      mean_loss: 4.191469633951783e-05
step: 1944
Epoch: 0      loss: 0.006817379035055637      mean_loss: 4.557670308713568e-06
step: 1945
Epoch: 0      loss: 0.21208594739437103      mean_loss: 8.822400559438393e-05
step: 1946
Epoch: 0      loss: 0.20811596512794495      mean_loss: 9.494035475654528e-05
step: 1947
Epoch: 0      loss: 0.0421733483672142      mean_loss: 1.6621426766505465e-05
step: 1948
Epoch: 0      loss: 0.0067925225012004375      mean_loss: 3.871031367452815e-06
step: 1949
Epoch: 0      loss: 0.006765379104763269      mean_loss: 3.0273927222879138e-06
step: 1950
Epoch: 0      loss: 0.006738345604389906      mean_loss: 4.051305950270034e-06
step: 1951
Epoch: 0      loss: 0.006711418274790049      mean_loss: 5.106820935907308e-06
step: 1952
Epoch: 0      loss: 0.056465283036231995      mean_loss: 2.9581136914202943e-05
step: 1953
Epoch: 0      loss: 0.006483323406428099      mean_loss: 7.653236934856977e-06
step: 1954
Epoch: 0      loss: 0.00657415875047445      mean_loss: 3.056770310649881e-06
step: 1955
Epoch: 0      loss: 0.0064316121861338615      mean_loss: 2.4154162474587793e-06
step: 1956
Epoch: 0      loss: 0.288865864276886      mean_loss: 0.0004186496662441641
step: 1957
Epoch: 0      loss: 0.0060733286663889885      mean_loss: 2.326873982383404e-05
step: 1958
Epoch: 0      loss: 0.006049060262739658      mean_loss: 1.0344682777940761e-05
step: 1959
Epoch: 0      loss: 0.3730689287185669      mean_loss: 0.00029124063439667225
step: 1960
Epoch: 0      loss: 0.4491356313228607      mean_loss: 0.0002931682101916522
step: 1961
Epoch: 0      loss: 0.22868673503398895      mean_loss: 0.00014474077033810318
step: 1962
Epoch: 0      loss: 0.00686397822573781      mean_loss: 2.7134026368003106e-06
step: 1963
Epoch: 0      loss: 0.10150071978569031      mean_loss: 5.1083759899483994e-05
step: 1964
Epoch: 0      loss: 0.2186523824930191      mean_loss: 0.0001230745401699096
step: 1965
Epoch: 0      loss: 0.2017560452222824      mean_loss: 0.00012949269148521125
step: 1966
Epoch: 0      loss: 0.09051940590143204      mean_loss: 0.00012366834562271833
step: 1967
```

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Epoch: 0      loss: 0.006570144556462765     mean_loss: 3.6104709124629153e-06
step: 1968
Epoch: 0      loss: 0.521814227104187     mean_loss: 0.0003360063419677317
step: 1969
Epoch: 0      loss: 0.1668901890516281     mean_loss: 0.041806548833847046
step: 1970
Epoch: 0      loss: 0.20443201065063477     mean_loss: 0.00011259193706791848
step: 1971
Epoch: 0      loss: 0.3444235920906067     mean_loss: 0.00015333163901232183
step: 1972
Epoch: 0      loss: 0.007527632638812065     mean_loss: 3.355598209964228e-06
step: 1973
Epoch: 0      loss: 0.007497552316635847     mean_loss: 5.860084274900146e-05
step: 1974
Epoch: 0      loss: 0.21205787360668182     mean_loss: 0.0003047650679945946
step: 1975
Epoch: 0      loss: 0.40405625104904175     mean_loss: 0.00024403199495282024
step: 1976
Epoch: 0      loss: 0.02550661750137806     mean_loss: 2.9769536922685802e-05
step: 1977
Epoch: 0      loss: 0.007255522068589926     mean_loss: 3.0935420909372624e-06
step: 1978
Epoch: 0      loss: 0.19711950421333313     mean_loss: 0.0003532663104124367
step: 1979
Epoch: 0      loss: 0.00709010474383831     mean_loss: 1.0280899914505426e-05
step: 1980
Epoch: 0      loss: 0.06844466179609299     mean_loss: 2.6127841920242645e-05
step: 1981
Epoch: 0      loss: 0.024268362671136856     mean_loss: 9.223420420312323e-06
step: 1982
Epoch: 0      loss: 0.006319781299680471     mean_loss: 4.967821496393299e-06
step: 1983
Epoch: 0      loss: 0.006294528022408485     mean_loss: 4.666293170885183e-05
step: 1984
Epoch: 0      loss: 0.4700307548046112     mean_loss: 0.0005115097155794501
step: 1985
Epoch: 0      loss: 0.0826406180858612     mean_loss: 4.2994895920855924e-05
step: 1986
Epoch: 0      loss: 0.18298915028572083     mean_loss: 0.00019026210065931082
step: 1987
Epoch: 0      loss: 0.0058739567175507545     mean_loss: 2.2460069885710254e-05
step: 1988
Epoch: 0      loss: 0.03018132410943508     mean_loss: 1.0825729077623691e-05
step: 1989
Epoch: 0      loss: 0.19930942356586456     mean_loss: 9.143131319433451e-05
step: 1990
Epoch: 0      loss: 0.005681062582880258     mean_loss: 2.6936509129882324e-06
step: 1991
```

```
Epoch: 0      loss: 0.005658361595124006      mean_loss: 2.098241566272918e-06
step: 1992
Epoch: 0      loss: 0.005635750945657492      mean_loss: 2.9782615911244648e-06
step: 1993
Epoch: 0      loss: 0.005613230168819427      mean_loss: 2.6025063561974093e-06
step: 1994
Epoch: 0      loss: 0.005590799730271101      mean_loss: 1.1120084309368394e-05
step: 1995
Epoch: 0      loss: 0.09622706472873688      mean_loss: 4.6402212319662794e-05
step: 1996
Epoch: 0      loss: 0.2730288505554199      mean_loss: 0.00022383217583410442
step: 1997
Epoch: 0      loss: 0.2049417346715927      mean_loss: 8.548565529054031e-05
step: 1998
Epoch: 0      loss: 0.005197959486395121      mean_loss: 3.6716087379318196e-06
step: 1999
Epoch: 0      loss: 0.005177188199013472      mean_loss: 8.707327651791275e-06
step: 2000
Epoch: 0      loss: 0.005156500265002251      mean_loss: 2.731468839556328e-06
step: 2001
Epoch: 0      loss: 0.2922552824020386      mean_loss: 0.00023213504755403847
step: 2002
Epoch: 0      loss: 0.005014388356357813      mean_loss: 3.8520729503943585e-06
step: 2003
Epoch: 0      loss: 0.057288650423288345      mean_loss: 0.00020032344036735594
step: 2004
Epoch: 0      loss: 0.005168477073311806      mean_loss: 2.2166805138112977e-06
step: 2005
Epoch: 0      loss: 0.005147824063897133      mean_loss: 3.134534836135572e-06
step: 2006
Epoch: 0      loss: 0.4282587170600891      mean_loss: 0.00020952144404873252
step: 2007
Epoch: 0      loss: 0.0050835576839745045      mean_loss: 1.1710351827787235e-05
step: 2008
Epoch: 0      loss: 0.005063244141638279      mean_loss: 2.8194192054797895e-05
step: 2009
Epoch: 0      loss: 0.13760240375995636      mean_loss: 7.213343633338809e-05
step: 2010
Epoch: 0      loss: 0.6024370789527893      mean_loss: 0.0002568240452092141
step: 2011
Epoch: 0      loss: 0.06637188792228699      mean_loss: 0.0003218778292648494
step: 2012
Epoch: 0      loss: 0.5474105477333069      mean_loss: 0.0003266144485678524
step: 2013
Epoch: 0      loss: 0.03090369887650013      mean_loss: 0.000271567958407104
step: 2014
Epoch: 0      loss: 0.04914850741624832      mean_loss: 1.983149013540242e-05
step: 2015
```

```
Epoch: 0        loss: 0.005386125762015581      mean_loss: 6.1711843954981305e-06
step: 2016
Epoch: 0        loss: 0.186140775680542     mean_loss: 0.00015084841288626194
step: 2017
Epoch: 0        loss: 0.07876737415790558       mean_loss: 2.9174945666454732e-05
step: 2018
Epoch: 0        loss: 0.004766982514411211      mean_loss: 3.5659163586387876e-06
step: 2019
Epoch: 0        loss: 0.004747933708131313      mean_loss: 3.2301154533342924e-06
step: 2020
Epoch: 0        loss: 0.3063170611858368     mean_loss: 0.0005029889871366322
step: 2021
Epoch: 0        loss: 0.5428814888000488     mean_loss: 0.0002462095580995083
step: 2022
Epoch: 0        loss: 0.12265586853027344      mean_loss: 9.692593448562548e-05
step: 2023
Epoch: 0        loss: 0.00366427144035697       mean_loss: 1.2055120350851212e-05
step: 2024
Epoch: 0        loss: 0.24091799557209015       mean_loss: 0.00024559636949561536
step: 2025
Epoch: 0        loss: 0.003711677622050047      mean_loss: 1.4458436226050253e-06
step: 2026
Epoch: 0        loss: 0.8376391530036926     mean_loss: 0.0004692664369940758
step: 2027
Epoch: 0        loss: 0.17122700810432434       mean_loss: 8.133409573929384e-05
step: 2028
Epoch: 0        loss: 0.003677150933071971      mean_loss: 2.494017962817452e-06
step: 2029
Epoch: 0        loss: 0.02915382757782936       mean_loss: 2.3781665731803514e-05
step: 2030
Epoch: 0        loss: 0.6503589153289795     mean_loss: 0.00045963440788909793
step: 2031
Epoch: 0        loss: 0.18184822797775269       mean_loss: 0.00023924917331896722
step: 2032
Epoch: 0        loss: 0.003891842905431986      mean_loss: 7.82403822086053e-06
step: 2033
Epoch: 0        loss: 0.029607273638248444      mean_loss: 4.2673051211750135e-05
step: 2034
Epoch: 0        loss: 0.004536775406450033      mean_loss: 2.3058653368934756e-06
step: 2035
Epoch: 0        loss: 0.8602995276451111     mean_loss: 0.0003075802233070135
step: 2036
Epoch: 0        loss: 0.22289937734603882       mean_loss: 0.00013544110697694123
step: 2037
Epoch: 0        loss: 0.00403619697317481       mean_loss: 2.224873696832219e-06
step: 2038
Epoch: 0        loss: 0.2171107977628708     mean_loss: 0.00013079096970614046
step: 2039
```

```
Epoch: 0      loss: 0.4111996293067932     mean_loss: 0.00020342750940471888
step: 2040
Epoch: 0      loss: 0.0037300377152860165    mean_loss: 2.0702448182419175e-06
step: 2041
Epoch: 0      loss: 0.003715132363140583    mean_loss: 1.3666186532645952e-05
step: 2042
Epoch: 0      loss: 0.23515678942203522     mean_loss: 0.0018090035300701857
step: 2043
Epoch: 0      loss: 0.003573802299797535    mean_loss: 6.340172149066348e-06
step: 2044
Epoch: 0      loss: 0.23194409906864166     mean_loss: 0.00017067728913389146
step: 2045
Epoch: 0      loss: 0.303912878036499    mean_loss: 0.0005306868115440011
step: 2046
Epoch: 0      loss: 0.1879170686006546     mean_loss: 7.352624379564077e-05
step: 2047
Epoch: 0      loss: 0.003153648693114519    mean_loss: 1.2247343192939297e-06
step: 2048
Epoch: 0      loss: 0.18529611825942993     mean_loss: 0.00011900920799234882
step: 2049
Epoch: 0      loss: 0.14959008991718292     mean_loss: 7.396694854833186e-05
step: 2050
Epoch: 0      loss: 0.22548934817314148     mean_loss: 9.989518002839759e-05
step: 2051
Epoch: 0      loss: 0.0039585549384355545     mean_loss: 2.3873235477367416e-05
step: 2052
Epoch: 0      loss: 0.07400554418563843     mean_loss: 3.2640837162034586e-05
step: 2053
Epoch: 0      loss: 0.2360907346010208     mean_loss: 0.00016950708231888711
step: 2054
Epoch: 0      loss: 0.04846429452300072     mean_loss: 2.35971874644747e-05
step: 2055
Epoch: 0      loss: 0.004694661591202021     mean_loss: 4.1388237150385976e-05
step: 2056
Epoch: 0      loss: 0.18336543440818787     mean_loss: 9.813099313760176e-05
step: 2057
Epoch: 0      loss: 0.23898878693580627     mean_loss: 0.0009879624703899026
step: 2058
Epoch: 0      loss: 0.004508079029619694     mean_loss: 4.70551503894967e-06
step: 2059
Epoch: 0      loss: 0.00449006538381481     mean_loss: 2.907355110437493e-06
step: 2060
Epoch: 0      loss: 0.08005719631910324     mean_loss: 7.61027549742721e-05
step: 2061
Epoch: 0      loss: 0.1889375001192093    mean_loss: 0.00012369999603834003
step: 2062
Epoch: 0      loss: 0.005057258531451225     mean_loss: 3.198122612957377e-06
step: 2063
```

```
Epoch: 0        loss: 0.005037049762904644    mean_loss: 6.8388708314159885e-06
step: 2064
Epoch: 0        loss: 0.005016921553760767    mean_loss: 2.0976035557396244e-06
step: 2065
Epoch: 0        loss: 0.6694818735122681     mean_loss: 0.00040722868288867176
step: 2066
Epoch: 0        loss: 0.5994422435760498     mean_loss: 0.0012021030997857451
step: 2067
Epoch: 0        loss: 0.13700726628303528    mean_loss: 4.798936424776912e-05
step: 2068
Epoch: 0        loss: 0.42564672231674194    mean_loss: 0.0048893042612820864
step: 2069
Epoch: 0        loss: 0.3403699994087219     mean_loss: 0.00014894867490511388
step: 2070
Epoch: 0        loss: 0.06209447607398033    mean_loss: 8.84139517438598e-05
step: 2071
Epoch: 0        loss: 0.28297650814056396    mean_loss: 0.00030437088571488857
step: 2072
Epoch: 0        loss: 0.0037688545417040586    mean_loss: 5.633783530356595e-06
step: 2073
Epoch: 0        loss: 0.0037537943571805954    mean_loss: 1.4143822681944584e-06
step: 2074
Epoch: 0        loss: 0.003738794242963195    mean_loss: 4.710590474132914e-06
step: 2075
Epoch: 0        loss: 0.06606665998697281    mean_loss: 7.158327935030684e-05
step: 2076
Epoch: 0        loss: 0.26258549094200134    mean_loss: 0.00018316392379347235
step: 2077
Epoch: 0        loss: 0.0039170775562524796    mean_loss: 1.855312984844204e-05
step: 2078
Epoch: 0        loss: 0.05303019657731056    mean_loss: 0.00031957076862454414
step: 2079
Epoch: 0        loss: 0.0044190711341798306    mean_loss: 3.2061177535069874e-06
step: 2080
Epoch: 0        loss: 0.10224251449108124    mean_loss: 4.263791561243124e-05
step: 2081
Epoch: 0        loss: 0.20533430576324463    mean_loss: 0.0001924807293107733
step: 2082
Epoch: 0        loss: 0.22044271230697632    mean_loss: 0.00012571805564220995
step: 2083
Epoch: 0        loss: 0.004530641715973616    mean_loss: 5.050281288276892e-06
step: 2084
Epoch: 0        loss: 0.004512536805123091    mean_loss: 1.74356887328031e-06
step: 2085
Epoch: 0        loss: 0.3676176369190216     mean_loss: 0.00036361959064379334
step: 2086
Epoch: 0        loss: 0.28362318873405457    mean_loss: 0.00015543885820079595
step: 2087
```

```
Epoch: 0        loss: 0.04021325707435608      mean_loss: 0.0016820289893075824
step: 2088
Epoch: 0        loss: 0.00471540866419673      mean_loss: 2.7339478037902154e-05
step: 2089
Epoch: 0        loss: 0.37509411573410034      mean_loss: 0.00020102971757296473
step: 2090
Epoch: 0        loss: 0.004572580568492413     mean_loss: 2.199820301029831e-06
step: 2091
Epoch: 0        loss: 0.004554308485239744     mean_loss: 3.3283479297097074e-06
step: 2092
Epoch: 0        loss: 0.004536109510809183     mean_loss: 1.6634071471344214e-06
step: 2093
Epoch: 0        loss: 0.27354371547698975      mean_loss: 0.00014770269626751542
step: 2094
Epoch: 0        loss: 0.0612640380859375       mean_loss: 4.212053681840189e-05
step: 2095
Epoch: 0        loss: 0.004373371601104736     mean_loss: 1.314134533458855e-05
step: 2096
Epoch: 0        loss: 0.004355895798653364     mean_loss: 1.2447399058146402e-05
step: 2097
Epoch: 0        loss: 0.06157633662223816      mean_loss: 4.195421206532046e-05
step: 2098
Epoch: 0        loss: 0.004391191992908716     mean_loss: 1.6268426179522066e-06
step: 2099
Epoch: 0        loss: 0.004373644944280386     mean_loss: 1.7064243138520396e-06
step: 2100
Epoch: 0        loss: 0.24289856851100922      mean_loss: 8.897446241462603e-05
step: 2101
Epoch: 0        loss: 0.20224589109420776      mean_loss: 0.000171180086908862
step: 2102
Epoch: 0        loss: 0.11403713375329971      mean_loss: 8.014618651941419e-05
step: 2103
Epoch: 0        loss: 0.004384338390082121     mean_loss: 2.453013621561695e-06
step: 2104
Epoch: 0        loss: 0.09801945090293884      mean_loss: 4.730786895379424e-05
step: 2105
Epoch: 0        loss: 0.2040395736694336       mean_loss: 0.00036379124503582716
step: 2106
Epoch: 0        loss: 0.10134238749742508      mean_loss: 7.014218863332644e-05
step: 2107
Epoch: 0        loss: 0.14513079822063446      mean_loss: 0.00013260359992273152
step: 2108
Epoch: 0        loss: 0.14148594439029694      mean_loss: 7.622096018167213e-05
step: 2109
Epoch: 0        loss: 0.004301084205508232     mean_loss: 8.516157322446816e-06
step: 2110
Epoch: 0        loss: 0.004283897113054991     mean_loss: 1.9689969121827744e-05
step: 2111
```

```
Epoch: 0      loss: 0.1930638551712036      mean_loss: 0.0007785626803524792
step: 2112
Epoch: 0      loss: 0.004322422668337822      mean_loss: 2.0185934772598557e-06
step: 2113
Epoch: 0      loss: 0.004305149894207716      mean_loss: 4.074899152328726e-06
step: 2114
Epoch: 0      loss: 0.004287946969270706      mean_loss: 1.549466446704173e-06
step: 2115
Epoch: 0      loss: 0.1516713947057724      mean_loss: 9.952292748494074e-05
step: 2116
Epoch: 0      loss: 0.004329022020101547      mean_loss: 5.3484841373574454e-06
step: 2117
Epoch: 0      loss: 0.004311723634600639      mean_loss: 9.970143764803652e-06
step: 2118
Epoch: 0      loss: 0.256212055683136      mean_loss: 0.0012201049830764532
step: 2119
Epoch: 0      loss: 0.48376142978668213      mean_loss: 0.000367967790225552073
step: 2120
Epoch: 0      loss: 0.07509807497262955      mean_loss: 5.154784594196826e-05
step: 2121
Epoch: 0      loss: 0.24384739995002747      mean_loss: 8.513052307534963e-05
step: 2122
Epoch: 0      loss: 0.1679570972919464      mean_loss: 0.00012625260569620878
step: 2123
Epoch: 0      loss: 0.0036669496912509203      mean_loss: 6.429156201193109e-05
step: 2124
Epoch: 0      loss: 0.25353220105171204      mean_loss: 0.0003566757950466126
step: 2125
Epoch: 0      loss: 0.5419073700904846      mean_loss: 0.0010759207652881742
step: 2126
Epoch: 0      loss: 0.0027752083260565996      mean_loss: 6.756366929039359e-05
step: 2127
Epoch: 0      loss: 0.14154627919197083      mean_loss: 0.00030718836933374405
step: 2128
Epoch: 0      loss: 0.037592727690935135      mean_loss: 3.9685775846010074e-05
step: 2129
Epoch: 0      loss: 0.37902432680130005      mean_loss: 0.0010413846466690302
step: 2130
Epoch: 0      loss: 0.0030567264184355736      mean_loss: 1.6230142136919312e-06
step: 2131
Epoch: 0      loss: 0.10005418211221695      mean_loss: 0.00016375746054109186
step: 2132
Epoch: 0      loss: 0.14559674263000488      mean_loss: 8.764913218328729e-05
step: 2133
Epoch: 0      loss: 0.4576108455657959      mean_loss: 0.0022884923964738846
step: 2134
Epoch: 0      loss: 0.34117522835731506      mean_loss: 0.00013276525714900345
step: 2135
```

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Epoch: 0       loss: 0.002800484886392951      mean_loss: 1.1894768476850004e-06
step: 2136
Epoch: 0       loss: 0.21785224974155426       mean_loss: 0.00032710726372897625
step: 2137
Epoch: 0       loss: 0.32745030522346497       mean_loss: 0.0001676610845606774
step: 2138
Epoch: 0       loss: 0.13481155037879944       mean_loss: 8.489259198540822e-05
step: 2139
Epoch: 0       loss: 0.2423510104417801        mean_loss: 0.0001390114048263058
step: 2140
Epoch: 0       loss: 0.20899875462055206       mean_loss: 9.010674693854526e-05
step: 2141
Epoch: 0       loss: 0.19749745726585388       mean_loss: 9.071972453966737e-05
step: 2142
Epoch: 0       loss: 0.01717236638069153       mean_loss: 6.869513072160771e-06
step: 2143
Epoch: 0       loss: 0.13091115653514862       mean_loss: 9.821307321544737e-05
step: 2144
Epoch: 0       loss: 0.34783005714416504       mean_loss: 0.00016458290338050574
step: 2145
Epoch: 0       loss: 0.40920019149780273       mean_loss: 0.00017345964442938566
step: 2146
Epoch: 0       loss: 0.0927964448928833        mean_loss: 8.293479186249897e-05
step: 2147
Epoch: 0       loss: 0.19570378959178925       mean_loss: 0.0001439608313376084
step: 2148
Epoch: 0       loss: 0.2527238130569458        mean_loss: 0.00026929477462545037
step: 2149
Epoch: 0       loss: 0.16826669871807098       mean_loss: 0.00012021112343063578
step: 2150
Epoch: 0       loss: 0.017977427691221237      mean_loss: 6.528729954879964e-06
step: 2151
Epoch: 0       loss: 0.4351370632648468        mean_loss: 0.00021062129235360771
step: 2152
Epoch: 0       loss: 0.11382697522640228       mean_loss: 5.1275896112201735e-05
step: 2153
Epoch: 0       loss: 0.0037302568089216948     mean_loss: 1.5529908523603808e-06
step: 2154
Epoch: 0       loss: 0.0037153505254536867     mean_loss: 2.9266957426443696e-05
step: 2155
Epoch: 0       loss: 0.35654181241989136       mean_loss: 0.000230194375035353
step: 2156
Epoch: 0       loss: 0.010283935815095901      mean_loss: 3.9601241041964386e-06
step: 2157
Epoch: 0       loss: 0.38425999879837036       mean_loss: 0.00019879150204360485
step: 2158
Epoch: 0       loss: 0.0036107886116951704     mean_loss: 2.2071726561989635e-06
step: 2159
```

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Epoch: 0      loss: 0.00359636009670794      mean_loss: 9.064401638170239e-06
step: 2160
Epoch: 0      loss: 0.005883667152374983      mean_loss: 1.0655934602255002e-05
step: 2161
Epoch: 0      loss: 0.005547229200601578      mean_loss: 8.078321116045117e-06
step: 2162
Epoch: 0      loss: 0.42676234245300293      mean_loss: 0.0011290222173556685
step: 2163
Epoch: 0      loss: 0.0037587652914226055      mean_loss: 4.2245355871273205e-06
step: 2164
Epoch: 0      loss: 0.1860499233007431      mean_loss: 7.917197945062071e-05
step: 2165
Epoch: 0      loss: 0.003771731397137046      mean_loss: 3.5264683901914395e-06
step: 2166
Epoch: 0      loss: 0.0037566595710814      mean_loss: 2.313960521860281e-06
step: 2167
Epoch: 0      loss: 0.18038101494312286      mean_loss: 0.00010444893996464089
step: 2168
Epoch: 0      loss: 0.08674845099449158      mean_loss: 6.865841714898124e-05
step: 2169
Epoch: 0      loss: 0.02187315747141838      mean_loss: 4.5522439904743806e-05
step: 2170
Epoch: 0      loss: 0.004207917954772711      mean_loss: 1.6792106407592655e-06
step: 2171
Epoch: 0      loss: 0.011443558149039745      mean_loss: 8.605441689724103e-05
step: 2172
Epoch: 0      loss: 0.004579617641866207      mean_loss: 5.127111762703862e-06
step: 2173
Epoch: 0      loss: 0.17418046295642853      mean_loss: 8.346218965016305e-05
step: 2174
Epoch: 0      loss: 0.004642514046281576      mean_loss: 3.62978221346566e-06
step: 2175
Epoch: 0      loss: 0.2550252079963684      mean_loss: 9.203494846588e-05      step:
2176
Epoch: 0      loss: 0.004581809043884277      mean_loss: 9.716932254377753e-06
step: 2177
Epoch: 0      loss: 0.004563500173389912      mean_loss: 1.7962361198442522e-06
step: 2178
Epoch: 0      loss: 0.004545264877378941      mean_loss: 1.6570921843594988e-06
step: 2179
Epoch: 0      loss: 0.15938620269298553      mean_loss: 0.00011600280413404107
step: 2180
Epoch: 0      loss: 0.004566460382193327      mean_loss: 6.057520295144059e-06
step: 2181
Epoch: 0      loss: 0.004548212978988886      mean_loss: 1.409990818501683e-05
step: 2182
Epoch: 0      loss: 0.0045300377532839775      mean_loss: 1.1137592082377523e-05
step: 2183
```

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Epoch: 0      loss: 0.10480447113513947     mean_loss: 5.0103062676498666e-05
step: 2184
Epoch: 0      loss: 0.22380304336547852     mean_loss: 0.00017994624795392156
step: 2185
Epoch: 0      loss: 0.005518320016562939    mean_loss: 2.0285747268644627e-06
step: 2186
Epoch: 0      loss: 0.005496268626302481    mean_loss: 0.00014469202142208815
step: 2187
Epoch: 0      loss: 0.027152277529239655    mean_loss: 2.0695200873888098e-05
step: 2188
Epoch: 0      loss: 0.005316486116498709    mean_loss: 0.00012707574933301657
step: 2189
Epoch: 0      loss: 0.6435501575469971    mean_loss: 0.0004245892050676048
step: 2190
Epoch: 0      loss: 0.0054527102038264275    mean_loss: 2.2237227312871255e-06
step: 2191
Epoch: 0      loss: 0.44163304567337036     mean_loss: 0.000248808617470786
step: 2192
Epoch: 0      loss: 0.005621785763651133    mean_loss: 4.6964752982603386e-05
step: 2193
Epoch: 0      loss: 0.005599320866167545    mean_loss: 3.5070097510470077e-06
step: 2194
Epoch: 0      loss: 0.005576946772634983    mean_loss: 2.546989435359137e-06
step: 2195
Epoch: 0      loss: 0.32054662704467773     mean_loss: 0.00044397389865480363
step: 2196
Epoch: 0      loss: 0.13400979340076447     mean_loss: 7.399767491733655e-05
step: 2197
Epoch: 0      loss: 0.14274504780769348     mean_loss: 0.0001557459618197754
step: 2198
Epoch: 0      loss: 0.005446008872240782    mean_loss: 1.9999124560854398e-06
step: 2199
Epoch: 0      loss: 0.15878768265247345     mean_loss: 0.00012682881788350642
step: 2200
Epoch: 0      loss: 0.29477739334106445     mean_loss: 0.0005381464143283665
step: 2201
Epoch: 0      loss: 0.17702649533748627     mean_loss: 0.001277443370781839
step: 2202
Epoch: 0      loss: 0.06623166054487228     mean_loss: 4.555270425044e-05
step: 2203
Epoch: 0      loss: 0.0053866272792220116     mean_loss: 3.3866458579723258e-06
step: 2204
Epoch: 0      loss: 0.005365102086216211    mean_loss: 6.249696070881328e-06
step: 2205
Epoch: 0      loss: 0.005343662574887276    mean_loss: 2.1633288724842714e-06
step: 2206
Epoch: 0      loss: 0.005322309676557779    mean_loss: 6.589694294234505e-06
step: 2207
```

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Epoch: 0      loss: 0.005301041528582573     mean_loss: 2.527443484723335e-06
step: 2208
Epoch: 0      loss: 0.005279858596622944     mean_loss: 6.449799911933951e-06
step: 2209
Epoch: 0      loss: 0.5678709745407104     mean_loss: 0.0004990135203115642
step: 2210
Epoch: 0      loss: 0.5471117496490479     mean_loss: 0.00019487927784211934
step: 2211
Epoch: 0      loss: 0.2582424283027649     mean_loss: 0.0001347431243630126
step: 2212
Epoch: 0      loss: 0.0036075576208531857     mean_loss: 4.749112576973857e-06
step: 2213
Epoch: 0      loss: 0.0035931419115513563     mean_loss: 1.2970047009730479e-06
step: 2214
Epoch: 0      loss: 0.0739433765411377     mean_loss: 4.404090213938616e-05
step: 2215
Epoch: 0      loss: 0.004088271874934435     mean_loss: 3.504930191411404e-06
step: 2216
Epoch: 0      loss: 0.08311325311660767     mean_loss: 0.00034776885877363384
step: 2217
Epoch: 0      loss: 0.016283387318253517     mean_loss: 1.1573525625863113e-05
step: 2218
Epoch: 0      loss: 0.26263269782066345     mean_loss: 0.00018176074081566185
step: 2219
Epoch: 0      loss: 0.004990147426724434     mean_loss: 1.9560923192329938e-06
step: 2220
Epoch: 0      loss: 0.3866904377937317     mean_loss: 0.0001745789631968364
step: 2221
Epoch: 0      loss: 0.004499929491430521     mean_loss: 6.874277005408658e-06
step: 2222
Epoch: 0      loss: 0.004481947980821133     mean_loss: 3.947952791349962e-06
step: 2223
Epoch: 0      loss: 0.3422964811325073     mean_loss: 0.00012103975313948467
step: 2224
Epoch: 0      loss: 0.004090213216841221     mean_loss: 4.2797287278517615e-06
step: 2225
Epoch: 0      loss: 0.13334721326828003     mean_loss: 5.024547499488108e-05
step: 2226
Epoch: 0      loss: 0.004215512424707413     mean_loss: 6.111400580266491e-06
step: 2227
Epoch: 0      loss: 0.004198667127639055     mean_loss: 3.8933132600504905e-05
step: 2228
Epoch: 0      loss: 0.004181889351457357     mean_loss: 9.484993825026322e-06
step: 2229
Epoch: 0      loss: 0.004165178630501032     mean_loss: 2.0946631593687925e-06
step: 2230
Epoch: 0      loss: 0.21579204499721527     mean_loss: 0.003371783532202244
step: 2231
```

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Epoch: 0      loss: 0.05158315598964691     mean_loss: 3.129552351310849e-05
step: 2232
Epoch: 0      loss: 0.004420757330954075     mean_loss: 1.6574181245232467e-06
step: 2233
Epoch: 0      loss: 0.004424325190484524     mean_loss: 9.240046892955434e-06
step: 2234
Epoch: 0      loss: 0.004406645428389311     mean_loss: 4.3335480768291745e-06
step: 2235
Epoch: 0      loss: 0.2836569547653198     mean_loss: 0.0002272926940349862
step: 2236
Epoch: 0      loss: 0.09610181301832199     mean_loss: 5.730464545194991e-05
step: 2237
Epoch: 0      loss: 0.1606285721063614     mean_loss: 7.865192310418934e-05
step: 2238
Epoch: 0      loss: 0.004459889605641365     mean_loss: 1.7276519201914198e-06
step: 2239
Epoch: 0      loss: 0.004442067816853523     mean_loss: 4.5812324970029294e-05
step: 2240
Epoch: 0      loss: 0.0044243172742426395     mean_loss: 2.4453661353618372e-06
step: 2241
Epoch: 0      loss: 0.03333885222673416     mean_loss: 5.73860525037162e-05
step: 2242
Epoch: 0      loss: 0.1357162445783615     mean_loss: 6.353468779707327e-05
step: 2243
Epoch: 0      loss: 0.16839970648288727     mean_loss: 0.0002743701043073088
step: 2244
Epoch: 0      loss: 0.2776539623737335     mean_loss: 0.00033284828532487154
step: 2245
Epoch: 0      loss: 0.06928574293851852     mean_loss: 5.830702866660431e-05
step: 2246
Epoch: 0      loss: 0.1674441695213318     mean_loss: 0.00011181741137988865
step: 2247
Epoch: 0      loss: 0.003947886638343334     mean_loss: 5.970153142698109e-05
step: 2248
Epoch: 0      loss: 0.003932110965251923     mean_loss: 4.1110324673354626e-06
step: 2249
Epoch: 0      loss: 0.0039163981564342976     mean_loss: 2.80838753496937e-06
step: 2250
Epoch: 0      loss: 0.19518142938613892     mean_loss: 0.00015002631698735058
step: 2251
Epoch: 0      loss: 0.0039021761622279882     mean_loss: 2.467845661158208e-06
step: 2252
Epoch: 0      loss: 0.2019934058189392     mean_loss: 9.078466246137396e-05
step: 2253
Epoch: 0      loss: 0.003894587978720665     mean_loss: 4.920213541481644e-06
step: 2254
Epoch: 0      loss: 0.0038790248800069094     mean_loss: 2.092642716888804e-06
step: 2255
```

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Epoch: 0      loss: 0.0038635244127362967    mean_loss: 2.39357086684322e-06
step: 2256
Epoch: 0      loss: 0.003848085645586252    mean_loss: 1.4367459471031907e-06
step: 2257
Epoch: 0      loss: 0.04150828346610069    mean_loss: 2.9211627406766638e-05
step: 2258
Epoch: 0      loss: 0.0039871735498309135    mean_loss: 5.427547148428857e-05
step: 2259
Epoch: 0      loss: 0.003971240483224392    mean_loss: 3.3241256005567266e-06
step: 2260
Epoch: 0      loss: 0.003955371677875519    mean_loss: 8.440716555924155e-06
step: 2261
Epoch: 0      loss: 0.01463991031050682    mean_loss: 8.829626494843978e-06
step: 2262
Epoch: 0      loss: 0.0041306824423372746    mean_loss: 1.5915078392936266e-06
step: 2263
Epoch: 0      loss: 0.004114176612347364    mean_loss: 2.609872126413393e-06
step: 2264
Epoch: 0      loss: 0.3621671497821808    mean_loss: 0.0001729559589875862
step: 2265
Epoch: 0      loss: 0.04040532931685448    mean_loss: 9.970094833988696e-05
step: 2266
Epoch: 0      loss: 0.004523451905697584    mean_loss: 1.287786290049553e-05
step: 2267
Epoch: 0      loss: 0.37076419591903687    mean_loss: 0.00018878669652622193
step: 2268
Epoch: 0      loss: 0.004676176700741053    mean_loss: 3.984408976975828e-06
step: 2269
Epoch: 0      loss: 0.29391124844551086    mean_loss: 0.0024290515575557947
step: 2270
Epoch: 0      loss: 0.005441185552626848    mean_loss: 2.8619044769584434e-06
step: 2271
Epoch: 0      loss: 0.6342427730560303    mean_loss: 0.0002364823449170217
step: 2272
Epoch: 0      loss: 0.005460008047521114    mean_loss: 2.271327957714675e-06
step: 2273
Epoch: 0      loss: 0.005438190419226885    mean_loss: 2.764462351478869e-06
step: 2274
Epoch: 0      loss: 0.5878903865814209    mean_loss: 0.00027535978006199
step: 2275
Epoch: 0      loss: 0.004904127214103937    mean_loss: 1.8065877611661563e-06
step: 2276
Epoch: 0      loss: 0.004884529858827591    mean_loss: 2.3168975076259812e-06
step: 2277
Epoch: 0      loss: 0.1939418613910675    mean_loss: 7.767087663523853e-05
step: 2278
Epoch: 0      loss: 0.7008461356163025    mean_loss: 0.006314628757536411
step: 2279
```

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Epoch: 0      loss: 0.20525628328323364      mean_loss: 0.00026152151986025274
step: 2280
Epoch: 0      loss: 0.004774941597133875      mean_loss: 1.5496809282922186e-05
step: 2281
Epoch: 0      loss: 0.004755860660225153      mean_loss: 2.455665253364714e-06
step: 2282
Epoch: 0      loss: 0.0047368560917675495      mean_loss: 1.8284382576894131e-06
step: 2283
Epoch: 0      loss: 0.0047179278917610645      mean_loss: 2.731340600803378e-06
step: 2284
Epoch: 0      loss: 0.004699074663221836      mean_loss: 4.251181053405162e-06
step: 2285
Epoch: 0      loss: 0.4059252440929413      mean_loss: 0.00018186806119047105
step: 2286
Epoch: 0      loss: 0.13307617604732513      mean_loss: 0.000251905556069687
step: 2287
Epoch: 0      loss: 0.004828776698559523      mean_loss: 2.281401975778863e-06
step: 2288
Epoch: 0      loss: 0.138581782579422      mean_loss: 0.00012384634464979172
step: 2289
Epoch: 0      loss: 0.004842777736485004      mean_loss: 1.5667583284084685e-05
step: 2290
Epoch: 0      loss: 0.004823425784707069      mean_loss: 2.9116085897840094e-06
step: 2291
Epoch: 0      loss: 0.07787328958511353      mean_loss: 4.300176806282252e-05
step: 2292
Epoch: 0      loss: 0.5121655464172363      mean_loss: 0.0003207316913176328
step: 2293
Epoch: 0      loss: 0.07757794111967087      mean_loss: 5.104762385599315e-05
step: 2294
Epoch: 0      loss: 0.00393414543941617      mean_loss: 2.9695925150008406e-06
step: 2295
Epoch: 0      loss: 0.003918424714356661      mean_loss: 4.901742795482278e-05
step: 2296
Epoch: 0      loss: 0.4839191734790802      mean_loss: 0.0007645626901648939
step: 2297
Epoch: 0      loss: 0.0032801975030452013      mean_loss: 2.606159796414431e-06
step: 2298
Epoch: 0      loss: 0.03208547458052635      mean_loss: 0.0009168023243546486
step: 2299
Epoch: 0      loss: 0.4318779706954956      mean_loss: 0.0005061927367933095
step: 2300
Epoch: 0      loss: 0.003173288656398654      mean_loss: 1.351260152659961e-06
step: 2301
Epoch: 0      loss: 0.20934250950813293      mean_loss: 0.00019347861234564334
step: 2302
Epoch: 0      loss: 0.0031848475337028503      mean_loss: 3.724725502252113e-06
step: 2303
```

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Epoch: 0      loss: 0.2512051463127136      mean_loss: 0.00032709489460103214
step: 2304
Epoch: 0      loss: 0.03549175709486008      mean_loss: 0.00010175810166401789
step: 2305
Epoch: 0      loss: 0.19932442903518677      mean_loss: 0.0007097017369233072
step: 2306
Epoch: 0      loss: 0.12550777196884155      mean_loss: 6.516131543321535e-05
step: 2307
Epoch: 0      loss: 0.10250000655651093      mean_loss: 0.00025077059399336576
step: 2308
Epoch: 0      loss: 0.2695944607257843      mean_loss: 0.00014239853771869093
step: 2309
Epoch: 0      loss: 0.004273078870028257      mean_loss: 1.5509228887822246e-06
step: 2310
Epoch: 0      loss: 0.09573841840028763      mean_loss: 0.0005439770757220685
step: 2311
Epoch: 0      loss: 0.0044494811445474625      mean_loss: 2.3000729925115593e-06
step: 2312
Epoch: 0      loss: 0.004431700799614191      mean_loss: 7.515255219914252e-06
step: 2313
Epoch: 0      loss: 0.004413991700857878      mean_loss: 2.5309141165053006e-06
step: 2314
Epoch: 0      loss: 0.2688829302787781      mean_loss: 0.00028067376115359366
step: 2315
Epoch: 0      loss: 0.30804625153541565      mean_loss: 0.00018618775357026607
step: 2316
Epoch: 0      loss: 0.0648188665509224      mean_loss: 2.5552302759024315e-05
step: 2317
Epoch: 0      loss: 0.003951401449739933      mean_loss: 1.650188278290443e-05
step: 2318
Epoch: 0      loss: 0.003935611341148615      mean_loss: 1.1389375686121639e-05
step: 2319
Epoch: 0      loss: 0.17078271508216858      mean_loss: 7.951308361953124e-05
step: 2320
Epoch: 0      loss: 0.004056377336382866      mean_loss: 1.543242615298368e-05
step: 2321
Epoch: 0      loss: 0.2184443473815918      mean_loss: 0.00010966856643790379
step: 2322
Epoch: 0      loss: 0.08950530737638474      mean_loss: 0.0008454242488369346
step: 2323
Epoch: 0      loss: 0.13277827203273773      mean_loss: 0.00013011069677304476
step: 2324
Epoch: 0      loss: 0.00427215127274394      mean_loss: 2.3731870442134095e-06
step: 2325
Epoch: 0      loss: 0.004255079664289951      mean_loss: 2.3354100449068937e-06
step: 2326
Epoch: 0      loss: 0.004238076508045196      mean_loss: 7.640381227247417e-06
step: 2327
```

```
Epoch: 0     loss: 0.004221141338348389     mean_loss: 5.889668500458356e-06
step: 2328
Epoch: 0     loss: 0.004204273223876953     mean_loss: 3.779320422836463e-06
step: 2329
Epoch: 0     loss: 0.278969407081604     mean_loss: 0.00020274214330129325
step: 2330
Epoch: 0     loss: 0.004527194891124964     mean_loss: 9.772596968105063e-06
step: 2331
Epoch: 0     loss: 0.004509104415774345     mean_loss: 2.4679829948581755e-06
step: 2332
Epoch: 0     loss: 0.00449108611792326     mean_loss: 1.9622507352323737e-06
step: 2333
Epoch: 0     loss: 0.0044731395319104195     mean_loss: 4.336338861321565e-06
step: 2334
Epoch: 0     loss: 0.004455265123397112     mean_loss: 1.996240598600707e-06
step: 2335
Epoch: 0     loss: 0.004437461495399475     mean_loss: 2.23875827032316e-06
step: 2336
Epoch: 0     loss: 0.004419729579240084     mean_loss: 1.8295277186552994e-06
step: 2337
Epoch: 0     loss: 0.004402067977935076     mean_loss: 4.062635980517371e-06
step: 2338
Epoch: 0     loss: 0.004384478088468313     mean_loss: 1.895697891995951e-06
step: 2339
Epoch: 0     loss: 0.0043669575825333595     mean_loss: 6.387212579284096e-06
step: 2340
Epoch: 0     loss: 0.10861017554998398     mean_loss: 0.00015384782454930246
step: 2341
Epoch: 0     loss: 0.004651467315852642     mean_loss: 3.0529322430083994e-06
step: 2342
Epoch: 0     loss: 0.004632880445569754     mean_loss: 1.7899355952977203e-05
step: 2343
Epoch: 0     loss: 0.00461436714977026     mean_loss: 2.010532398344367e-06
step: 2344
Epoch: 0     loss: 0.006454505026340485     mean_loss: 5.161083663551835e-06
step: 2345
Epoch: 0     loss: 0.004401838406920433     mean_loss: 4.1225439417758025e-06
step: 2346
Epoch: 0     loss: 0.0043842485174536705     mean_loss: 1.9063297713728389e-06
step: 2347
Epoch: 0     loss: 0.004366728942841291     mean_loss: 7.2568695941299666e-06
step: 2348
Epoch: 0     loss: 0.6343220472335815     mean_loss: 0.0002688975364435464
step: 2349
Epoch: 0     loss: 0.003812641777843237     mean_loss: 7.83140512794489e-06
step: 2350
Epoch: 0     loss: 0.0037960342597216368     mean_loss: 1.7684174054011237e-06
step: 2351
```

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Epoch: 0      loss: 0.09848945587873459      mean_loss: 3.5932585888076574e-05
step: 2352
Epoch: 0      loss: 0.0041373479180037975     mean_loss: 1.9267224615759915e-06
step: 2353
Epoch: 0      loss: 0.1974462866783142     mean_loss: 0.0021005128510296345
step: 2354
Epoch: 0      loss: 0.004115778021514416     mean_loss: 7.2875627665780485e-06
step: 2355
Epoch: 0      loss: 0.004099331330507994     mean_loss: 3.503941115923226e-06
step: 2356
Epoch: 0      loss: 0.004082950297743082     mean_loss: 2.6178438474744326e-06
step: 2357
Epoch: 0      loss: 0.0040666344575583935     mean_loss: 2.630415337989689e-06
step: 2358
Epoch: 0      loss: 0.004050384275615215     mean_loss: 1.7188358469866216e-06
step: 2359
Epoch: 0      loss: 0.004034198820590973     mean_loss: 0.002017958788201213
step: 2360
Epoch: 0      loss: 0.18222026526927948     mean_loss: 0.1842382252216339
step: 2361
Epoch: 0      loss: 0.004026636015623808     mean_loss: 8.042070112423971e-05
step: 2362
Epoch: 0      loss: 0.2274000197649002     mean_loss: 0.0073380786925554276
step: 2363
Epoch: 0      loss: 0.004084652755409479     mean_loss: 0.0014278413727879524
step: 2364
Epoch: 0      loss: 0.004068329930305481     mean_loss: 3.793078803937533e-06
step: 2365
Epoch: 0      loss: 0.0040520732291042805     mean_loss: 3.399720526431338e-06
step: 2366
Epoch: 0      loss: 0.004035881254822016     mean_loss: 1.403502778885013e-06
step: 2367
Epoch: 0      loss: 0.004019754007458687     mean_loss: 6.885543825774221e-06
step: 2368
Epoch: 0      loss: 0.004003691021353006     mean_loss: 2.0234999738022452e-06
step: 2369
Epoch: 0      loss: 0.07428333908319473     mean_loss: 0.00013194559141993523
step: 2370
Epoch: 0      loss: 0.23496650159358978     mean_loss: 0.00011468217417713211
step: 2371
Epoch: 0      loss: 0.11731509864330292     mean_loss: 8.970953058451414e-05
step: 2372
Epoch: 0      loss: 0.33764490485191345     mean_loss: 0.00019612927280832082
step: 2373
Epoch: 0      loss: 0.21965935826301575     mean_loss: 0.0001310223451582715
step: 2374
Epoch: 0      loss: 0.03710111975669861     mean_loss: 1.6423529814346693e-05
step: 2375
```

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Epoch: 0      loss: 0.004187201615422964      mean_loss: 3.002589210154838e-06
step: 2376
Epoch: 0      loss: 1.2669289112091064      mean_loss: 0.0006815125816501677
step: 2377
Epoch: 0      loss: 0.004264349117875099      mean_loss: 5.866977062396472e-06
step: 2378
Epoch: 0      loss: 0.004247309640049934      mean_loss: 1.9572833025449654e-06
step: 2379
Epoch: 0      loss: 0.004230337217450142      mean_loss: 1.485536813561339e-06
step: 2380
Epoch: 0      loss: 0.004213432781398296      mean_loss: 4.844733666686807e-06
step: 2381
Epoch: 0      loss: 0.36557555198669434      mean_loss: 0.0004946960834786296
step: 2382
Epoch: 0      loss: 0.0043145958334207535      mean_loss: 1.975879968085792e-06
step: 2383
Epoch: 0      loss: 0.7258809208869934      mean_loss: 0.00030460883863270283
step: 2384
Epoch: 0      loss: 0.3837040960788727      mean_loss: 0.0003011832886841148
step: 2385
Epoch: 0      loss: 0.0035400947090238333      mean_loss: 1.475145154472557e-06
step: 2386
Epoch: 0      loss: 0.221527561545372      mean_loss: 0.00012105411587981507
step: 2387
Epoch: 0      loss: 0.672261655330658      mean_loss: 0.0004048059636261314
step: 2388
Epoch: 0      loss: 0.0626639723777771      mean_loss: 5.4937958338996395e-05
step: 2389
Epoch: 0      loss: 0.0034747542813420296      mean_loss: 3.870276486850344e-06
step: 2390
Epoch: 0      loss: 0.47190535068511963      mean_loss: 0.0002875741629395634
step: 2391
Epoch: 0      loss: 0.002827098825946502      mean_loss: 6.279582976276288e-06
step: 2392
Epoch: 0      loss: 0.07733441144227982      mean_loss: 9.703976684249938e-05
step: 2393
Epoch: 0      loss: 0.2846088111400604      mean_loss: 0.00012373135541565716
step: 2394
Epoch: 0      loss: 0.1967325061559677      mean_loss: 0.00014254615234676749
step: 2395
Epoch: 0      loss: 0.018198592588305473      mean_loss: 7.1645072239334695e-06
step: 2396
Epoch: 0      loss: 0.012719427235424519      mean_loss: 3.305608333903365e-05
step: 2397
Epoch: 0      loss: 0.0042162323370575905      mean_loss: 1.5926867718007998e-06
step: 2398
Epoch: 0      loss: 0.19200456142425537      mean_loss: 0.00013352306268643588
step: 2399
```

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Epoch: 0       loss: 0.004430115222930908       mean_loss: 1.7688521438685711e-06
step: 2400
Epoch: 0       loss: 0.00441241217777133        mean_loss: 1.6348819826816907e-06
step: 2401
Epoch: 0       loss: 0.00439478037878871        mean_loss: 2.5575423023838084e-06
step: 2402
Epoch: 0       loss: 0.15080204606056213        mean_loss: 0.00013924710219725966
step: 2403
Epoch: 0       loss: 0.2453833520412445         mean_loss: 0.0001272137888087286
step: 2404
Epoch: 0       loss: 0.004442072473466396       mean_loss: 2.032600832535536e-06
step: 2405
Epoch: 0       loss: 0.004424321465194225       mean_loss: 2.2010710836184444e-06
step: 2406
Epoch: 0       loss: 0.0044066421687603         mean_loss: 6.123393541201949e-05
step: 2407
Epoch: 0       loss: 0.061372309923172          mean_loss: 4.5607677748193964e-05
step: 2408
Epoch: 0       loss: 0.18995504081249237        mean_loss: 6.980185571592301e-05
step: 2409
Epoch: 0       loss: 0.004383772611618042       mean_loss: 1.0053215191874187e-05
step: 2410
Epoch: 0       loss: 0.0043662553653120995      mean_loss: 1.1924546015507076e-05
step: 2411
Epoch: 0       loss: 0.004348807502537966       mean_loss: 3.4664008126128465e-06
step: 2412
Epoch: 0       loss: 0.004331429488956928       mean_loss: 1.9812139271380147e-06
step: 2413
Epoch: 0       loss: 0.004314121324568987       mean_loss: 2.3192383196146693e-06
step: 2414
Epoch: 0       loss: 0.004296882078051567       mean_loss: 1.6241789353443892e-06
step: 2415
Epoch: 0       loss: 0.004279711749404669       mean_loss: 1.8590255876915762e-06
step: 2416
Epoch: 0       loss: 0.004262609872967005       mean_loss: 4.595332939061336e-06
step: 2417
Epoch: 0       loss: 0.329181045293808          mean_loss: 0.00014935826766304672
step: 2418
Epoch: 0       loss: 0.0038586771115660667      mean_loss: 1.7448999187763548e-06
step: 2419
Epoch: 0       loss: 0.0038432576693594456      mean_loss: 1.6244201788140344e-06
step: 2420
Epoch: 0       loss: 0.665553092956543          mean_loss: 0.0002996644179802388
step: 2421
Epoch: 0       loss: 0.0029833901207894087      mean_loss: 2.0378986391733633e-06
step: 2422
Epoch: 0       loss: 0.0029714677948504686      mean_loss: 4.090104084752966e-06
step: 2423
```

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Epoch: 0      loss: 0.20205555856227875      mean_loss: 0.00015687861014157534
step: 2424
Epoch: 0      loss: 0.16214428842067719      mean_loss: 6.592248973902315e-05
step: 2425
Epoch: 0      loss: 0.2093997448682785      mean_loss: 0.00011708533565979451
step: 2426
Epoch: 0      loss: 0.1402769535779953      mean_loss: 0.00036371510941535234
step: 2427
Epoch: 0      loss: 0.15708033740520477      mean_loss: 0.00034909992245957255
step: 2428
Epoch: 0      loss: 0.0032987939193844795      mean_loss: 1.8668853272174601e-06
step: 2429
Epoch: 0      loss: 0.003285611746832728 4      mean_loss: 1.0604770068312064e-05
step: 2430
Epoch: 0      loss: 0.0032724826596677303      mean_loss: 1.3116609807184432e-06
step: 2431
Epoch: 0      loss: 0.1514698714017868      mean_loss: 0.00012549394159577787
step: 2432
Epoch: 0      loss: 0.0033474054653197527      mean_loss: 1.8551812672740198e-06
step: 2433
Epoch: 0      loss: 0.20317085087299347      mean_loss: 0.0005104841548018157
step: 2434
Epoch: 0      loss: 0.003331265412271023      mean_loss: 4.50909601568128e-06
step: 2435
Epoch: 0      loss: 0.0033179535530507565      mean_loss: 1.7395092072547413e-05
step: 2436
Epoch: 0      loss: 0.2015124261379242      mean_loss: 0.00038830406265333295
step: 2437
Epoch: 0      loss: 0.13397040963172913      mean_loss: 0.0006459553842432797
step: 2438
Epoch: 0      loss: 0.1754840761423111      mean_loss: 9.551519906381145e-05
step: 2439
Epoch: 0      loss: 0.0361953042447567      mean_loss: 4.1006576793733984e-05
step: 2440
Epoch: 0      loss: 0.003841182217001915      mean_loss: 5.2604186748794746e-06
step: 2441
Epoch: 0      loss: 0.00382583262398839      mean_loss: 4.228579655318754e-06
step: 2442
Epoch: 0      loss: 0.0038105444982647896      mean_loss: 2.0077754015801474e-05
step: 2443
Epoch: 0      loss: 0.6636573076248169      mean_loss: 0.00036345969419926405
step: 2444
Epoch: 0      loss: 0.018527667969465256      mean_loss: 9.839129234023858e-06
step: 2445
Epoch: 0      loss: 0.003780773840844631      mean_loss: 1.6625496073174872e-06
step: 2446
Epoch: 0      loss: 0.2808883488178253      mean_loss: 0.0001467554975533858
step: 2447
```

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Epoch: 0      loss: 0.03783252090215683      mean_loss: 2.8837717763963155e-05
step: 2448
Epoch: 0      loss: 0.003920051734894514      mean_loss: 5.321953722159378e-06
step: 2449
Epoch: 0      loss: 0.2531697154045105      mean_loss: 0.00020940863760188222
step: 2450
Epoch: 0      loss: 0.004178964998573065      mean_loss: 1.5650406339773326e-06
step: 2451
Epoch: 0      loss: 0.46677321195602417      mean_loss: 0.00016464719374198467
step: 2452
Epoch: 0      loss: 0.146060049533844      mean_loss: 0.00014087157614994794
step: 2453
Epoch: 0      loss: 0.003345928620547056      mean_loss: 1.9512033304636134e-06
step: 2454
Epoch: 0      loss: 0.25831204652786255      mean_loss: 0.0014512022025883198
step: 2455
Epoch: 0      loss: 0.003699809778481722      mean_loss: 4.836630978388712e-06
step: 2456
Epoch: 0      loss: 0.05971543490886688      mean_loss: 7.31866093701683e-05
step: 2457
Epoch: 0      loss: 0.39591991901397705      mean_loss: 0.004714203532785177
step: 2458
Epoch: 0      loss: 0.22937814891338348      mean_loss: 0.00010231308988295496
step: 2459
Epoch: 0      loss: 0.21831297874450684      mean_loss: 0.0003216720069758594
step: 2460
Epoch: 0      loss: 0.004469083622097969      mean_loss: 6.141994526842609e-05
step: 2461
Epoch: 0      loss: 0.2246149331331253      mean_loss: 0.00017229781951755285
step: 2462
Epoch: 0      loss: 0.004407127853482962      mean_loss: 7.2689299486228265e-06
step: 2463
Epoch: 0      loss: 0.00438951700925827      mean_loss: 5.297332609188743e-05
step: 2464
Epoch: 0      loss: 0.3211851716041565      mean_loss: 0.0002051329065579921
step: 2465
Epoch: 0      loss: 0.29231470823287964      mean_loss: 0.0004592148179654032
step: 2466
Epoch: 0      loss: 0.004074939526617527      mean_loss: 9.565726031723898e-06
step: 2467
Epoch: 0      loss: 0.19591477513313293      mean_loss: 0.007836973294615746
step: 2468
Epoch: 0      loss: 0.13049852848052979      mean_loss: 9.566770313540474e-05
step: 2469
Epoch: 0      loss: 0.10026081651449203      mean_loss: 5.572264490183443e-05
step: 2470
Epoch: 0      loss: 0.004168313462287188      mean_loss: 1.0720903446781449e-05
step: 2471
```

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Epoch: 0      loss: 0.004151657223701477    mean_loss: 7.765630471112672e-06
step: 2472
Epoch: 0      loss: 0.2481151521205902     mean_loss: 0.00016753742238506675
step: 2473
Epoch: 0      loss: 0.004073388408869505    mean_loss: 1.9276936654932797e-05
step: 2474
Epoch: 0      loss: 0.11857066303491592     mean_loss: 9.728461009217426e-05
step: 2475
Epoch: 0      loss: 0.20064207911491394     mean_loss: 0.00011899192031705752
step: 2476
Epoch: 0      loss: 0.004090641159564257    mean_loss: 1.4906632941347198e-06
step: 2477
Epoch: 0      loss: 0.004074295051395893    mean_loss: 3.7564843751169974e-06
step: 2478
Epoch: 0      loss: 0.2308046817779541     mean_loss: 0.00028010731330141425
step: 2479
Epoch: 0      loss: 0.2793360650539398     mean_loss: 0.00029873521998524666
step: 2480
Epoch: 0      loss: 0.003895370289683342    mean_loss: 3.6822700621996773e-06
step: 2481
Epoch: 0      loss: 0.17900605499744415     mean_loss: 6.54753966955468e-05
step: 2482
Epoch: 0      loss: 0.15482354164123535     mean_loss: 6.911602395121008e-05
step: 2483
Epoch: 0      loss: 0.27877774834632874     mean_loss: 0.00011633160465862602
step: 2484
Epoch: 0      loss: 0.004003879148513079    mean_loss: 1.9732808596018003e-06
step: 2485
Epoch: 0      loss: 0.003987879958003759    mean_loss: 1.5056050870043691e-05
step: 2486
Epoch: 0      loss: 0.33984676003456116     mean_loss: 0.00015734342741779983
step: 2487
Epoch: 0      loss: 0.4925660192966461     mean_loss: 0.0002234573184978217
step: 2488
Epoch: 0      loss: 0.003086316864937544    mean_loss: 7.86169675848214e-06
step: 2489
Epoch: 0      loss: 0.0030739838257431984    mean_loss: 1.1388933671696577e-06
step: 2490
Epoch: 0      loss: 0.0030617001466453075    mean_loss: 3.7215543216007063e-06
step: 2491
Epoch: 0      loss: 0.0030494655948132277    mean_loss: 3.0080661872489145e-06
step: 2492
Epoch: 0      loss: 0.0030372801702469587    mean_loss: 1.7041975297615863e-06
step: 2493
Epoch: 0      loss: 0.19626042246818542     mean_loss: 0.00015713540778961033
step: 2494
Epoch: 0      loss: 0.0030252444557845592    mean_loss: 2.061126679109293e-06
step: 2495
```

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Epoch: 0        loss: 0.21913504600524902       mean_loss: 0.0009405025630258024
step: 2496
Epoch: 0        loss: 0.23285430669784546       mean_loss: 0.00011143699521198869
step: 2497
Epoch: 0        loss: 0.0028875875286757946      mean_loss: 1.6578354689045227e-06
step: 2498
Epoch: 0        loss: 0.0028760486748069525      mean_loss: 6.540241884067655e-06
step: 2499
Epoch: 0        loss: 0.27490025758743286       mean_loss: 0.00013884181680623442
step: 2500
Epoch: 0        loss: 0.0026816600002348423      mean_loss: 1.8878861283155857e-06
step: 2501
Epoch: 0        loss: 0.0026709442026913166      mean_loss: 1.0738577884694678e-06
step: 2502
Epoch: 0        loss: 0.002660271478816867       mean_loss: 4.292492576496443e-06
step: 2503
Epoch: 0        loss: 0.0026496408972889185      mean_loss: 1.324979166383855e-06
step: 2504
Epoch: 0        loss: 0.0026390529237687588      mean_loss: 1.985246626645676e-06
step: 2505
Epoch: 0        loss: 0.002628507325425744       mean_loss: 1.45572369092406e-06
step: 2506
Epoch: 0        loss: 0.11899855732917786       mean_loss: 5.353126834961586e-05
step: 2507
Epoch: 0        loss: 0.15124809741973877       mean_loss: 7.387774530798197e-05
step: 2508
Epoch: 0        loss: 0.0035937237553298473      mean_loss: 1.2927745274282643e-06
step: 2509
Epoch: 0        loss: 0.35563892126083374       mean_loss: 0.00013003297499381006
step: 2510
Epoch: 0        loss: 0.05354922264814377       mean_loss: 4.085179170942865e-05
step: 2511
Epoch: 0        loss: 0.06512206792831421       mean_loss: 0.00010376261343481019
step: 2512
Epoch: 0        loss: 0.0036128207575529814      mean_loss: 1.8129674572264776e-05
step: 2513
Epoch: 0        loss: 0.003598384093493223       mean_loss: 1.3056005627731793e-05
step: 2514
Epoch: 0        loss: 0.0035840049386024475      mean_loss: 1.4308118352346355e-06
step: 2515
Epoch: 0        loss: 0.47257742285728455       mean_loss: 0.0002901036641560495
step: 2516
Epoch: 0        loss: 0.003546256572008133       mean_loss: 1.1914162314496934e-05
step: 2517
Epoch: 0        loss: 0.003532085567712784       mean_loss: 1.3903490980737843e-06
step: 2518
Epoch: 0        loss: 0.003517972072586417       mean_loss: 3.3581702609808417e-06
step: 2519
```

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Epoch: 0      loss: 0.21600329875946045     mean_loss: 8.120550774037838e-05
step: 2520
Epoch: 0      loss: 0.003460191423073411    mean_loss: 1.525149400549708e-06
step: 2521
Epoch: 0      loss: 0.2197987139225006      mean_loss: 0.00021980023302603513
step: 2522
Epoch: 0      loss: 0.03580060973763466     mean_loss: 4.714713213616051e-05
step: 2523
Epoch: 0      loss: 0.0036528301425278187   mean_loss: 2.8527194899652386e-06
step: 2524
Epoch: 0      loss: 0.3463856279850006      mean_loss: 0.00035563501296564937
step: 2525
Epoch: 0      loss: 0.0034994888119399548   mean_loss: 1.6363004533559433e-06
step: 2526
Epoch: 0      loss: 0.0034855050034821033   mean_loss: 2.063397187157534e-05
step: 2527
Epoch: 0      loss: 0.011232503689825535    mean_loss: 4.979264485882595e-05
step: 2528
Epoch: 0      loss: 0.29134365916252136     mean_loss: 0.0001297388516832143
step: 2529
Epoch: 0      loss: 0.003884156234562397    mean_loss: 1.572226778989716e-06
step: 2530
Epoch: 0      loss: 0.15940479934215546     mean_loss: 0.0003372538881748915
step: 2531
Epoch: 0      loss: 0.003964314237236977    mean_loss: 3.3375017665093765e-06
step: 2532
Epoch: 0      loss: 0.17723602056503296     mean_loss: 0.0003408449119888246
step: 2533
Epoch: 0      loss: 0.00400109589099884     mean_loss: 3.4001102449110476e-06
step: 2534
Epoch: 0      loss: 0.031232506036758423    mean_loss: 2.5900419132085517e-05
step: 2535
Epoch: 0      loss: 0.004378562793135643    mean_loss: 6.786538051528623e-06
step: 2536
Epoch: 0      loss: 0.004361066501587629    mean_loss: 2.0583661353157368e-06
step: 2537
Epoch: 0      loss: 0.004343639127910137    mean_loss: 7.147528322093422e-06
step: 2538
Epoch: 0      loss: 0.11675725877285004     mean_loss: 0.0001824443752411753
step: 2539
Epoch: 0      loss: 0.004519614391028881    mean_loss: 2.2096139673521975e-06
step: 2540
Epoch: 0      loss: 0.16064226627349854     mean_loss: 0.00012790164328180254
step: 2541
Epoch: 0      loss: 0.0940670296549797      mean_loss: 3.8337377191055566e-05
step: 2542
Epoch: 0      loss: 0.004616560414433479    mean_loss: 9.127250450546853e-06
step: 2543
```

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Epoch: 0      loss: 0.005165235139429569      mean_loss: 3.1803087949811015e-06
step: 2544
Epoch: 0      loss: 0.004567521158605814      mean_loss: 4.862448349740589e-06
step: 2545
Epoch: 0      loss: 0.39932981133461      mean_loss: 0.00017124127771239728
step: 2546
Epoch: 0      loss: 0.004323519300669432      mean_loss: 3.1300562568503665e-06
step: 2547
Epoch: 0      loss: 0.00430624233558774      mean_loss: 2.1333527911338024e-05
step: 2548
Epoch: 0      loss: 0.16682863235473633      mean_loss: 0.0002699837787076831
step: 2549
Epoch: 0      loss: 0.004283871501684189      mean_loss: 6.441096957132686e-06
step: 2550
Epoch: 0      loss: 0.004266753327101469      mean_loss: 1.7635965150475386e-06
step: 2551
Epoch: 0      loss: 0.004249703139066696      mean_loss: 3.954852672904963e-06
step: 2552
Epoch: 0      loss: 0.06226694583892822      mean_loss: 2.267694981128443e-05
step: 2553
Epoch: 0      loss: 0.004294318147003651      mean_loss: 6.734781436534831e-06
step: 2554
Epoch: 0      loss: 0.004277158062905073      mean_loss: 5.7347965594090056e-06
step: 2555
Epoch: 0      loss: 0.13253596425056458      mean_loss: 0.00010003147326642647
step: 2556
Epoch: 0      loss: 0.004190186969935894      mean_loss: 1.8117476656698273e-06
step: 2557
Epoch: 0      loss: 0.19489645957946777      mean_loss: 0.0007703489391133189
step: 2558
Epoch: 0      loss: 0.004171164706349373      mean_loss: 5.508934009412769e-06
step: 2559
Epoch: 0      loss: 0.004154496360570192      mean_loss: 1.8293777657163446e-06
step: 2560
Epoch: 0      loss: 0.462315171957016      mean_loss: 0.0004902619402855635
step: 2561
Epoch: 0      loss: 0.008464167825877666      mean_loss: 6.909282546985196e-06
step: 2562
Epoch: 0      loss: 0.2513369023799896      mean_loss: 0.0001709821808617562
step: 2563
Epoch: 0      loss: 0.23166464269161224      mean_loss: 0.00010738101991591975
step: 2564
Epoch: 0      loss: 0.005401118658483028      mean_loss: 1.944405084941536e-06
step: 2565
Epoch: 0      loss: 0.777777373790741      mean_loss: 0.0003436939150560647
step: 2566
Epoch: 0      loss: 0.005835207644850016      mean_loss: 0.00012872711522504687
step: 2567
```

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Epoch: 0      loss: 0.08939369767904282    mean_loss: 4.0054776036413386e-05
step: 2568
Epoch: 0      loss: 0.005512431729584932   mean_loss: 2.6566920041659614e-06
step: 2569
Epoch: 0      loss: 0.005490404088050127   mean_loss: 8.412037459493149e-06
step: 2570
Epoch: 0      loss: 0.00546846492215991    mean_loss: 4.33640298069804e-06
step: 2571
Epoch: 0      loss: 0.00544661283493042    mean_loss: 3.541877276802552e-06
step: 2572
Epoch: 0      loss: 0.022244086489081383   mean_loss: 3.465362897259183e-05
step: 2573
Epoch: 0      loss: 0.004752724431455135   mean_loss: 1.8300374904356431e-06
step: 2574
Epoch: 0      loss: 0.19441796839237213    mean_loss: 6.916392885614187e-05
step: 2575
Epoch: 0      loss: 0.29788410663604736    mean_loss: 0.0003999372711405158
step: 2576
Epoch: 0      loss: 0.004668644163757563   mean_loss: 2.9079642445140053e-06
step: 2577
Epoch: 0      loss: 0.004649988375604153   mean_loss: 2.576354518168955e-06
step: 2578
Epoch: 0      loss: 0.7337969541549683     mean_loss: 0.0004352310206741 0946
step: 2579
Epoch: 0      loss: 0.0047835432924330235  mean_loss: 1.7995773305301555e-05
step: 2580
Epoch: 0      loss: 0.10286197066307068    mean_loss: 0.0018705447437241673
step: 2581
Epoch: 0      loss: 0.0047132233157753944  mean_loss: 2.6387847356090788e-06
step: 2582
Epoch: 0      loss: 0.004694389645010233   mean_loss: 5.638689799525309e-06
step: 2583
Epoch: 0      loss: 0.004675630945712328   mean_loss: 2.83713306998834e-05
step: 2584
Epoch: 0      loss: 0.13533970713615417    mean_loss: 6.37326156720519e-05
step: 2585
Epoch: 0      loss: 0.005080044269561768   mean_loss: 2.9905679639341542e-06
step: 2586
Epoch: 0      loss: 0.15657742321491241    mean_loss: 0.00021838273096363991
step: 2587
Epoch: 0      loss: 0.005080391187220812   mean_loss: 5.73460374653223e-06
step: 2588
Epoch: 0      loss: 0.005060089752078056   mean_loss: 2.643958396220114e-06
step: 2589
Epoch: 0      loss: 0.19923226535320282    mean_loss: 8.886480645742267e-05
step: 2590
Epoch: 0      loss: 0.34428635239601135    mean_loss: 0.00024918612325564027
step: 2591
```

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Epoch: 0      loss: 0.005029103718698025    mean_loss: 3.21846928272862e-05
step: 2592
Epoch: 0      loss: 0.14124608039855957     mean_loss: 5.828311259392649e-05
step: 2593
Epoch: 0      loss: 0.004597539082169533    mean_loss: 1.8258126146974973e-05
step: 2594
Epoch: 0      loss: 0.0045791673474013805    mean_loss: 3.15757233693148e-06
step: 2595
Epoch: 0      loss: 0.004560869187116623    mean_loss: 1.654832090025593e-06
step: 2596
Epoch: 0      loss: 0.004542644135653973    mean_loss: 1.8871674001275096e-06
step: 2597
Epoch: 0      loss: 0.004524491261690855    mean_loss: 3.0175856409186963e-06
step: 2598
Epoch: 0      loss: 0.004506411962211132    mean_loss: 1.2921001143695321e-05
step: 2599
Epoch: 0      loss: 0.004488403908908367    mean_loss: 5.815665645059198e-06
step: 2600
Epoch: 0      loss: 0.004470468033105135    mean_loss: 1.6708785324226483e-06
step: 2601
Epoch: 0      loss: 0.44111689925193787     mean_loss: 0.0014802636578679085
step: 2602
Epoch: 0      loss: 0.19465313851833344     mean_loss: 9.666506230132654e-05
step: 2603
Epoch: 0      loss: 0.004363390151411295    mean_loss: 1.829391067076358e-06
step: 2604
Epoch: 0      loss: 0.5313059687614441     mean_loss: 0.0010438268072903156
step: 2605
Epoch: 0      loss: 0.12312230467796326     mean_loss: 0.00014959774853195995
step: 2606
Epoch: 0      loss: 0.11941888928413391     mean_loss: 0.001299657509662211
step: 2607
Epoch: 0      loss: 0.0042225574143230915    mean_loss: 3.477465270407265e-06
step: 2608
Epoch: 0      loss: 0.6735209226608276     mean_loss: 0.00024376560759264976
step: 2609
Epoch: 0      loss: 0.3255917727947235     mean_loss: 0.00014526773884426802
step: 2610
Epoch: 0      loss: 0.2841652035713196     mean_loss: 0.0013223742134869099
step: 2611
Epoch: 0      loss: 0.18439814448356628     mean_loss: 0.00022457136947195977
step: 2612
Epoch: 0      loss: 0.20207394659519196     mean_loss: 9.493125980952755e-05
step: 2613
Epoch: 0      loss: 0.003506977576762438    mean_loss: 5.8377777349960525e-06
step: 2614
Epoch: 0      loss: 0.327095627784729     mean_loss: 0.00012182549835415557
step: 2615
```

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Epoch: 0      loss: 0.003495684824883938      mean_loss: 2.979827286253567e-06
step: 2616
Epoch: 0      loss: 0.1566978245973587      mean_loss: 0.00019465938385110348
step: 2617
Epoch: 0      loss: 0.0166093111038208      mean_loss: 1.2559021342894994e-05
step: 2618
Epoch: 0      loss: 0.0033933250233531      mean_loss: 7.051519787637517e-06
step: 2619
Epoch: 0      loss: 0.0033797656651586294      mean_loss: 1.2684708963206504e-06
step: 2620
Epoch: 0      loss: 0.0033662598580121994      mean_loss: 2.230151267212932e-06
step: 2621
Epoch: 0      loss: 0.0033528083004057407      mean_loss: 3.3992282624240033e-06
step: 2622
Epoch: 0      loss: 0.0033394107595086098      mean_loss: 1.24406778923003e-06
step: 2623
Epoch: 0      loss: 0.0033260660711675882      mean_loss: 1.1629884966168902e-06
step: 2624
Epoch: 0      loss: 0.0033127751667052507      mean_loss: 1.3202941318013472e-06
step: 2625
Epoch: 0      loss: 0.19811348617076874      mean_loss: 8.099542901618406e-05
step: 2626
Epoch: 0      loss: 0.003291668137535453      mean_loss: 1.8947548596770503e-06
step: 2627
Epoch: 0      loss: 0.19978171586990356      mean_loss: 8.387221168959513e-05
step: 2628
Epoch: 0      loss: 0.0032693417742848396      mean_loss: 5.801407951366855e-06
step: 2629
Epoch: 0      loss: 0.05284060537815094      mean_loss: 4.7998550144257024e-05
step: 2630
Epoch: 0      loss: 0.0036314665339887142      mean_loss: 3.952164206566522e-06
step: 2631
Epoch: 0      loss: 0.6345568895339966      mean_loss: 0.00034024709020741284
step: 2632
Epoch: 0      loss: 0.26386332511901855      mean_loss: 0.009785317815840244
step: 2633
Epoch: 0      loss: 0.0033274602610617876      mean_loss: 5.08641505803098e-06
step: 2634
Epoch: 0      loss: 0.0033141635358333588      mean_loss: 1.3119564528096817e-06
step: 2635
Epoch: 0      loss: 0.19419032335281372      mean_loss: 0.00018636432650964707
step: 2636
Epoch: 0      loss: 0.0033045553136616945      mean_loss: 1.972271093109157e-06
step: 2637
Epoch: 0      loss: 0.23822841048240662      mean_loss: 0.00011503156565595418
step: 2638
Epoch: 0      loss: 0.5647547245025635      mean_loss: 0.0002100668498314917
step: 2639
```

```
Epoch: 0      loss: 0.2228296548128128      mean_loss: 0.00208448339253664
step: 2640
Epoch: 0      loss: 0.0025302814319729805     mean_loss: 2.8788301733584376e-06
step: 2641
Epoch: 0      loss: 0.022019188851118088     mean_loss: 3.451735028647818e-05
step: 2642
Epoch: 0      loss: 0.003115880535915494     mean_loss: 1.4076845218369272e-06
step: 2643
Epoch: 0      loss: 0.0031034292187541723     mean_loss: 2.555421360739274e-06
step: 2644
Epoch: 0      loss: 0.10221122205257416     mean_loss: 0.00026618171250447263
step: 2645
Epoch: 0      loss: 0.11513514071702957     mean_loss: 8.254744170699269e-05
step: 2646
Epoch: 0      loss: 0.0035226764157414436     mean_loss: 1.6313230162268155e-06
step: 2647
Epoch: 0      loss: 0.0035085997078567743     mean_loss: 1.450508648304094e-06
step: 2648
Epoch: 0      loss: 0.2033899873495102     mean_loss: 0.0003063124022446573
step: 2649
Epoch: 0      loss: 0.0034764136653393507     mean_loss: 8.443585102213547e-06
step: 2650
Epoch: 0      loss: 0.0034625220578163862     mean_loss: 8.30374574434245e-06
step: 2651
Epoch: 0      loss: 0.0034486858639866114     mean_loss: 1.4308731124401675e-06
step: 2652
Epoch: 0      loss: 0.020103581249713898     mean_loss: 1.1175659892614931e-05
step: 2653
Epoch: 0      loss: 0.0033019238617271185     mean_loss: 1.1657633649519994e-06
step: 2654
Epoch: 0      loss: 0.0032887293491512537     mean_loss: 2.1772966647404246e-06
step: 2655
Epoch: 0      loss: 0.15904319286346436     mean_loss: 0.00012030663492623717
step: 2656
Epoch: 0      loss: 0.003360431408509612     mean_loss: 2.397202479187399e-06
step: 2657
Epoch: 0      loss: 0.0033470033667981625     mean_loss: 9.461583431402687e-06
step: 2658
Epoch: 0      loss: 0.0033336286433041096     mean_loss: 8.114296178973746e-06
step: 2659
Epoch: 0      loss: 0.003320307470858097     mean_loss: 1.8836569779523415e-06
step: 2660
Epoch: 0      loss: 0.2899699807167053     mean_loss: 0.026361078023910522
step: 2661
Epoch: 0      loss: 0.003683235263451934     mean_loss: 1.5470810467377305e-05
step: 2662
Epoch: 0      loss: 0.14654603600502014     mean_loss: 8.224551129387692e-05
step: 2663
```

```
Epoch: 0     loss: 0.24863171577453613    mean_loss: 0.00017271802062168717
step: 2664
Epoch: 0     loss: 0.0036808247677981853   mean_loss: 2.9349143915169407e-06
step: 2665
Epoch: 0     loss: 0.0036661166232079268   mean_loss: 2.4266212221846217e-06
step: 2666
Epoch: 0     loss: 0.7180458903312683    mean_loss: 0.00030031296773813665
step: 2667
Epoch: 0     loss: 0.3182928264141083    mean_loss: 0.00019250341574661434
step: 2668
Epoch: 0     loss: 0.21752752363681793    mean_loss: 0.000275246556616151333
step: 2669
Epoch: 0     loss: 0.003161140251904726   mean_loss: 1.8455353938406915e-06
step: 2670
Epoch: 0     loss: 0.2043260931968689    mean_loss: 0.001380594214424491
step: 2671
Epoch: 0     loss: 0.003133728401735425   mean_loss: 3.62305195267254e-06
step: 2672
Epoch: 0     loss: 0.23939265310764313    mean_loss: 0.0074811335653066635
step: 2673
Epoch: 0     loss: 0.17066852748394012    mean_loss: 0.0008523907163180411
step: 2674
Epoch: 0     loss: 0.3860500156879425    mean_loss: 0.00033585276105441153
step: 2675
Epoch: 0     loss: 0.11513839662075043    mean_loss: 4.928478301735595e-05
step: 2676
Epoch: 0     loss: 0.6319372653961182    mean_loss: 0.00026927419821731746
step: 2677
Epoch: 0     loss: 0.11179541051387787    mean_loss: 0.00023592564684804553
step: 2678
Epoch: 0     loss: 0.22597381472587585    mean_loss: 8.142899605445564e-05
step: 2679
Epoch: 0     loss: 0.002442894736304879   mean_loss: 2.379192892476567e-06
step: 2680
Epoch: 0     loss: 0.1644049882888794    mean_loss: 9.37862932914868e-05
step: 2681
Epoch: 0     loss: 0.12482085078954697    mean_loss: 5.3726726036984473e-05
step: 2682
Epoch: 0     loss: 0.0026635879185050726   mean_loss: 1.5012788935564458e-05
step: 2683
Epoch: 0     loss: 0.043482497334480286    mean_loss: 2.2572656234842725e-05
step: 2684
Epoch: 0     loss: 0.0948663130402565    mean_loss: 4.975820047548041e-05
step: 2685
Epoch: 0     loss: 0.0030122536700218916   mean_loss: 2.2013025500200456e-06
step: 2686
Epoch: 0     loss: 0.1840433031320572    mean_loss: 7.070515130180866e-05
step: 2687
```

```
Epoch: 0      loss: 0.0030604482162743807     mean_loss: 3.0637506824859884e-06
step: 2688
Epoch: 0      loss: 0.003048218321055174      mean_loss: 1.1251040632487275e-06
step: 2689
Epoch: 0      loss: 0.0030360380187630653     mean_loss: 3.507116616674466e-06
step: 2690
Epoch: 0      loss: 0.0030239063780754805     mean_loss: 1.6364397197321523e-06
step: 2691
Epoch: 0      loss: 0.003011822234839201      mean_loss: 1.8408421738058678e-06
step: 2692
Epoch: 0      loss: 0.4616175889968872        mean_loss: 0.0002455422654747963
step: 2693
Epoch: 0      loss: 0.002318283310160041      mean_loss: 1.010175537885516e-06
step: 2694
Epoch: 0      loss: 0.284104585647583         mean_loss: 0.00014851312153041363
step: 2695
Epoch: 0      loss: 0.039052028208971024      mean_loss: 0.0002496849629096687
step: 2696
Epoch: 0      loss: 0.0026452827733010054     mean_loss: 3.3161143164761597e-06
step: 2697
Epoch: 0      loss: 0.0026347124949097633     mean_loss: 9.578898243489675e-07
step: 2698
Epoch: 0      loss: 0.23606307804584503       mean_loss: 0.00033015949884429574
step: 2699
Epoch: 0      loss: 0.002556589897722006      mean_loss: 4.6262007344921585e-06
step: 2700
Epoch: 0      loss: 0.0025463735219091177     mean_loss: 1.2716847095362027e-06
step: 2701
Epoch: 0      loss: 0.046562276780605316      mean_loss: 1.8397291569272056e-05
step: 2702
Epoch: 0      loss: 0.0029063462279736996     mean_loss: 0.0001462371728848666
step: 2703
Epoch: 0      loss: 0.002894732868298888      mean_loss: 2.9324687602638733e-06
step: 2704
Epoch: 0      loss: 0.0028831653762608767     mean_loss: 1.0133770729225944e-06
step: 2705
Epoch: 0      loss: 0.0028716442175209522     mean_loss: 3.2532927889405983e-06
step: 2706
Epoch: 0      loss: 0.0028601691592484713     mean_loss: 5.7268451200798154e-05
step: 2707
Epoch: 0      loss: 0.0028487402014434338     mean_loss: 1.4336500271383557e-06
step: 2708
Epoch: 0      loss: 0.0028373561799526215     mean_loss: 1.2141957768108114e-06
step: 2709
Epoch: 0      loss: 0.18294064700603485       mean_loss: 0.0008629332878626883
step: 2710
Epoch: 0      loss: 0.010368067771196365      mean_loss: 4.432123660080833e-06
step: 2711
```

```
Epoch: 0      loss: 0.003637145971879363      mean_loss: 1.360320538879023e-06
step: 2712
Epoch: 0      loss: 0.003622611751779914      mean_loss: 1.6106542943816748e-06
step: 2713
Epoch: 0      loss: 0.0036081362050026655     mean_loss: 1.2910396662846324e-06
step: 2714
Epoch: 0      loss: 0.11502110213041306       mean_loss: 8.520176925230771e-05
step: 2715
Epoch: 0      loss: 0.0967869684100151        mean_loss: 0.0005535552627407014
step: 2716
Epoch: 0      loss: 0.004968179855495691      mean_loss: 4.039308805658948e-06
step: 2717
Epoch: 0      loss: 0.004948326852172613      mean_loss: 3.780432052735705e-06
step: 2718
Epoch: 0      loss: 0.19074365496635437       mean_loss: 0.00013451864651869982
step: 2719
Epoch: 0      loss: 0.004902067594230175      mean_loss: 3.291886514489306e-06
step: 2720
Epoch: 0      loss: 0.004882479086518288      mean_loss: 2.3067850634106435e-06
step: 2721
Epoch: 0      loss: 0.32497894763946533       mean_loss: 0.0002125449536833912
step: 2722
Epoch: 0      loss: 0.5637854933738708        mean_loss: 0.0004921448999084532
step: 2723
Epoch: 0      loss: 0.004246372263878584      mean_loss: 2.104137365677161e-06
step: 2724
Epoch: 0      loss: 0.34726205468177795       mean_loss: 0.00025164071121253073
step: 2725
Epoch: 0      loss: 0.004029883537441492      mean_loss: 1.975784016394755e-06
step: 2726
Epoch: 0      loss: 0.12886862456798553       mean_loss: 5.586068800766952e-05
step: 2727
Epoch: 0      loss: 0.004112216178327799      mean_loss: 1.5587422694807174e-06
step: 2728
Epoch: 0      loss: 0.18347333371639252       mean_loss: 8.989460911834612e-05
step: 2729
Epoch: 0      loss: 0.004154264461249113      mean_loss: 9.516051250102464e-06
step: 2730
Epoch: 0      loss: 0.004137663636356592      mean_loss: 2.770327228063252e-06
step: 2731
Epoch: 0      loss: 0.004121129401028156      mean_loss: 2.002865358008421e-06
step: 2732
Epoch: 0      loss: 1.179265022277832         mean_loss: 0.00044350020471028984
step: 2733
Epoch: 0      loss: 0.0036322299856692553     mean_loss: 3.900220235664165e-06
step: 2734
Epoch: 0      loss: 0.0036177150905132294     mean_loss: 2.0472668893489754e-06
step: 2735
```

```
Epoch: 0       loss: 0.08097372204065323      mean_loss: 3.052234023925848e-05
step: 2736
Epoch: 0       loss: 0.0035728286020457745    mean_loss: 8.170864020939916e-06
step: 2737
Epoch: 0       loss: 0.1935272216796875     mean_loss: 0.00016114520258270204
step: 2738
Epoch: 0       loss: 0.0035891025327146053    mean_loss: 2.7575350031838752e-05
step: 2739
Epoch: 0       loss: 0.0035747603978961706    mean_loss: 1.3588592082669493e-06
step: 2740
Epoch: 0       loss: 0.003560475306585431     mean_loss: 1.8435994206811301e-06
step: 2741
Epoch: 0       loss: 0.003546247724443674     mean_loss: 1.9045041881327052e-06
step: 2742
Epoch: 0       loss: 0.0035320769529789686    mean_loss: 1.7911715985974297e-06
step: 2743
Epoch: 0       loss: 0.18915855884552002    mean_loss: 0.00011727237870218232
step: 2744
Epoch: 0       loss: 0.18631058931350708    mean_loss: 0.00017309922259300947
step: 2745
Epoch: 0       loss: 0.0035634604282677174    mean_loss: 1.8325451947021065e-06
step: 2746
Epoch: 0       loss: 0.013460683636367321     mean_loss: 1.4958352039684542e-05
step: 2747
Epoch: 0       loss: 0.07378605008125305     mean_loss: 3.30501607095357e-05
step: 2748
Epoch: 0       loss: 0.00499880313873291     mean_loss: 1.8330978264202713e-06
step: 2749
Epoch: 0       loss: 0.004978828132152557     mean_loss: 3.1866036351857474e-06
step: 2750
Epoch: 0       loss: 0.004958932753652334     mean_loss: 2.2053864086046815e-05
step: 2751
Epoch: 0       loss: 0.20942413806915283     mean_loss: 0.0003237189957872033
step: 2752
Epoch: 0       loss: 0.004874339792877436     mean_loss: 4.3681164243025705e-05
step: 2753
Epoch: 0       loss: 0.24542021751403809     mean_loss: 0.00011778497719205916
step: 2754
Epoch: 0       loss: 0.14333178102970123     mean_loss: 0.00010017427121056244
step: 2755
Epoch: 0       loss: 0.005516550969332457     mean_loss: 2.67590530711459e-06
step: 2756
Epoch: 0       loss: 0.005494507495313883     mean_loss: 7.53038766561076e-05
step: 2757
Epoch: 0       loss: 0.45766931772232056     mean_loss: 0.00020968604076188058
step: 2758
Epoch: 0       loss: 0.03656643256545067     mean_loss: 1.7537489839014597e-05
step: 2759
```

```
Epoch: 0      loss: 0.00508638471364975     mean_loss: 1.2759805031237192e-05
step: 2760
Epoch: 0      loss: 0.11150970309972763     mean_loss: 5.553907612920739e-05
step: 2761
Epoch: 0      loss: 0.004939149133861065    mean_loss: 2.4973439849418355e-06
step: 2762
Epoch: 0      loss: 0.004919412080198526    mean_loss: 1.4692266631755047e-05
step: 2763
Epoch: 0      loss: 0.004899753723293543    mean_loss: 2.170691686842474e-06
step: 2764
Epoch: 0      loss: 0.199370339512825       mean_loss: 8.272718696389347e-05
step: 2765
Epoch: 0      loss: 0.004860417451709509    mean_loss: 2.292738599862787e-06
step: 2766
Epoch: 0      loss: 0.00484099518507719     mean_loss: 1.8838148889699369e-06
step: 2767
Epoch: 0      loss: 0.21766901016235352     mean_loss: 0.006402085069566965
step: 2768
Epoch: 0      loss: 0.004816714208573103    mean_loss: 0.002243759809061885
step: 2769
Epoch: 0      loss: 0.6863294243812561      mean_loss: 0.0002493926731403917
step: 2770
Epoch: 0      loss: 0.005372003186494112    mean_loss: 0.0003122997877653688
step: 2771
Epoch: 0      loss: 0.0053505371324718      mean_loss: 2.8600186851690523e-05
step: 2772
Epoch: 0      loss: 0.24455279111862183     mean_loss: 0.00015267252456396818
step: 2773
Epoch: 0      loss: 0.0053531634621322155   mean_loss: 3.7051386243547313e-06
step: 2774
Epoch: 0      loss: 0.20763050019741058     mean_loss: 0.00026517780497670174
step: 2775
Epoch: 0      loss: 0.20046620070934296     mean_loss: 9.046028571901843e-05
step: 2776
Epoch: 0      loss: 0.20462779700756073     mean_loss: 7.160484528867528e-05
step: 2777
Epoch: 0      loss: 0.13126815855503082     mean_loss: 6.269200821407139e-05
step: 2778
Epoch: 0      loss: 0.8944563269615173      mean_loss: 0.0011617130367085338
step: 2779
Epoch: 0      loss: 0.17697036266326904     mean_loss: 0.00010776289855130017
step: 2780
Epoch: 0      loss: 0.005686608608812094    mean_loss: 3.0337023417814635e-06
step: 2781
Epoch: 0      loss: 0.45337170362472534     mean_loss: 0.0005187353817746043
step: 2782
Epoch: 0      loss: 0.6621078252792358      mean_loss: 0.0003974964492954314
step: 2783
```

```
Epoch: 0      loss: 0.12091351300477982    mean_loss: 4.829260069527663e-05
step: 2784
Epoch: 0      loss: 0.0071904901415109634   mean_loss: 4.376531251182314e-06
step: 2785
Epoch: 0      loss: 0.22917814552783966    mean_loss: 0.000111960202048067
step: 2786
Epoch: 0      loss: 0.007135272957384586    mean_loss: 4.233197159919655e-06
step: 2787
Epoch: 0      loss: 0.48793187737464905    mean_loss: 0.0003008237399626523
step: 2788
Epoch: 0      loss: 0.0076601263135671616   mean_loss: 1.3202238733356353e-05
step: 2789
Epoch: 0      loss: 0.49524033069610596    mean_loss: 0.00019559776410460472
step: 2790
Epoch: 0      loss: 0.16079340875148773    mean_loss: 0.00035775333526544273
step: 2791
Epoch: 0      loss: 0.14231111109256744    mean_loss: 6.004581518936902e-05
step: 2792
Epoch: 0      loss: 0.09264888614416122    mean_loss: 0.00015349160821642727
step: 2793
Epoch: 0      loss: 0.006303854286670685    mean_loss: 2.5028473828569986e-05
step: 2794
Epoch: 0      loss: 0.15172208845615387    mean_loss: 0.0004756963171530515
step: 2795
Epoch: 0      loss: 0.006212478969246149    mean_loss: 1.506345779489493e-05
step: 2796
Epoch: 0      loss: 0.4174281656742096     mean_loss: 0.0002710670232772827
step: 2797
Epoch: 0      loss: 0.006118323653936386    mean_loss: 3.601685875764815e-06
step: 2798
Epoch: 0      loss: 0.006093875039368868    mean_loss: 1.3342400052351877e-05
step: 2799
Epoch: 0      loss: 0.006069524213671684    mean_loss: 1.854532638390083e-05
step: 2800
Epoch: 0      loss: 0.1964041143655777     mean_loss: 0.00012291781604290009
step: 2801
Epoch: 0      loss: 0.0729348435997963     mean_loss: 6.319875683402643e-05
step: 2802
Epoch: 0      loss: 0.07083061337471008    mean_loss: 3.5786881198873743e-05
step: 2803
Epoch: 0      loss: 0.4372729957103729     mean_loss: 0.0001526916166767478
step: 2804
Epoch: 0      loss: 0.00584829319268465    mean_loss: 2.530993242544355e-06
step: 2805
Epoch: 0      loss: 0.2582484185695648     mean_loss: 0.00024409352045040578
step: 2806
Epoch: 0      loss: 0.005977526772767305    mean_loss: 1.5476667613256723e-05
step: 2807
```

```
Epoch: 0      loss: 0.22754061222076416    mean_loss: 9.276644414057955e-05
step: 2808
Epoch: 0      loss: 0.005762179847806692    mean_loss: 6.29564092378132e-05
step: 2809
Epoch: 0      loss: 0.3400154113769531    mean_loss: 0.0005347143742255867
step: 2810
Epoch: 0      loss: 0.005771676544100046    mean_loss: 7.273807113961084e-06
step: 2811
Epoch: 0      loss: 0.0057486132718622684    mean_loss: 2.1720327367802383e-06
step: 2812
Epoch: 0      loss: 0.005725642200559378    mean_loss: 4.702638761955313e-06
step: 2813
Epoch: 0      loss: 0.005702762398868799    mean_loss: 2.8282779567234684e-06
step: 2814
Epoch: 0      loss: 0.4889482855796814    mean_loss: 0.000490422360599041
step: 2815
Epoch: 0      loss: 0.12623295187950134    mean_loss: 0.0002960826677735895
step: 2816
Epoch: 0      loss: 0.18291394412517548    mean_loss: 7.378575537586585e-05
step: 2817
Epoch: 0      loss: 0.005035285837948322    mean_loss: 2.480131797710783e-06
step: 2818
Epoch: 0      loss: 0.19269774854183197    mean_loss: 7.652908243471757e-05
step: 2819
Epoch: 0      loss: 0.004983578808605671    mean_loss: 2.0208099158480763e-06
step: 2820
Epoch: 0      loss: 0.0049636648036539555    mean_loss: 2.227763843620778e-06
step: 2821
Epoch: 0      loss: 0.22201000154018402    mean_loss: 0.00033385297865606844
step: 2822
Epoch: 0      loss: 0.005117358639836311    mean_loss: 4.592427558236523e-06
step: 2823
Epoch: 0      loss: 0.005096910055726767    mean_loss: 5.205614797887392e-06
step: 2824
Epoch: 0      loss: 0.005076542496681213    mean_loss: 2.043324457190465e-06
step: 2825
Epoch: 0      loss: 0.005056255962699652    mean_loss: 1.2307297765801195e-05
step: 2826
Epoch: 0      loss: 0.0050360518507659435    mean_loss: 3.167101112921955e-06
step: 2827
Epoch: 0      loss: 0.04563644900918007    mean_loss: 3.138900501653552e-05
step: 2828
Epoch: 0      loss: 0.004809852689504623    mean_loss: 2.2760891624784563e-06
step: 2829
Epoch: 0      loss: 0.004790632985532284    mean_loss: 2.677602788025979e-05
step: 2830
Epoch: 0      loss: 0.39895257353782654    mean_loss: 0.0002564134483691305
step: 2831
```

```
Epoch: 0        loss: 0.021518541499972343     mean_loss: 1.0606408068269957e-05
step: 2832
Epoch: 0        loss: 0.00522893900051713      mean_loss: 3.053348109460785e-06
step: 2833
Epoch: 0        loss: 0.01003989391028881      mean_loss: 1.7167432815767825e-05
step: 2834
Epoch: 0        loss: 0.005006503313779831     mean_loss: 6.636289072048385e-06
step: 2835
Epoch: 0        loss: 0.0049864971078932285    mean_loss: 3.1843962915445445e-06
step: 2836
Epoch: 0        loss: 0.004966570995748043     mean_loss: 0.00023665500339120626
step: 2837
Epoch: 0        loss: 0.004946724511682987     mean_loss: 2.6047133360407315e-05
step: 2838
Epoch: 0        loss: 0.13572606444358826      mean_loss: 7.887978426879272e-05
step: 2839
Epoch: 0        loss: 0.0047623529098927975    mean_loss: 1.921124021464493e-05
step: 2840
Epoch: 0        loss: 0.42548877000808716      mean_loss: 0.00015333620831370354
step: 2841
Epoch: 0        loss: 0.2106248140335083       mean_loss: 0.00014617069973610342
step: 2842
Epoch: 0        loss: 0.046068958938121796     mean_loss: 1.960760710062459e-05
step: 2843
Epoch: 0        loss: 0.004807222634553909     mean_loss: 1.8458241584085044e-06
step: 2844
Epoch: 0        loss: 0.10576511919498444      mean_loss: 4.6490975364577025e-05
step: 2845
Epoch: 0        loss: 0.016619756817817688     mean_loss: 1.1687411642924417e-05
step: 2846
Epoch: 0        loss: 0.005513917189091444     mean_loss: 4.1113130464509595e-06
step: 2847
Epoch: 0        loss: 0.005491883493959904     mean_loss: 2.7343257897882722e-06
step: 2848
Epoch: 0        loss: 0.005469937808811665     mean_loss: 2.9646112125192303e-06
step: 2849
Epoch: 0        loss: 0.005448080133646727     mean_loss: 1.593872730154544e-05
step: 2850
Epoch: 0        loss: 0.005426309071481228     mean_loss: 2.925939725173521e-06
step: 2851
Epoch: 0        loss: 0.005404625553637743     mean_loss: 1.931268343469128e-05
step: 2852
Epoch: 0        loss: 0.005383028648793697     mean_loss: 9.018934179039206e-06
step: 2853
Epoch: 0        loss: 0.005361518822610378     mean_loss: 4.637769961846061e-06
step: 2854
Epoch: 0        loss: 0.011925959959626198     mean_loss: 1.2624971532204654e-05
step: 2855
```

```
Epoch: 0      loss: 0.14409665763378143     mean_loss: 0.000115564776933752
step: 2856
Epoch: 0      loss: 0.38010555505752563     mean_loss: 0.00015531908138655126
step: 2857
Epoch: 0      loss: 0.005522411782294512    mean_loss: 0.00015771474863868207
step: 2858
Epoch: 0      loss: 0.18706274032592773     mean_loss: 0.00025611554156057537
step: 2859
Epoch: 0      loss: 0.005434521473944187    mean_loss: 2.4656139885337325e-06
step: 2860
Epoch: 0      loss: 0.17362898588180542     mean_loss: 0.001205773907713592
step: 2861
Epoch: 0      loss: 0.19512557983398438     mean_loss: 9.110503742704168e-05
step: 2862
Epoch: 0      loss: 0.005246597807854414    mean_loss: 3.298951241959003e-06
step: 2863
Epoch: 0      loss: 0.06425311416387558     mean_loss: 4.329947114456445e-05
step: 2864
Epoch: 0      loss: 0.004843147471547127    mean_loss: 8.933175195124932e-06
step: 2865
Epoch: 0      loss: 0.00482379412278533     mean_loss: 4.261664344085148e-06
step: 2866
Epoch: 0      loss: 0.004804518539458513    mean_loss: 2.684969331312459e-06
step: 2867
Epoch: 0      loss: 0.004785319324582815    mean_loss: 2.4366433990508085e-06
step: 2868
Epoch: 0      loss: 0.005117820575833321    mean_loss: 2.5575711788405897e-06
step: 2869
Epoch: 0      loss: 0.005391766782850027    mean_loss: 0.00024519654107280076
step: 2870
Epoch: 0      loss: 0.1977819949388504      mean_loss: 0.00019902230997104198
step: 2871
Epoch: 0      loss: 0.014558922499418259    mean_loss: 7.674438165850006e-06
step: 2872
Epoch: 0      loss: 0.18111652135849        mean_loss: 9.038133430294693e-05
step: 2873
Epoch: 0      loss: 0.22359375655651093     mean_loss: 0.0003209241549484432
step: 2874
Epoch: 0      loss: 0.9522503018379211      mean_loss: 0.0006493328255601227
step: 2875
Epoch: 0      loss: 0.18464301526546478     mean_loss: 0.00024032729561440647
step: 2876
Epoch: 0      loss: 0.27828091382980347     mean_loss: 0.00013553345343098044
step: 2877
Epoch: 0      loss: 0.12769147753715515     mean_loss: 0.00024724757531657815
step: 2878
Epoch: 0      loss: 0.10712958127260208     mean_loss: 9.887369378702715e-05
step: 2879
```

```
Epoch: 0     loss: 0.005812841933220625     mean_loss: 4.411728150444105e-05
step: 2880
```

```
    ␣
↪----------------------------------------------------------------------

    KeyboardInterrupt                              Traceback (most recent call␣
↪last)

    <ipython-input-1-b766663ef3cc> in <module>
    201          optimizer.learning_rate=lr
    202      if i%2 == 1:
--> 203          train_pred = model1.predict(train_images, batch_size = 1)
    204          train_pred = tf.linalg.normalize(train_pred, axis = 1)[0]
    205


    /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/keras/engine/training.py in predict(self, x, batch_size, verbose,␣
↪steps, callbacks, max_queue_size, workers, use_multiprocessing)
    1606              use_multiprocessing=use_multiprocessing,
    1607              model=self,
 -> 1608              steps_per_execution=self._steps_per_execution)
    1609
    1610          # Container that configures and calls `tf.keras.Callback`s.


    /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/keras/engine/data_adapter.py in __init__(self, x, y, sample_weight,␣
↪batch_size, steps_per_epoch, initial_epoch, epochs, shuffle, class_weight,␣
↪max_queue_size, workers, use_multiprocessing, model, steps_per_execution)
    1110              use_multiprocessing=use_multiprocessing,
    1111              distribution_strategy=ds_context.get_strategy(),
 -> 1112              model=model)
    1113
    1114          strategy = ds_context.get_strategy()


    /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/keras/engine/data_adapter.py in __init__(self, x, y, sample_weights,␣
↪sample_weight_modes, batch_size, epochs, steps, shuffle, **kwargs)
    261                  **kwargs):
    262          super(TensorLikeDataAdapter, self).__init__(x, y, **kwargs)
--> 263      x, y, sample_weights = _process_tensorlike((x, y,␣
↪sample_weights))
    264      sample_weight_modes = broadcast_sample_weight_modes(
    265          sample_weights, sample_weight_modes)
```

```
        /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/keras/engine/data_adapter.py in _process_tensorlike(inputs)
     1014        return x
     1015
  -> 1016    inputs = nest.map_structure(_convert_numpy_and_scipy, inputs)
     1017    return nest.list_to_tuple(inputs)
     1018


        /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/util/nest.py in map_structure(func, *structure, **kwargs)
     657
     658    return pack_sequence_as(
  --> 659        structure[0], [func(*x) for x in entries],
     660        expand_composites=expand_composites)
     661


        /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/util/nest.py in <listcomp>(.0)
     657
     658    return pack_sequence_as(
  --> 659        structure[0], [func(*x) for x in entries],
     660        expand_composites=expand_composites)
     661


        /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/keras/engine/data_adapter.py in _convert_numpy_and_scipy(x)
     1009        if issubclass(x.dtype.type, np.floating):
     1010          dtype = backend.floatx()
  -> 1011        return ops.convert_to_tensor_v2_with_dispatch(x, dtype=dtype)
     1012      elif scipy_sparse and scipy_sparse.issparse(x):
     1013        return _scipy_sparse_to_sparse_tensor(x)


        /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/util/dispatch.py in wrapper(*args, **kwargs)
     199      """Call target, and fall back on dispatchers if there is a␣
↪TypeError."""
     200      try:
  --> 201        return target(*args, **kwargs)
     202      except (TypeError, ValueError):
     203        # Note: convert_to_eager_tensor currently raises a ValueError,␣
↪not a
```

```
      /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/ops.py in convert_to_tensor_v2_with_dispatch(value, dtype,␣
↪dtype_hint, name)
      1403    """
      1404    return convert_to_tensor_v2(
   -> 1405        value, dtype=dtype, dtype_hint=dtype_hint, name=name)
      1406
      1407


      /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/ops.py in convert_to_tensor_v2(value, dtype, dtype_hint, name)
      1413        name=name,
      1414        preferred_dtype=dtype_hint,
   -> 1415        as_ref=False)
      1416
      1417


      /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/profiler/trace.py in wrapped(*args, **kwargs)
      161            with Trace(trace_name, **trace_kwargs):
      162                return func(*args, **kwargs)
   --> 163        return func(*args, **kwargs)
      164
      165    return wrapped


      /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/ops.py in convert_to_tensor(value, dtype, name, as_ref,␣
↪preferred_dtype, dtype_hint, ctx, accepted_result_types)
      1538
      1539      if ret is None:
   -> 1540        ret = conversion_func(value, dtype=dtype, name=name,␣
↪as_ref=as_ref)
      1541
      1542      if ret is NotImplemented:


      /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/tensor_conversion_registry.py in␣
↪_default_conversion_function(***failed resolving arguments***)
       50 def _default_conversion_function(value, dtype, name, as_ref):
       51   del as_ref  # Unused.
   ---> 52   return constant_op.constant(value, dtype, name=name)
```

```
     53
     54


     /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/constant_op.py in constant(value, dtype, shape, name)
     263    """
     264    return _constant_impl(value, dtype, shape, name,␣
↪verify_shape=False,
  --> 265                              allow_broadcast=True)
     266
     267


     /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/constant_op.py in _constant_impl(value, dtype, shape, name,␣
↪verify_shape, allow_broadcast)
     274        with trace.Trace("tf.constant"):
     275            return _constant_eager_impl(ctx, value, dtype, shape,␣
↪verify_shape)
  --> 276    return _constant_eager_impl(ctx, value, dtype, shape,␣
↪verify_shape)
     277
     278    g = ops.get_default_graph()


     /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/constant_op.py in _constant_eager_impl(ctx, value, dtype,␣
↪shape, verify_shape)
     299 def _constant_eager_impl(ctx, value, dtype, shape, verify_shape):
     300    """Implementation of eager constant."""
  --> 301    t = convert_to_eager_tensor(value, ctx, dtype)
     302    if shape is None:
     303      return t


     /opt/anaconda3/envs/RETINANET/lib/python3.7/site-packages/tensorflow/
↪python/framework/constant_op.py in convert_to_eager_tensor(value, ctx, dtype)
      96        dtype = dtypes.as_dtype(dtype).as_datatype_enum
      97    ctx.ensure_initialized()
 ---> 98    return ops.EagerTensor(value, ctx.device_name, dtype)
      99
     100


     KeyboardInterrupt:
```

```python
[46]: import PIL                                        # Read pictures
      from PIL import Image, ImageOps

      from sklearn.neighbors import NearestNeighbors
      import numpy as np
      import tensorflow as tf
      physical_devices = tf.config.list_physical_devices('GPU')
      tf.config.experimental.set_memory_growth(physical_devices[0], True)
      import sklearn
      from sklearn import neighbors
      from sklearn.metrics import confusion_matrix
      from sklearn.decomposition import PCA
      import matplotlib.pyplot as plt

      # median_ratio = 1.48
      # q3_x = 820
      # q3_y = 630
      # alpha = 0.2

      # szazxszep="/home/wildhorse_project/detectron_pic/FINAL_TEST/szazxszep_train.
       ↪csv"                            # Examined horse   [take 2 horse]
      # thetisz="/home/wildhorse_project/detectron_pic/FINAL_TEST/thetisz_train.csv" ␣
       ↪                    # Different horse [take 1 horse]
      # panka="/home/wildhorse_project/detectron_pic/FINAL_TEST/panka_train.csv"
      # huba="/home/wildhorse_project/detectron_pic/FINAL_TEST/huba_train.csv"
      # lilla="/home/wildhorse_project/detectron_pic/FINAL_TEST/lilla_train.csv"
      # lantos="/home/wildhorse_project/detectron_pic/FINAL_TEST/lantos_train.csv"

      # horses = [szazxszep,thetisz,panka,huba,lilla,lantos]

      # # Generate a big numpy array from the '.csv' file
      # my_data = np.empty(shape=(0,3))
      # for i in horses:
      #     my_data = np.concatenate((my_data,np.genfromtxt(i, dtype=str,␣
       ↪delimiter=',')),axis = 0)

      # train_images = read_image(my_data[:,0])
      # train_classes = np.array(my_data[:,1].astype(int))

      # res_model = tf.keras.models.load_model("/home/dkatona/big_test_lin.h5")
      # pca = PCA(n_components=2)

      # train_pred = res_model.predict(train_images, batch_size = 1)
      # train_pred = tf.linalg.normalize(train_pred, axis = 1)[0]


      # X = pca.fit_transform(train_pred)
```

```
print(X.shape)

V = pca.components_.T
print(V)
plt.figure(dpi=400)
plt.scatter(X[:, 0], X[:, 1],
            c=train_classes, edgecolor='none', alpha=10, s=2, cmap='Set1')
plt.savefig("/home/dkatona/knn_res/linear_pca_2880pic.png")
plt.xlabel('component 1')
plt.ylabel('component 2')
plt.colorbar();

#print(pca.explained_variance_ratio_)
```

(2880, 2)

```
␣
↪---------------------------------------------------------------------------


        AttributeError                            Traceback (most recent call␣
↪last)

        <ipython-input-46-e78b5578e06c> in <module>
         45 print(X.shape)
         46
   ---> 47 V = pca.components_.T
         48 print(V)
         49 plt.figure(dpi=400)


        AttributeError: 'PCA' object has no attribute 'components_'
```

[8]:
```
import PIL                                          # Read pictures
from PIL import Image, ImageOps

from sklearn.neighbors import NearestNeighbors
import numpy as np
import tensorflow as tf
physical_devices = tf.config.list_physical_devices('GPU')
tf.config.experimental.set_memory_growth(physical_devices[0], True)
import sklearn
from sklearn import neighbors
from sklearn.metrics import confusion_matrix
import matplotlib.pyplot as plt

def read_image(pic_list):
```

```python
# Initalize az empty list which will contain the 3 picture as array.
    apn_list = []
# Read 3 picture
    for i in pic_list:
    # Read image and get dimensions
        img = PIL.Image.open(i).convert('RGB')                  # Read image
        height = np.asarray(img).shape[0]                       # Get y max coord
        width = np.asarray(img).shape[1]                        # Get x max coord
        current_ratio = float(width/height)                     # Calculate ratio

    # Define initial new resolution (temporary)
        new_tb = height
        new_lr = width

    # Calculate new size with keeping the aspect ratio
        if current_ratio < median_ratio:
            new_lr = int(median_ratio*height)
        elif current_ratio > median_ratio:
            new_tb = int(width/median_ratio)

    # Padding new image to the middle of the picture
        new_img = PIL.ImageOps.pad(img, (new_lr,new_tb), color=None,
→centering=(0.5, 0.5))

    # Using Quantile 3 to resize images with keeping the aspect ratio
        new_height = int(q3_x * new_tb / new_lr)
        new_width  = int(q3_y * new_lr / new_tb)
        new_img = new_img.resize((new_width, new_height), Image.ANTIALIAS)

    # Padding the new image again to keep the q3_x and q3_y
        new_img = np.asarray(PIL.ImageOps.pad(new_img, (q3_x,q3_y), color=None,
→centering=(0.5, 0.5)))/255
        apn_list.append(new_img)

    #print(np.asarray(apn_list).shape)                          # Check dimensions
→if necessary
    return np.asarray(apn_list)

median_ratio = 1.48
q3_x = 820
q3_y = 630
alpha = 0.2

my_data = np.genfromtxt("/home/wildhorse_project/detectron_pic/FINAL_TEST/test.
→csv", dtype=str, delimiter=',')

train_images = read_image(my_data[:,0])
```

```python
train_classes = np.array(my_data[:,1].astype(int))

res_model = tf.keras.models.load_model("/home/dkatona/big_test.h5")
res_pred = res_model.predict(train_images, batch_size = 1)
res_pred = tf.linalg.normalize(res_pred, axis = 1)[0]

n_neighbors = 5
clf = neighbors.KNeighborsClassifier(n_neighbors)
clf.fit(res_pred,train_classes)
val_res = clf.predict(res_pred)
print("#######################################")

print("Confusional matrix:")
print(confusion_matrix(val_res, train_classes))
print("#######################################")

nbrs = NearestNeighbors(n_neighbors=5).fit(res_pred)
distances, indices = nbrs.kneighbors(res_pred)

print("Train classes dimension: " + str(train_classes.shape))
print("Indices dimensions:   " + str(indices.shape))
print("#######################################")

result = np.column_stack((train_classes, indices))

print(result)
closest_neighbour1 = result[:,2]
closest_neighbour2 = result[:,3]
closest_neighbour3 = result[:,4]
closest_neighbour4 = result[:,5]

plt.title("Nearest Neighbor: 1")
plt.scatter(train_classes, closest_neighbour1, color='darkorange')
plt.savefig('/home/dkatona/knn_res/softmax_knn_1.png')
plt.show()

plt.title("Nearest Neighbor: 2")
plt.scatter(train_classes, closest_neighbour2, color='navy')
plt.savefig('/home/dkatona/knn_res/softmax_knn_2.png')
plt.show()

plt.title("Nearest Neighbor: 3")
plt.scatter(train_classes, closest_neighbour3, color='green')
plt.savefig('/home/dkatona/knn_res/softmax_knn_3.png')
plt.show()

plt.title("Nearest Neighbor: 4")
```

```
plt.scatter(train_classes, closest_neighbour4, color='red')
plt.savefig('/home/dkatona/knn_res/softmax_knn_4.png')
plt.show()
```

WARNING:tensorflow:No training configuration found in the save file, so the
model was *not* compiled. Compile it manually.
##
Confusional matrix:
[[10 0 0 0 0 0]
 [0 4 1 0 0 2]
 [0 2 9 0 0 0]
 [0 0 0 10 0 1]
 [0 0 0 0 10 0]
 [0 4 0 0 0 7]]
##
Train classes dimension: (60,)
Indices dimensions: (60, 5)
##
[[4 0 1 3 5 8]
 [4 1 3 5 0 4]
 [4 2 7 6 9 8]
 [4 3 5 1 0 4]
 [4 4 5 3 1 0]
 [4 5 3 1 0 4]
 [4 6 9 8 7 2]
 [4 7 2 6 9 8]
 [4 8 9 6 0 1]
 [4 9 6 8 0 7]
 [6 10 15 28 11 19]
 [6 11 27 28 17 20]
 [6 12 24 26 18 17]
 [6 13 22 16 4 5]
 [6 14 24 18 26 12]
 [6 15 10 23 19 28]
 [6 16 22 14 24 13]
 [6 17 27 11 28 26]
 [6 18 26 24 14 12]
 [6 19 20 28 10 15]
 [2 20 28 19 11 27]
 [2 21 25 31 37 32]
 [2 22 16 13 14 24]
 [2 23 15 10 19 28]
 [2 24 14 18 12 26]
 [2 25 21 31 37 30]
 [2 26 18 24 17 27]
 [2 27 17 11 28 26]
 [2 28 11 27 10 17]
 [2 29 32 23 21 15]
```

```
[ 3 30 37 33 25 31]
[ 3 31 21 25 37 30]
[ 3 32 29 23 21 31]
[ 3 33 30 36 37 25]
[ 3 34 39 35 38 36]
[ 3 35 38 36 33 34]
[ 3 36 38 33 35 30]
[ 3 37 31 25 21 30]
[ 3 38 36 35 33 30]
[ 3 39 34 35 38 36]
[ 5 40 44 45 46 41]
[ 5 41 49 45 48 44]
[ 5 42 47 48 49 41]
[ 5 43 46 58 40 44]
[ 5 44 40 45 41 46]
[ 5 45 44 40 41 49]
[ 5 46 40 44 45 43]
[ 5 47 42 48 49 41]
[ 5 48 49 41 45 44]
[ 5 49 41 48 45 44]
[ 1 50 59 57 51 53]
[ 1 51 59 50 53 57]
[ 1 52 54 53 51 59]
[ 1 53 52 54 51 59]
[ 1 54 52 53 51 59]
[ 1 55 56 57 50 59]
[ 1 56 55 57 50 59]
[ 1 57 50 59 51 55]
[ 1 58 43 54 52 53]
[ 1 59 50 51 57 53]]
```

Nearest Neighbor: 1

Nearest Neighbor: 2

Nearest Neighbor: 3

Nearest Neighbor: 4

```python
[19]: import PIL                                          # Read pictures
      from PIL import Image, ImageOps

      from sklearn.neighbors import NearestNeighbors
      import numpy as np
      import tensorflow as tf
      physical_devices = tf.config.list_physical_devices('GPU')
      tf.config.experimental.set_memory_growth(physical_devices[0], True)
      import sklearn
      from sklearn import neighbors
      from sklearn.metrics import confusion_matrix
      import matplotlib.pyplot as plt


      # def read_image(pic_list):
      # # Initalize az empty list which will contain the 3 picture as array.
      #     apn_list = []
      # # Read 3 picture
      #     for i in pic_list:
      #     # Read image and get dimensions
      #         img = PIL.Image.open(i).convert('RGB')          # Read image
      #         height = np.asarray(img).shape[0]               # Get y max coord
      #         width = np.asarray(img).shape[1]                # Get x max coord
      #         current_ratio = float(width/height)             # Calculate ratio

      #     # Define initial new resolution (temporary)
      #         new_tb = height
      #         new_lr = width

      #     # Calculate new size with keeping the aspect ratio
      #         if current_ratio < median_ratio:
      #             new_lr = int(median_ratio*height)
      #         elif current_ratio > median_ratio:
      #             new_tb = int(width/median_ratio)

      #     # Padding new image to the middle of the picture
      #         new_img = PIL.ImageOps.pad(img, (new_lr,new_tb), color=None,␣
      ↪centering=(0.5, 0.5))

      #     # Using Quantile 3 to resize images with keeping the aspect ratio
      #         new_height = int(q3_x * new_tb / new_lr)
      #         new_width  = int(q3_y * new_lr / new_tb)
      #         new_img = new_img.resize((new_width, new_height), Image.ANTIALIAS)

      #     # Padding the new image again to keep the q3_x and q3_y
      #         new_img = np.asarray(PIL.ImageOps.pad(new_img, (q3_x,q3_y),␣
      ↪color=None, centering=(0.5, 0.5)))/255
      #         apn_list.append(new_img)
```

```python
#      #print(np.asarray(apn_list).shape)                    # Check
 ↪dimensions if necessary
#      return np.asarray(apn_list)


# median_ratio = 1.48
# q3_x = 820
# q3_y = 630
# alpha = 0.2


# szazxszep="/home/wildhorse_project/detectron_pic/FINAL_TEST/szazxszep_train.
 ↪csv"                         # Examined horse   [take 2 horse]
# thetisz="/home/wildhorse_project/detectron_pic/FINAL_TEST/thetisz_train.csv" ␣
 ↪                   # Different horse [take 1 horse]
# panka="/home/wildhorse_project/detectron_pic/FINAL_TEST/panka_train.csv"
# huba="/home/wildhorse_project/detectron_pic/FINAL_TEST/huba_train.csv"
# lilla="/home/wildhorse_project/detectron_pic/FINAL_TEST/lilla_train.csv"
# lantos="/home/wildhorse_project/detectron_pic/FINAL_TEST/lantos_train.csv"


# horses = [szazxszep,thetisz,panka,huba,lilla,lantos]


# szazxszep_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
 ↪plus_val_szazxszep.csv"                       # Examined horse   [take 2
 ↪horse]
# thetisz_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
 ↪plus_val_thetisz.csv"                       # Different horse [take 1 horse]
# panka_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
 ↪plus_val_panka.csv"
# huba_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/plus_val_huba.
 ↪csv"
# lilla_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
 ↪plus_val_lilla.csv"
# lantos_plus_val="/home/wildhorse_project/detectron_pic/FINAL_TEST/
 ↪plus_val_lantos.csv"


# val_plus_horses =␣
 ↪[szazxszep_plus_val,thetisz_plus_val,panka_plus_val,huba_plus_val,lilla_plus_val,lantos_plu

# # Generate a big numpy array from the '.csv' file
# my_data = np.empty(shape=(0,3))
# for i in horses:
#     my_data = np.concatenate((my_data,np.genfromtxt(i, dtype=str,␣
 ↪delimiter=',')),axis = 0)


# # Generate a big numpy array from the '.csv' file
# val_plus_data = np.empty(shape=(0,3))
```

```
# for i in val_plus_horses:
#     val_plus_data = np.concatenate((val_plus_data,np.genfromtxt(i, dtype=str,␣
→delimiter=',')),axis = 0)

# train_images = read_image(my_data[:,0])
# train_classes = np.array(my_data[:,1].astype(int))

# plus_images = read_image(val_plus_data[:,0])
# val_plus_classes = np.array(val_plus_data[:,1].astype(int))

# res_model = tf.keras.models.load_model("/home/dkatona/big_test.h5")

# res_pred_data = res_model.predict(train_images, batch_size = 1)
# res_pred_data = tf.linalg.normalize(res_pred_data, axis = 1)[0]

# res_pred_plus = res_model.predict(plus_images, batch_size = 1)
# res_pred_plus = tf.linalg.normalize(res_pred_plus, axis = 1)[0]

nbrs = NearestNeighbors(n_neighbors=2).fit(res_pred_data)
distances, indices = nbrs.kneighbors(res_pred_plus)

# #result = np.column_stack((train_classes, indices))

for i in range(len(val_plus_data)):
    j = indices[i,0]
    k = indices[i,1]
    print("Image class: " + str(val_plus_classes[i]) + "        Detected class␣
→knn1: " + str(train_classes[j]) + "        Detected class knn2: " +␣
→str(train_classes[k]) + "        Distance knn1: " + str(distances[i]))
    fig, ax = plt.subplots(nrows=1, ncols=3)
    ax[0].imshow(plus_images[i])
    ax[1].imshow(train_images[j])
    ax[2].imshow(train_images[k])
    plt.show()
```

```
Image class: 1        Detected class knn1: 3        Detected class knn2: 3
Distance knn1: [0.04660379 0.05336401]
```

Image class: 1   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.04892671 0.0512625]
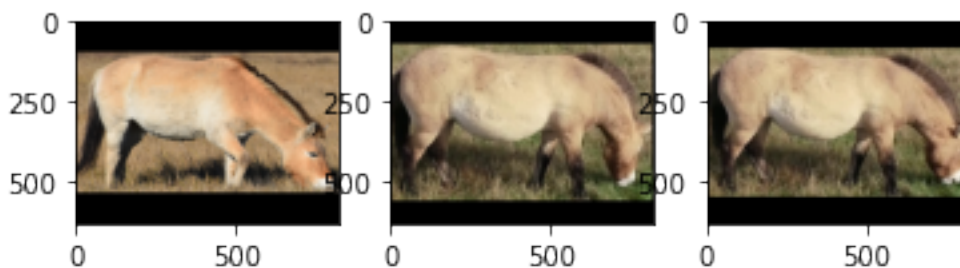
Image class: 1   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00350419 0.01470682]
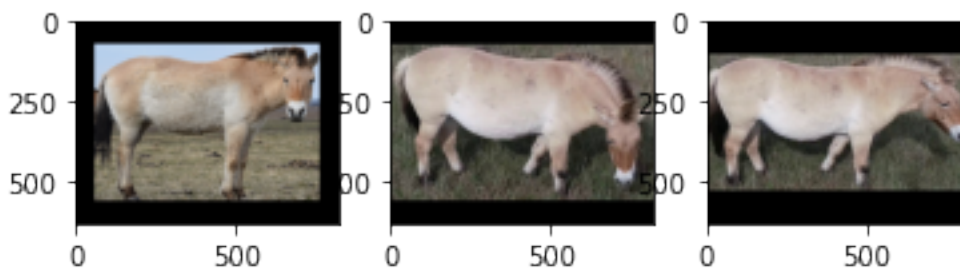
Image class: 1   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.01470314 0.0174282]
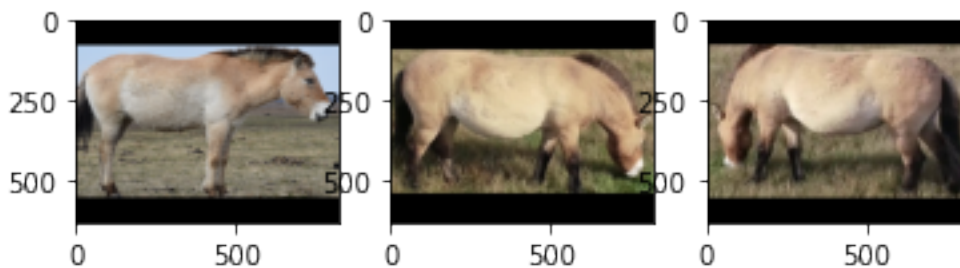
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [0.00043615 0.00043778]
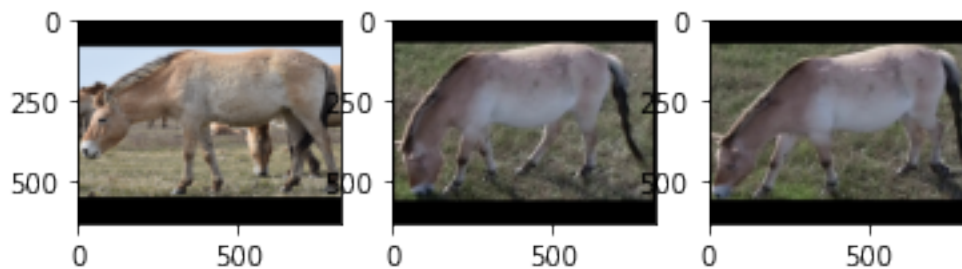
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [0.00025436 0.00025685]
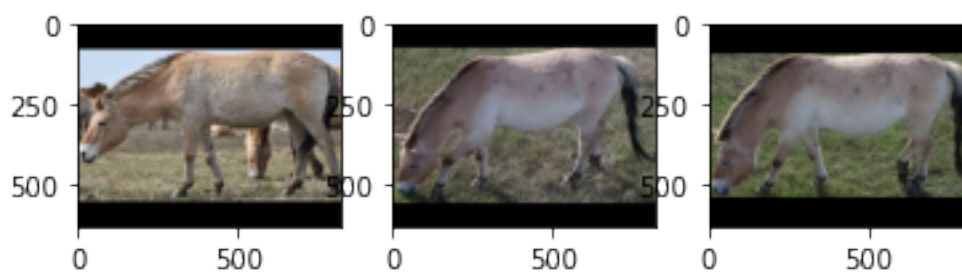
Image class: 1   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00122747 0.0035686]
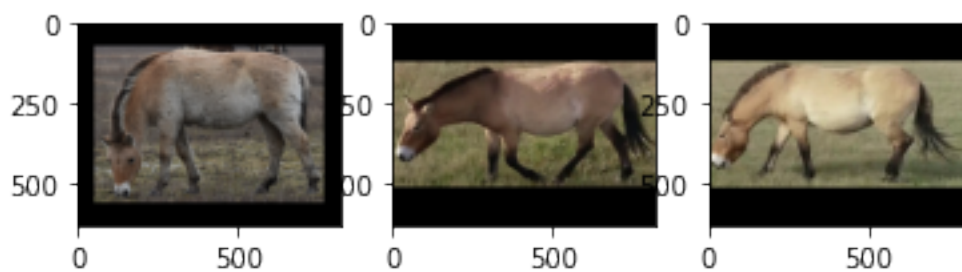
Image class: 1   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00079657 0.00218398]
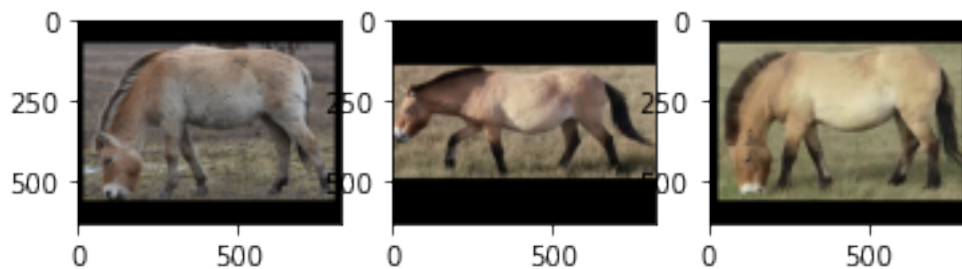
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [1.7005079e-05 1.7389629e-04]
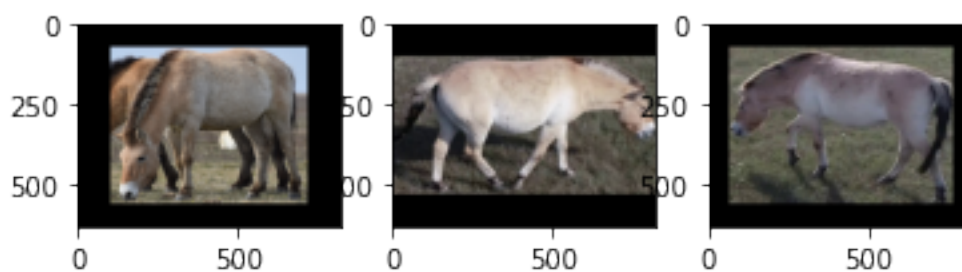
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [6.3055595e-05 1.4614229e-04]
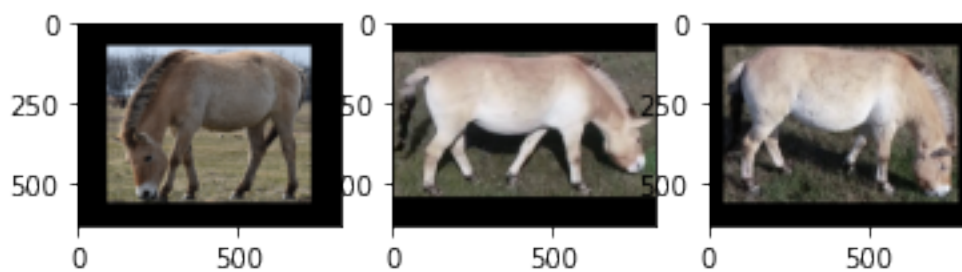
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [8.2769118e-05 1.1778668e-04]
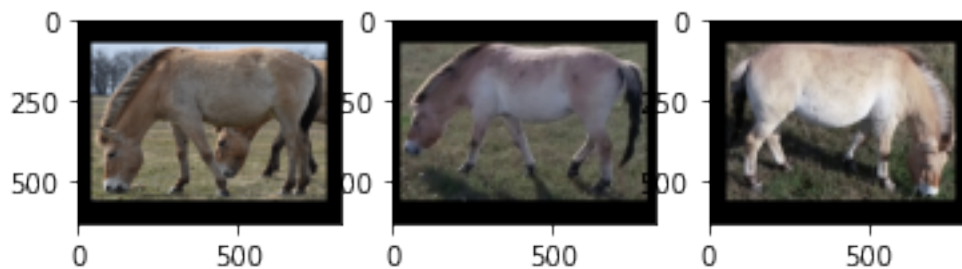
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [0.00052444 0.00070466]
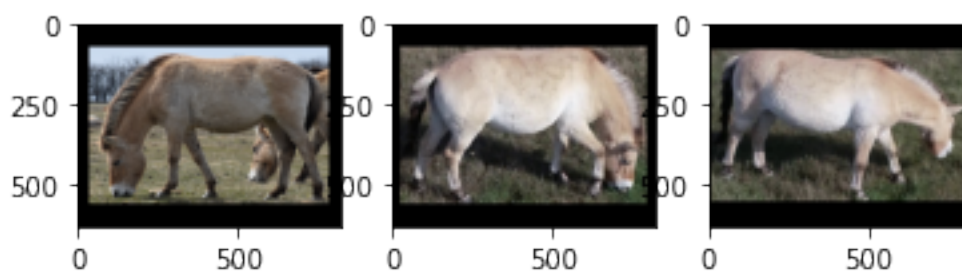
Image class: 1   Detected class knn1: 1   Detected class knn2: 1
Distance knn1: [5.9800932e-05 7.2031304e-05]
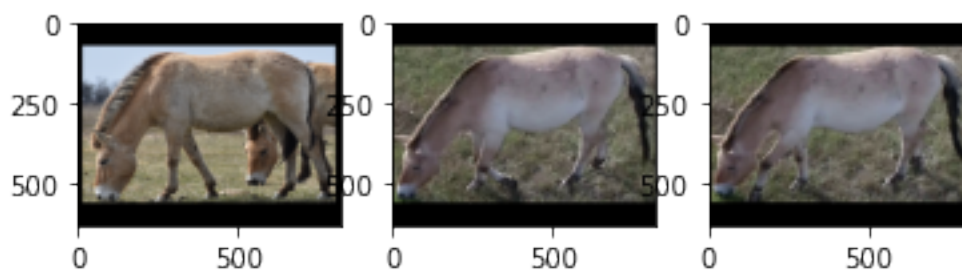
Image class: 2   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00068534 0.0015558]
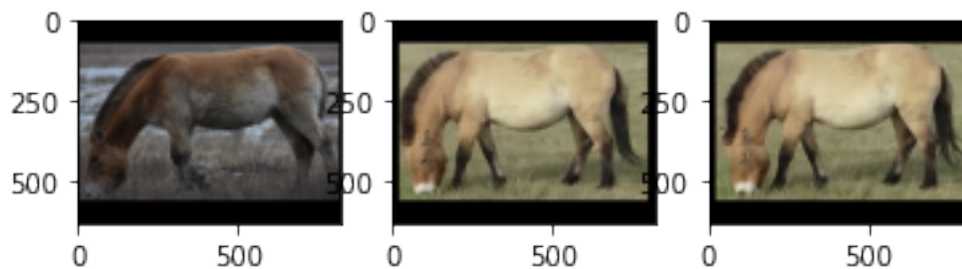
Image class: 2   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00348955 0.00351215]

Image class: 2   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00349244 0.01325475]
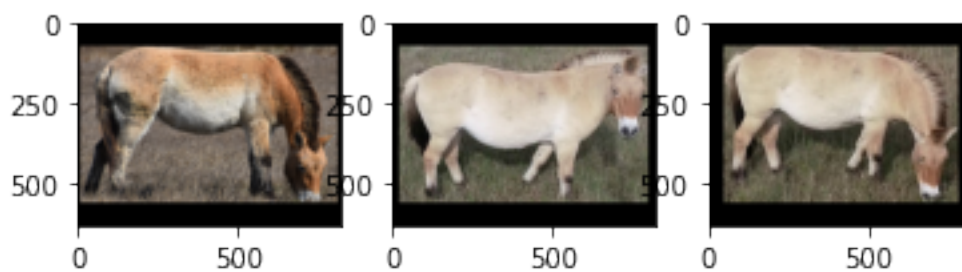
Image class: 2   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00421932 0.00448954]
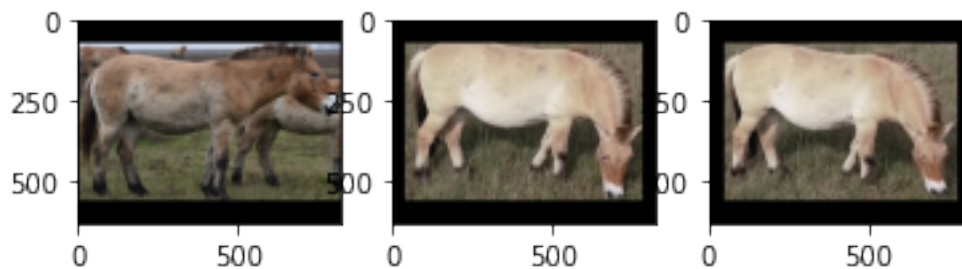
Image class: 2   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00238618 0.00254364]

Image class: 2   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00102413 0.00511129]
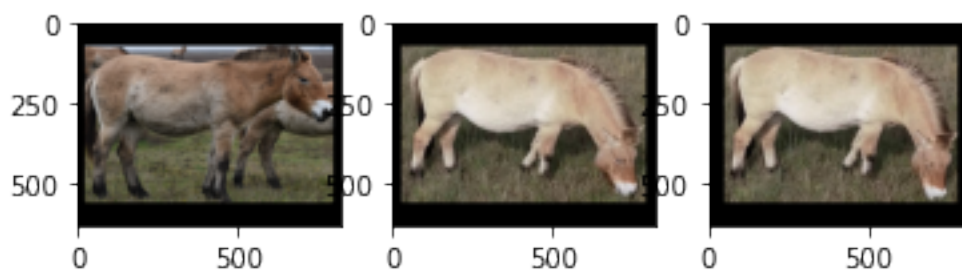
Image class: 3   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.02250879 0.02568402]
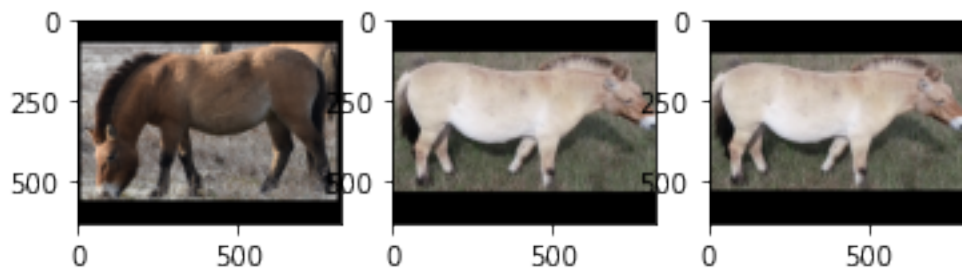
Image class: 3   Detected class knn1: 3   Detected class knn2: 5
Distance knn1: [0.04376553 0.04436654]
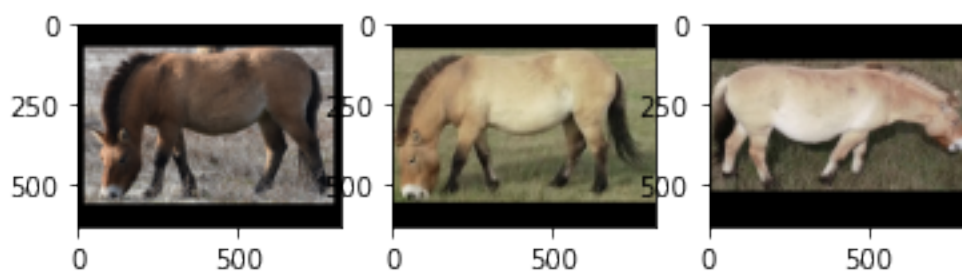
Image class: 3   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.01181745 0.01476258]
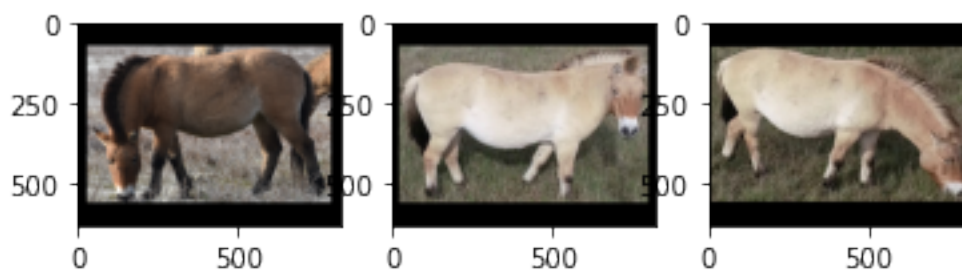
Image class: 3   Detected class knn1: 1   Detected class knn2: 5
Distance knn1: [0.00262089 0.00353407]
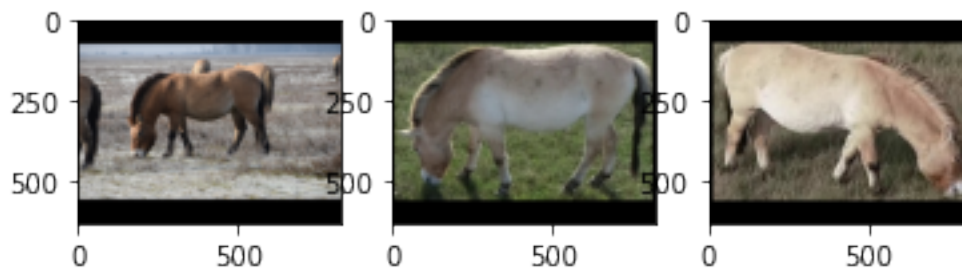
Image class: 3   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.02462571 0.03406675]
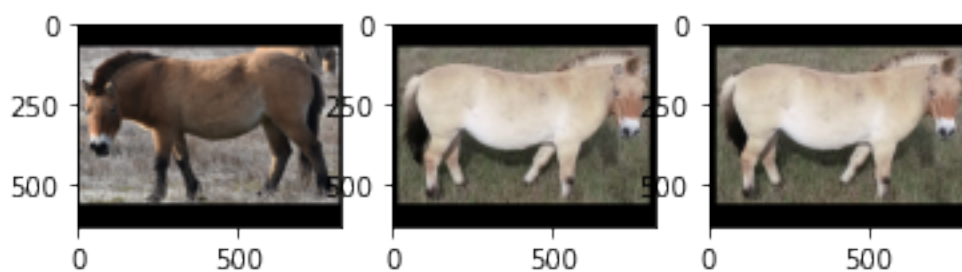
Image class: 3   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00655301 0.01129056]

Image class: 4   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00330399 0.00485408]
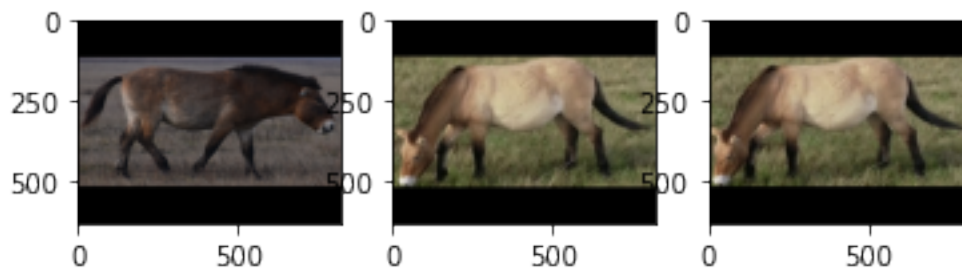
Image class: 4   Detected class knn1: 2   Detected class knn2: 3
Distance knn1: [0.00215728 0.00315484]
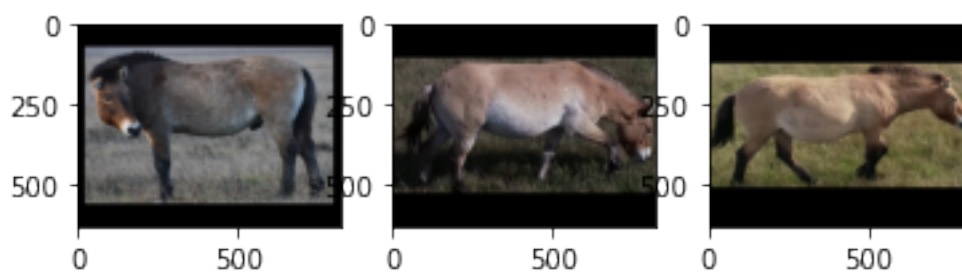
Image class: 4   Detected class knn1: 4   Detected class knn2: 4
Distance knn1: [0.04822053 0.04992306]
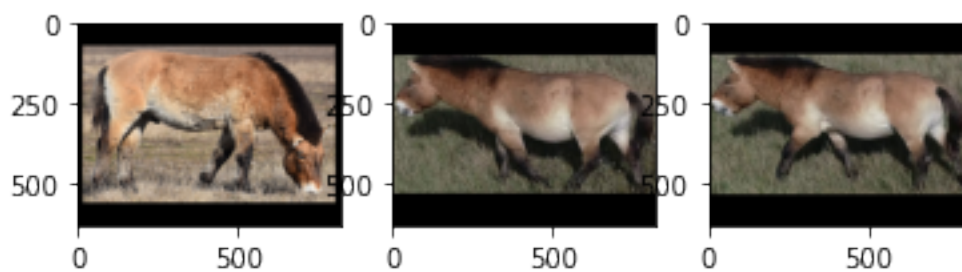
Image class: 4   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00673421 0.00835506]

Image class: 5   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.0084412   0.00870449]
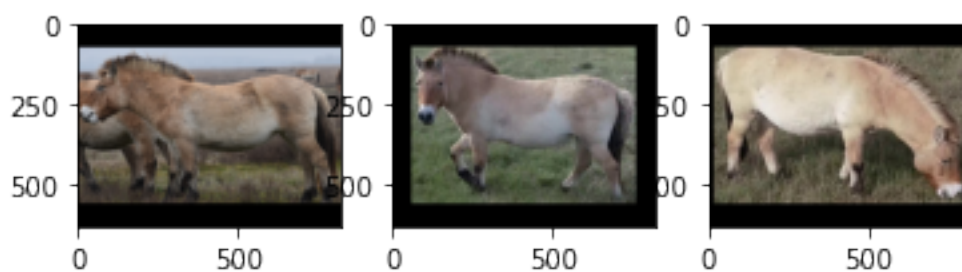
Image class: 5   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00150166 0.00311903]
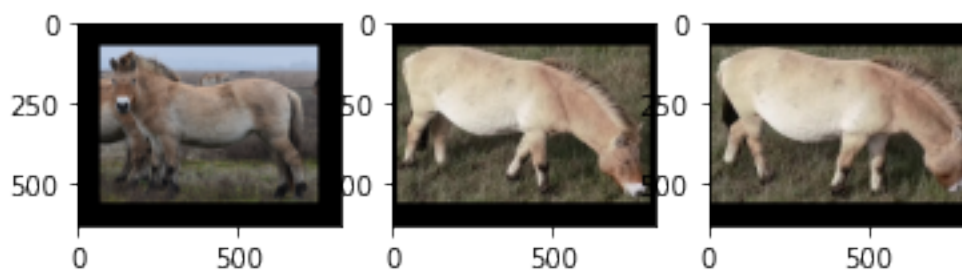
Image class: 5   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00105048 0.00668148]
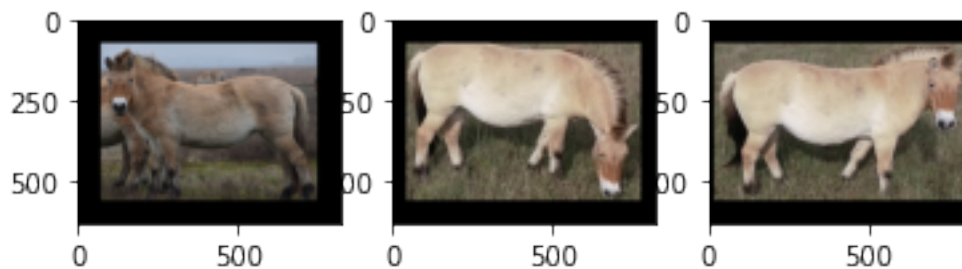
Image class: 5   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00756264 0.00906359]
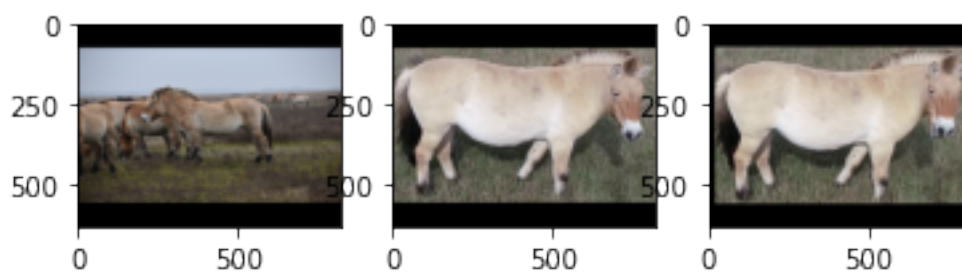
Image class: 5   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00241489 0.00305401]
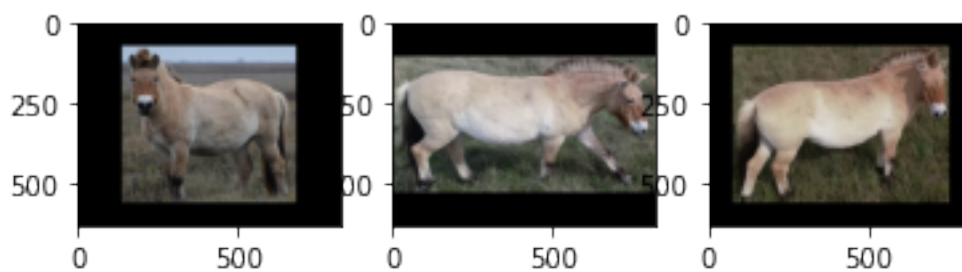
Image class: 6   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00629343 0.00677513]

Image class: 6   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.0021507 0.00216575]

Image class: 6   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00303195 0.00375846]

Image class: 6   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00471931 0.00533119]

Image class: 6   Detected class knn1: 3   Detected class knn2: 3
Distance knn1: [0.00731913 0.01081474]

Image class: 6   Detected class knn1: 5   Detected class knn2: 5
Distance knn1: [0.00214962 0.00290414]

[25]:

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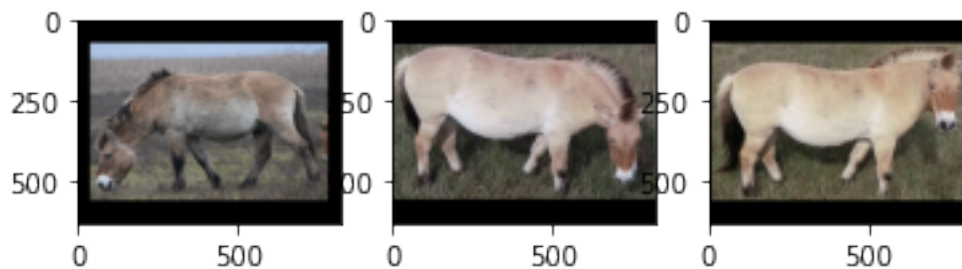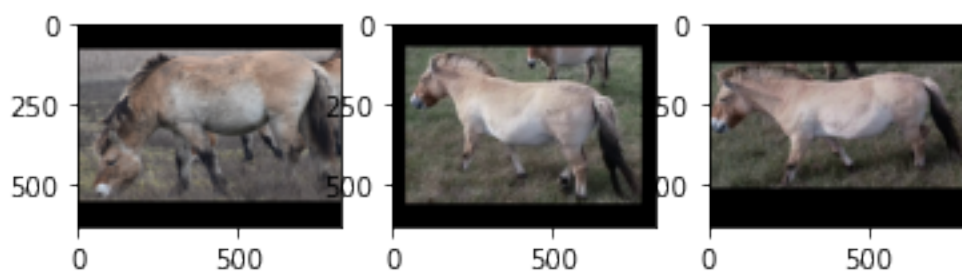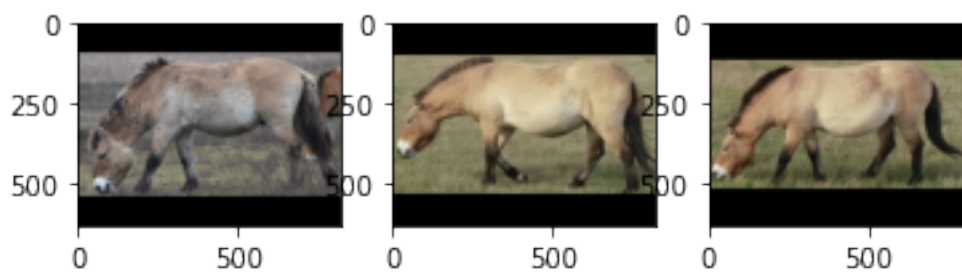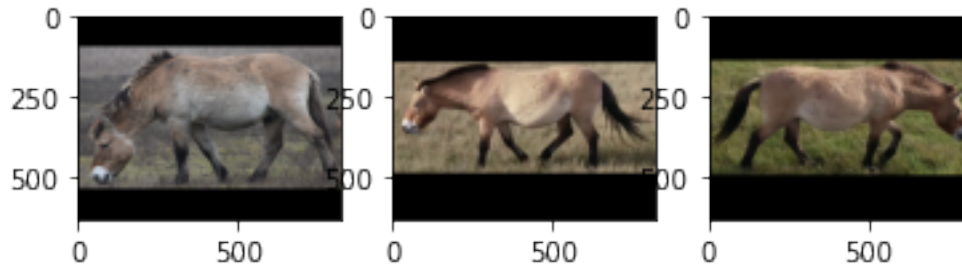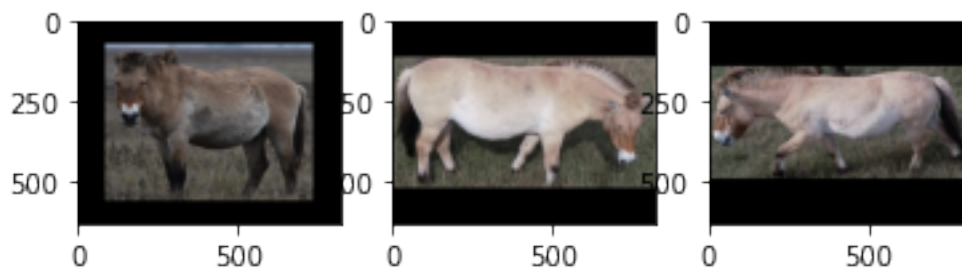[4 4 4 4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3
 3 3 3 5 5 5 5 5 5 5 5 5 5 1 1 1 1 1 1 1 1 1 1 1 1]
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[26]:

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[1 2 1 2 3 1 2 3]
[[1 2]
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 [1 2]
 [3 4]]
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[ ]: