Tutorial

August 24, 2024

[ ]:
```
# pip install html4vision
```

[1]:
```
import torch

# Check if CUDA is available
if torch.cuda.is_available():
    # Get the number of available CUDA devices
    device_count = torch.cuda.device_count()
    print(f"Number of CUDA devices: {device_count}")

    # Iterate over each CUDA device
    for device_index in range(device_count):
        # Get the device name
        device_name = torch.cuda.get_device_name(device_index)
        print(f"Device {device_index}: {device_name}")

        # Get the device capability (major and minor version)
        device_capability = torch.cuda.get_device_capability(device_index)
        print(f"Device capability: {device_capability}")

        # Get the total memory of the device
        device_memory = torch.cuda.get_device_properties(device_index).
 ↪total_memory
        print(f"Device memory: {device_memory} bytes")
else:
    print("CUDA is not available.")
```

```
Number of CUDA devices: 1
Device 0: GeForce RTX 2080 Ti
Device capability: (7, 5)
Device memory: 11554717696 bytes
```

[2]:
```
!python train.py
```

```
PyTorch version:  1.9.0+cu111
Torchvision version:  0.10.0+cu111
train: 10000 val: 1000 test: 200
device: cuda:0
```

```
Batch 1/625  loss_pxl 0.4334  loss_adv 2.6776  loss_D 2.2096
Batch 2/625  loss_pxl 0.4298  loss_adv 9.9268  loss_D 8.0828
Batch 4/625  loss_pxl 0.4357  loss_adv 1.9372  loss_D 1.2331
Batch 8/625  loss_pxl 0.3580  loss_adv 0.4247  loss_D 0.2478
Batch 16/625  loss_pxl 0.1752  loss_adv 0.6195  loss_D 0.2249
Batch 32/625  loss_pxl 0.1506  loss_adv 0.9701  loss_D 0.1800
Batch 64/625  loss_pxl 0.1723  loss_adv 0.8225  loss_D 0.0555
Batch 128/625  loss_pxl 0.1409  loss_adv 0.9040  loss_D 0.0590
Batch 256/625  loss_pxl 0.1237  loss_adv 0.9055  loss_D 0.0363
Batch 512/625  loss_pxl 0.1403  loss_adv 0.7584  loss_D 0.0249
Epoch 1/100  train  loss_pxl 0.1451  loss_adv 0.9411  loss_D 0.0882
Epoch 1/100  val  loss_pxl 0.1453  loss_adv 0.9990  loss_D 0.0149

Batch 1/625  loss_pxl 0.1402  loss_adv 0.9556  loss_D 0.0139
Batch 2/625  loss_pxl 0.1200  loss_adv 0.9810  loss_D 0.0158
Batch 4/625  loss_pxl 0.1238  loss_adv 0.9427  loss_D 0.0173
Batch 8/625  loss_pxl 0.1263  loss_adv 1.0161  loss_D 0.0134
Batch 16/625  loss_pxl 0.1326  loss_adv 0.9976  loss_D 0.0093
Batch 32/625  loss_pxl 0.1229  loss_adv 1.1053  loss_D 0.0202
Batch 64/625  loss_pxl 0.1138  loss_adv 1.0449  loss_D 0.0174
Batch 128/625  loss_pxl 0.1350  loss_adv 0.9646  loss_D 0.0080
Batch 256/625  loss_pxl 0.1233  loss_adv 0.9300  loss_D 0.0122
Batch 512/625  loss_pxl 0.1357  loss_adv 0.9803  loss_D 0.0223
Epoch 2/100  train  loss_pxl 0.1280  loss_adv 0.9771  loss_D 0.0180
Epoch 2/100  val  loss_pxl 0.1303  loss_adv 1.0215  loss_D 0.0049

Batch 1/625  loss_pxl 0.1174  loss_adv 1.0221  loss_D 0.0046
Batch 2/625  loss_pxl 0.1291  loss_adv 1.0086  loss_D 0.0044
Batch 4/625  loss_pxl 0.1437  loss_adv 0.9973  loss_D 0.0047
Batch 8/625  loss_pxl 0.1143  loss_adv 0.9975  loss_D 0.0060
Batch 16/625  loss_pxl 0.1092  loss_adv 1.0444  loss_D 0.0070
Batch 32/625  loss_pxl 0.1345  loss_adv 0.7397  loss_D 0.1885
Batch 64/625  loss_pxl 0.1378  loss_adv 0.9831  loss_D 0.0101
Batch 128/625  loss_pxl 0.1132  loss_adv 0.9487  loss_D 0.0056
Batch 256/625  loss_pxl 0.1234  loss_adv 1.0346  loss_D 0.0082
Batch 512/625  loss_pxl 0.0972  loss_adv 0.9503  loss_D 0.0156
Epoch 3/100  train  loss_pxl 0.1219  loss_adv 0.9571  loss_D 0.0250
Epoch 3/100  val  loss_pxl 0.1372  loss_adv 1.0389  loss_D 0.0108

Batch 1/625  loss_pxl 0.1162  loss_adv 1.0480  loss_D 0.0062
Batch 2/625  loss_pxl 0.1236  loss_adv 0.9584  loss_D 0.0082
Batch 4/625  loss_pxl 0.1170  loss_adv 1.0199  loss_D 0.0040
Batch 8/625  loss_pxl 0.1189  loss_adv 1.0575  loss_D 0.0068
Batch 16/625  loss_pxl 0.1037  loss_adv 1.0617  loss_D 0.0103
Batch 32/625  loss_pxl 0.1143  loss_adv 1.0257  loss_D 0.0044
Batch 64/625  loss_pxl 0.1104  loss_adv 1.0111  loss_D 0.0080
Batch 128/625  loss_pxl 0.1174  loss_adv 0.9625  loss_D 0.0090
Batch 256/625  loss_pxl 0.1045  loss_adv 0.9664  loss_D 0.0043
```

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Batch 512/625  loss_pxl 0.1092  loss_adv 0.9771  loss_D 0.0026
Epoch 4/100  train  loss_pxl 0.1128  loss_adv 0.9764  loss_D 0.0138
Epoch 4/100  val  loss_pxl 0.1232  loss_adv 0.7128  loss_D 0.0256

Batch 1/625  loss_pxl 0.1102  loss_adv 0.7679  loss_D 0.0175
Batch 2/625  loss_pxl 0.1117  loss_adv 1.1323  loss_D 0.0289
Batch 4/625  loss_pxl 0.1026  loss_adv 1.0749  loss_D 0.0201
Batch 8/625  loss_pxl 0.1205  loss_adv 1.1394  loss_D 0.0189
Batch 16/625  loss_pxl 0.1027  loss_adv 1.0099  loss_D 0.0058
Batch 32/625  loss_pxl 0.1023  loss_adv 0.8467  loss_D 0.0221
Batch 64/625  loss_pxl 0.1078  loss_adv 0.9645  loss_D 0.0435
Batch 128/625  loss_pxl 0.1157  loss_adv 0.7029  loss_D 0.0327
Batch 256/625  loss_pxl 0.1027  loss_adv 0.2828  loss_D 0.2653
Batch 512/625  loss_pxl 0.0950  loss_adv 0.2599  loss_D 0.1996
Epoch 5/100  train  loss_pxl 0.1098  loss_adv 0.6630  loss_D 0.1932
Epoch 5/100  val  loss_pxl 0.1079  loss_adv 0.7150  loss_D 0.0492

Batch 1/625  loss_pxl 0.1094  loss_adv 0.7559  loss_D 0.0401
Batch 2/625  loss_pxl 0.1084  loss_adv 0.7681  loss_D 0.0308
Batch 4/625  loss_pxl 0.1045  loss_adv 0.7835  loss_D 0.0542
Batch 8/625  loss_pxl 0.1168  loss_adv 0.8442  loss_D 0.0684
Batch 16/625  loss_pxl 0.1186  loss_adv 1.0727  loss_D 0.1097
Batch 32/625  loss_pxl 0.1021  loss_adv 0.8330  loss_D 0.0280
Batch 64/625  loss_pxl 0.0975  loss_adv 0.8291  loss_D 0.0359
Batch 128/625  loss_pxl 0.0886  loss_adv 0.8201  loss_D 0.0243
Batch 256/625  loss_pxl 0.1075  loss_adv 1.0516  loss_D 0.0146
Batch 512/625  loss_pxl 0.1142  loss_adv 1.0001  loss_D 0.0102
Epoch 6/100  train  loss_pxl 0.1081  loss_adv 0.9044  loss_D 0.0281
Epoch 6/100  val  loss_pxl 0.1067  loss_adv 1.0042  loss_D 0.0130

Batch 1/625  loss_pxl 0.1077  loss_adv 0.9819  loss_D 0.0051
Batch 2/625  loss_pxl 0.0894  loss_adv 1.0414  loss_D 0.0207
Batch 4/625  loss_pxl 0.0997  loss_adv 0.9579  loss_D 0.0185
Batch 8/625  loss_pxl 0.1011  loss_adv 1.1803  loss_D 0.0822
Batch 16/625  loss_pxl 0.1123  loss_adv 0.8915  loss_D 0.0135
Batch 32/625  loss_pxl 0.0974  loss_adv 0.9743  loss_D 0.0140
Batch 64/625  loss_pxl 0.1041  loss_adv 1.0755  loss_D 0.0137
Batch 128/625  loss_pxl 0.1102  loss_adv 0.9907  loss_D 0.0265
Batch 256/625  loss_pxl 0.0896  loss_adv 0.9600  loss_D 0.0054
Batch 512/625  loss_pxl 0.1048  loss_adv 0.9847  loss_D 0.0038
Epoch 7/100  train  loss_pxl 0.1065  loss_adv 0.9530  loss_D 0.0166
Epoch 7/100  val  loss_pxl 0.1197  loss_adv 1.0494  loss_D 0.0124

Batch 1/625  loss_pxl 0.1136  loss_adv 1.0530  loss_D 0.0128
Batch 2/625  loss_pxl 0.0991  loss_adv 0.8811  loss_D 0.0075
Batch 4/625  loss_pxl 0.1136  loss_adv 1.0619  loss_D 0.0073
Batch 8/625  loss_pxl 0.0920  loss_adv 0.8611  loss_D 0.0379
Batch 16/625  loss_pxl 0.0990  loss_adv 1.1873  loss_D 0.0540
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Batch 32/625  loss_pxl 0.1048  loss_adv 0.9857  loss_D 0.0238
Batch 64/625  loss_pxl 0.1006  loss_adv 0.8983  loss_D 0.0070
Batch 128/625  loss_pxl 0.1092  loss_adv 1.0543  loss_D 0.0050
Batch 256/625  loss_pxl 0.0990  loss_adv 1.0499  loss_D 0.0240
Batch 512/625  loss_pxl 0.1218  loss_adv 0.9260  loss_D 0.0049
Epoch 8/100  train  loss_pxl 0.1050  loss_adv 0.9579  loss_D 0.0186
Epoch 8/100  val  loss_pxl 0.1027  loss_adv 0.8855  loss_D 0.0088

Batch 1/625  loss_pxl 0.0911  loss_adv 0.9139  loss_D 0.0042
Batch 2/625  loss_pxl 0.1073  loss_adv 0.9926  loss_D 0.0380
Batch 4/625  loss_pxl 0.1010  loss_adv 0.9795  loss_D 0.0121
Batch 8/625  loss_pxl 0.1257  loss_adv 1.0316  loss_D 0.0155
Batch 16/625  loss_pxl 0.0999  loss_adv 0.9616  loss_D 0.0035
Batch 32/625  loss_pxl 0.1025  loss_adv 0.9724  loss_D 0.0024
Batch 64/625  loss_pxl 0.1015  loss_adv 0.9997  loss_D 0.0039
Batch 128/625  loss_pxl 0.1156  loss_adv 0.9632  loss_D 0.0036
Batch 256/625  loss_pxl 0.0882  loss_adv 0.9867  loss_D 0.0024
Batch 512/625  loss_pxl 0.1065  loss_adv 0.9543  loss_D 0.0040
Epoch 9/100  train  loss_pxl 0.1038  loss_adv 0.9807  loss_D 0.0102
Epoch 9/100  val  loss_pxl 0.1282  loss_adv 0.9635  loss_D 0.0041

Batch 1/625  loss_pxl 0.1037  loss_adv 0.9978  loss_D 0.0026
Batch 2/625  loss_pxl 0.0834  loss_adv 1.0007  loss_D 0.0023
Batch 4/625  loss_pxl 0.1006  loss_adv 0.9616  loss_D 0.0029
Batch 8/625  loss_pxl 0.0953  loss_adv 0.9800  loss_D 0.0021
Batch 16/625  loss_pxl 0.1296  loss_adv 0.8960  loss_D 0.0044
Batch 32/625  loss_pxl 0.0986  loss_adv 1.0005  loss_D 0.0126
Batch 64/625  loss_pxl 0.1893  loss_adv 0.9119  loss_D 0.0316
Batch 128/625  loss_pxl 0.1105  loss_adv 0.9399  loss_D 0.0232
Batch 256/625  loss_pxl 0.0945  loss_adv 1.0237  loss_D 0.0014
Batch 512/625  loss_pxl 0.1072  loss_adv 1.0005  loss_D 0.0057
Epoch 10/100  train  loss_pxl 0.1018  loss_adv 0.9880  loss_D 0.0088
Epoch 10/100  val  loss_pxl 0.0994  loss_adv 1.0839  loss_D 0.0156

Batch 1/625  loss_pxl 0.0899  loss_adv 1.0859  loss_D 0.0144
Batch 2/625  loss_pxl 0.1011  loss_adv 0.9320  loss_D 0.0140
Batch 4/625  loss_pxl 0.1018  loss_adv 0.0456  loss_D 0.3894
Batch 8/625  loss_pxl 0.1078  loss_adv 1.4079  loss_D 0.7661
Batch 16/625  loss_pxl 0.0923  loss_adv 0.6643  loss_D 0.0481
Batch 32/625  loss_pxl 0.0926  loss_adv 0.7512  loss_D 0.0623
Batch 64/625  loss_pxl 0.1080  loss_adv 0.5588  loss_D 0.0822
Batch 128/625  loss_pxl 0.0953  loss_adv 0.7443  loss_D 0.0759
Batch 256/625  loss_pxl 0.1021  loss_adv 0.4536  loss_D 0.1030
Batch 512/625  loss_pxl 0.1013  loss_adv 1.0033  loss_D 0.1220
Epoch 11/100  train  loss_pxl 0.1020  loss_adv 0.6879  loss_D 0.1099
Epoch 11/100  val  loss_pxl 0.1034  loss_adv 0.5496  loss_D 0.0927

Batch 1/625  loss_pxl 0.1068  loss_adv 0.6397  loss_D 0.0801
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Batch 2/625  loss_pxl 0.0924  loss_adv 0.9231  loss_D 0.1459
Batch 4/625  loss_pxl 0.0944  loss_adv 0.9023  loss_D 0.1075
Batch 8/625  loss_pxl 0.1024  loss_adv 0.9601  loss_D 0.0312
Batch 16/625  loss_pxl 0.1090  loss_adv 0.7025  loss_D 0.0599
Batch 32/625  loss_pxl 0.0990  loss_adv 0.6486  loss_D 0.0884
Batch 64/625  loss_pxl 0.1018  loss_adv 0.4868  loss_D 0.1116
Batch 128/625  loss_pxl 0.1029  loss_adv 0.4468  loss_D 0.1153
Batch 256/625  loss_pxl 0.0996  loss_adv 0.6159  loss_D 0.0732
Batch 512/625  loss_pxl 0.1081  loss_adv 0.7863  loss_D 0.0944
Epoch 12/100  train  loss_pxl 0.1013  loss_adv 0.7041  loss_D 0.0967
Epoch 12/100  val  loss_pxl 0.1027  loss_adv 0.6112  loss_D 0.0855

Batch 1/625  loss_pxl 0.0954  loss_adv 0.6635  loss_D 0.0971
Batch 2/625  loss_pxl 0.0990  loss_adv 0.5439  loss_D 0.1323
Batch 4/625  loss_pxl 0.0879  loss_adv 0.4881  loss_D 0.0731
Batch 8/625  loss_pxl 0.1112  loss_adv 0.9970  loss_D 0.1391
Batch 16/625  loss_pxl 0.1118  loss_adv 0.7731  loss_D 0.0458
Batch 32/625  loss_pxl 0.1085  loss_adv 0.9296  loss_D 0.0970
Batch 64/625  loss_pxl 0.0846  loss_adv 0.6614  loss_D 0.1130
Batch 128/625  loss_pxl 0.1128  loss_adv 0.9412  loss_D 0.0984
Batch 256/625  loss_pxl 0.1113  loss_adv 0.5417  loss_D 0.0739
Batch 512/625  loss_pxl 0.0944  loss_adv 0.5985  loss_D 0.1080
Epoch 13/100  train  loss_pxl 0.1005  loss_adv 0.7131  loss_D 0.0941
Epoch 13/100  val  loss_pxl 0.1007  loss_adv 0.7830  loss_D 0.0665

Batch 1/625  loss_pxl 0.1039  loss_adv 0.8487  loss_D 0.0866
Batch 2/625  loss_pxl 0.0930  loss_adv 0.6057  loss_D 0.1001
Batch 4/625  loss_pxl 0.0864  loss_adv 0.4556  loss_D 0.1185
Batch 8/625  loss_pxl 0.0945  loss_adv 0.8779  loss_D 0.0950
Batch 16/625  loss_pxl 0.1084  loss_adv 0.8291  loss_D 0.0734
Batch 32/625  loss_pxl 0.0910  loss_adv 0.5661  loss_D 0.1372
Batch 64/625  loss_pxl 0.0990  loss_adv 0.4537  loss_D 0.1443
Batch 128/625  loss_pxl 0.1012  loss_adv 0.7892  loss_D 0.0791
Batch 256/625  loss_pxl 0.0991  loss_adv 1.1150  loss_D 0.2000
Batch 512/625  loss_pxl 0.0958  loss_adv 0.7389  loss_D 0.1583
Epoch 14/100  train  loss_pxl 0.0993  loss_adv 0.7234  loss_D 0.1204
Epoch 14/100  val  loss_pxl 0.0975  loss_adv 0.6529  loss_D 0.0862

Batch 1/625  loss_pxl 0.1125  loss_adv 0.6017  loss_D 0.0839
Batch 2/625  loss_pxl 0.1109  loss_adv 0.6527  loss_D 0.0717
Batch 4/625  loss_pxl 0.1028  loss_adv 0.5654  loss_D 0.0722
Batch 8/625  loss_pxl 0.0962  loss_adv 0.4584  loss_D 0.1125
Batch 16/625  loss_pxl 0.1081  loss_adv 0.7672  loss_D 0.0611
Batch 32/625  loss_pxl 0.1066  loss_adv 0.6185  loss_D 0.0908
Batch 64/625  loss_pxl 0.0997  loss_adv 0.3877  loss_D 0.1373
Batch 128/625  loss_pxl 0.0944  loss_adv 0.6568  loss_D 0.0656
Batch 256/625  loss_pxl 0.1030  loss_adv 0.6235  loss_D 0.0801
Batch 512/625  loss_pxl 0.1065  loss_adv 0.5995  loss_D 0.0753
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Epoch 15/100  train  loss_pxl 0.0982  loss_adv 0.6617  loss_D 0.0977
Epoch 15/100  val  loss_pxl 0.1053  loss_adv 0.6296  loss_D 0.0888

Batch 1/625  loss_pxl 0.0956  loss_adv 0.6141  loss_D 0.0865
Batch 2/625  loss_pxl 0.0904  loss_adv 0.7685  loss_D 0.1077
Batch 4/625  loss_pxl 0.0912  loss_adv 0.7251  loss_D 0.0926
Batch 8/625  loss_pxl 0.0996  loss_adv 0.4882  loss_D 0.1096
Batch 16/625  loss_pxl 0.1009  loss_adv 0.6485  loss_D 0.0841
Batch 32/625  loss_pxl 0.0889  loss_adv 0.5967  loss_D 0.0736
Batch 64/625  loss_pxl 0.0989  loss_adv 0.8753  loss_D 0.0902
Batch 128/625  loss_pxl 0.0980  loss_adv 1.0067  loss_D 0.0956
Batch 256/625  loss_pxl 0.0928  loss_adv 0.9322  loss_D 0.0932
Batch 512/625  loss_pxl 0.0804  loss_adv 0.5967  loss_D 0.1209
Epoch 16/100  train  loss_pxl 0.0979  loss_adv 0.7075  loss_D 0.0934
Epoch 16/100  val  loss_pxl 0.0998  loss_adv 0.5273  loss_D 0.0923

Batch 1/625  loss_pxl 0.0983  loss_adv 0.4627  loss_D 0.0932
Batch 2/625  loss_pxl 0.1036  loss_adv 1.1512  loss_D 0.0445
Batch 4/625  loss_pxl 0.0914  loss_adv 0.6853  loss_D 0.0904
Batch 8/625  loss_pxl 0.0878  loss_adv 0.7674  loss_D 0.1308
Batch 16/625  loss_pxl 0.1005  loss_adv 0.8409  loss_D 0.0855
Batch 32/625  loss_pxl 0.0801  loss_adv 0.4528  loss_D 0.1536
Batch 64/625  loss_pxl 0.0987  loss_adv 0.7470  loss_D 0.1095
Batch 128/625  loss_pxl 0.1076  loss_adv 0.6006  loss_D 0.0729
Batch 256/625  loss_pxl 0.0955  loss_adv 0.5638  loss_D 0.0938
Batch 512/625  loss_pxl 0.1124  loss_adv 0.5963  loss_D 0.0623
Epoch 17/100  train  loss_pxl 0.0974  loss_adv 0.7284  loss_D 0.0893
Epoch 17/100  val  loss_pxl 0.0978  loss_adv 0.8800  loss_D 0.0661

Batch 1/625  loss_pxl 0.0897  loss_adv 0.7300  loss_D 0.1134
Batch 2/625  loss_pxl 0.1086  loss_adv 0.4425  loss_D 0.0900
Batch 4/625  loss_pxl 0.0950  loss_adv 0.4714  loss_D 0.1105
Batch 8/625  loss_pxl 0.0962  loss_adv 0.8229  loss_D 0.0567
Batch 16/625  loss_pxl 0.1152  loss_adv 0.6657  loss_D 0.0554
Batch 32/625  loss_pxl 0.1011  loss_adv 0.7234  loss_D 0.0444
Batch 64/625  loss_pxl 0.0841  loss_adv 0.7275  loss_D 0.1216
Batch 128/625  loss_pxl 0.0889  loss_adv 0.9757  loss_D 0.1026
Batch 256/625  loss_pxl 0.0932  loss_adv 0.5219  loss_D 0.0968
Batch 512/625  loss_pxl 0.1039  loss_adv 0.7140  loss_D 0.0486
Epoch 18/100  train  loss_pxl 0.0965  loss_adv 0.7454  loss_D 0.0847
Epoch 18/100  val  loss_pxl 0.0994  loss_adv 0.5021  loss_D 0.0906

Batch 1/625  loss_pxl 0.0853  loss_adv 0.6024  loss_D 0.0759
Batch 2/625  loss_pxl 0.0940  loss_adv 0.9344  loss_D 0.0381
Batch 4/625  loss_pxl 0.0924  loss_adv 0.6605  loss_D 0.0767
Batch 8/625  loss_pxl 0.0933  loss_adv 0.7188  loss_D 0.0886
Batch 16/625  loss_pxl 0.0980  loss_adv 0.2838  loss_D 0.1944
Batch 32/625  loss_pxl 0.0904  loss_adv 0.6760  loss_D 0.1279
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Batch 64/625  loss_pxl 0.0937  loss_adv 0.8317  loss_D 0.0530
Batch 128/625  loss_pxl 0.1019  loss_adv 0.9251  loss_D 0.0574
Batch 256/625  loss_pxl 0.1045  loss_adv 0.5856  loss_D 0.0987
Batch 512/625  loss_pxl 0.0884  loss_adv 0.6371  loss_D 0.0959
Epoch 19/100  train  loss_pxl 0.0961  loss_adv 0.7534  loss_D 0.0830
Epoch 19/100  val  loss_pxl 0.0977  loss_adv 0.9429  loss_D 0.0742

Batch 1/625  loss_pxl 0.0928  loss_adv 0.8650  loss_D 0.0537
Batch 2/625  loss_pxl 0.1052  loss_adv 0.9356  loss_D 0.0435
Batch 4/625  loss_pxl 0.0986  loss_adv 0.7149  loss_D 0.0493
Batch 8/625  loss_pxl 0.0979  loss_adv 0.8701  loss_D 0.0378
Batch 16/625  loss_pxl 0.0990  loss_adv 0.8240  loss_D 0.0493
Batch 32/625  loss_pxl 0.0884  loss_adv 1.1516  loss_D 0.1063
Batch 64/625  loss_pxl 0.0969  loss_adv 0.6526  loss_D 0.0519
Batch 128/625  loss_pxl 0.1032  loss_adv 0.7672  loss_D 0.0324
Batch 256/625  loss_pxl 0.1016  loss_adv 0.9567  loss_D 0.0395
Batch 512/625  loss_pxl 0.0949  loss_adv 1.0564  loss_D 0.0431
Epoch 20/100  train  loss_pxl 0.0955  loss_adv 0.7600  loss_D 0.0812
Epoch 20/100  val  loss_pxl 0.1002  loss_adv 0.7942  loss_D 0.0673

Batch 1/625  loss_pxl 0.0991  loss_adv 0.7885  loss_D 0.0757
Batch 2/625  loss_pxl 0.0990  loss_adv 0.5302  loss_D 0.1112
Batch 4/625  loss_pxl 0.0944  loss_adv 0.6716  loss_D 0.0731
Batch 8/625  loss_pxl 0.0992  loss_adv 0.8263  loss_D 0.0321
Batch 16/625  loss_pxl 0.1075  loss_adv 0.6193  loss_D 0.0601
Batch 32/625  loss_pxl 0.0975  loss_adv 0.8686  loss_D 0.0409
Batch 64/625  loss_pxl 0.1011  loss_adv 0.7239  loss_D 0.0640
Batch 128/625  loss_pxl 0.0917  loss_adv 0.6734  loss_D 0.0770
Batch 256/625  loss_pxl 0.0958  loss_adv 0.6302  loss_D 0.1026
Batch 512/625  loss_pxl 0.0986  loss_adv 0.8448  loss_D 0.0645
Epoch 21/100  train  loss_pxl 0.0949  loss_adv 0.7650  loss_D 0.0802
Epoch 21/100  val  loss_pxl 0.0980  loss_adv 0.8674  loss_D 0.0598

Batch 1/625  loss_pxl 0.0927  loss_adv 0.8113  loss_D 0.0696
Batch 2/625  loss_pxl 0.1053  loss_adv 0.6980  loss_D 0.0554
Batch 4/625  loss_pxl 0.0859  loss_adv 0.5759  loss_D 0.0716
Batch 8/625  loss_pxl 0.0805  loss_adv 0.9711  loss_D 0.1170
Batch 16/625  loss_pxl 0.0910  loss_adv 0.5417  loss_D 0.1512
Batch 32/625  loss_pxl 0.0924  loss_adv 0.9274  loss_D 0.0682
Batch 64/625  loss_pxl 0.0882  loss_adv 0.6855  loss_D 0.0700
Batch 128/625  loss_pxl 0.0968  loss_adv 1.1411  loss_D 0.0444
Batch 256/625  loss_pxl 0.0905  loss_adv 0.4078  loss_D 0.1185
Batch 512/625  loss_pxl 0.0923  loss_adv 0.7772  loss_D 0.0655
Epoch 22/100  train  loss_pxl 0.0943  loss_adv 0.7705  loss_D 0.0780
Epoch 22/100  val  loss_pxl 0.0987  loss_adv 0.4845  loss_D 0.1141

Batch 1/625  loss_pxl 0.0897  loss_adv 0.6106  loss_D 0.0874
Batch 2/625  loss_pxl 0.0865  loss_adv 0.7347  loss_D 0.1277
```

```
Batch 4/625  loss_pxl 0.0962  loss_adv 0.7740  loss_D 0.0490
Batch 8/625  loss_pxl 0.0869  loss_adv 0.9361  loss_D 0.0453
Batch 16/625  loss_pxl 0.0941  loss_adv 0.7563  loss_D 0.0623
Batch 32/625  loss_pxl 0.0995  loss_adv 0.7211  loss_D 0.0477
Batch 64/625  loss_pxl 0.0916  loss_adv 0.6227  loss_D 0.0708
Batch 128/625  loss_pxl 0.0922  loss_adv 0.4355  loss_D 0.1128
Batch 256/625  loss_pxl 0.0953  loss_adv 0.8049  loss_D 0.0432
Batch 512/625  loss_pxl 0.0980  loss_adv 0.5226  loss_D 0.0900
Epoch 23/100  train  loss_pxl 0.0935  loss_adv 0.7735  loss_D 0.0776
Epoch 23/100  val  loss_pxl 0.0978  loss_adv 1.0917  loss_D 0.0802

Batch 1/625  loss_pxl 0.0836  loss_adv 1.1051  loss_D 0.0563
Batch 2/625  loss_pxl 0.0808  loss_adv 0.7037  loss_D 0.0723
Batch 4/625  loss_pxl 0.0939  loss_adv 0.7348  loss_D 0.0639
Batch 8/625  loss_pxl 0.0999  loss_adv 0.6550  loss_D 0.0690
Batch 16/625  loss_pxl 0.0904  loss_adv 0.4681  loss_D 0.0933
Batch 32/625  loss_pxl 0.0944  loss_adv 0.4706  loss_D 0.0896
Batch 64/625  loss_pxl 0.0870  loss_adv 0.9104  loss_D 0.0577
Batch 128/625  loss_pxl 0.0896  loss_adv 0.6002  loss_D 0.0737
Batch 256/625  loss_pxl 0.0988  loss_adv 1.2878  loss_D 0.1058
Batch 512/625  loss_pxl 0.0828  loss_adv 0.7555  loss_D 0.0494
Epoch 24/100  train  loss_pxl 0.0932  loss_adv 0.7759  loss_D 0.0763
Epoch 24/100  val  loss_pxl 0.0988  loss_adv 0.8985  loss_D 0.0905

Batch 1/625  loss_pxl 0.0851  loss_adv 1.0423  loss_D 0.1066
Batch 2/625  loss_pxl 0.1117  loss_adv 0.5580  loss_D 0.1127
Batch 4/625  loss_pxl 0.0884  loss_adv 1.0339  loss_D 0.0809
Batch 8/625  loss_pxl 0.0947  loss_adv 0.7462  loss_D 0.0794
Batch 16/625  loss_pxl 0.1084  loss_adv 0.7581  loss_D 0.0366
Batch 32/625  loss_pxl 0.0934  loss_adv 1.3391  loss_D 0.1924
Batch 64/625  loss_pxl 0.0861  loss_adv 0.7665  loss_D 0.0776
Batch 128/625  loss_pxl 0.1010  loss_adv 1.0569  loss_D 0.1180
Batch 256/625  loss_pxl 0.1044  loss_adv 0.9194  loss_D 0.0339
Batch 512/625  loss_pxl 0.0854  loss_adv 0.7150  loss_D 0.1191
Epoch 25/100  train  loss_pxl 0.0924  loss_adv 0.7855  loss_D 0.0743
Epoch 25/100  val  loss_pxl 0.0979  loss_adv 1.3455  loss_D 0.0941

Batch 1/625  loss_pxl 0.0931  loss_adv 1.1574  loss_D 0.0708
Batch 2/625  loss_pxl 0.0972  loss_adv 0.6876  loss_D 0.0785
Batch 4/625  loss_pxl 0.0910  loss_adv 1.1645  loss_D 0.0778
Batch 8/625  loss_pxl 0.0897  loss_adv 0.7258  loss_D 0.0747
Batch 16/625  loss_pxl 0.0927  loss_adv 0.8210  loss_D 0.0657
Batch 32/625  loss_pxl 0.0970  loss_adv 0.6535  loss_D 0.0693
Batch 64/625  loss_pxl 0.0841  loss_adv 0.3070  loss_D 0.1971
Batch 128/625  loss_pxl 0.0855  loss_adv 0.6526  loss_D 0.0674
Batch 256/625  loss_pxl 0.0950  loss_adv 0.6718  loss_D 0.0581
Batch 512/625  loss_pxl 0.0897  loss_adv 0.5745  loss_D 0.0827
Epoch 26/100  train  loss_pxl 0.0908  loss_adv 0.7099  loss_D 0.1762
```

```
Epoch 26/100  val  loss_pxl 0.0972  loss_adv 0.3026  loss_D 0.1600

Batch 1/625  loss_pxl 0.0883  loss_adv 0.4271  loss_D 0.1172
Batch 2/625  loss_pxl 0.0765  loss_adv 0.5724  loss_D 0.1388
Batch 4/625  loss_pxl 0.0825  loss_adv 0.5338  loss_D 0.0959
Batch 8/625  loss_pxl 0.0878  loss_adv 0.8215  loss_D 0.1198
Batch 16/625  loss_pxl 0.1009  loss_adv 0.6006  loss_D 0.0859
Batch 32/625  loss_pxl 0.0929  loss_adv 0.7089  loss_D 0.1061
Batch 64/625  loss_pxl 0.0862  loss_adv 0.6591  loss_D 0.1003
Batch 128/625  loss_pxl 0.0955  loss_adv 0.4384  loss_D 0.1217
Batch 256/625  loss_pxl 0.0967  loss_adv 0.4399  loss_D 0.1511
Batch 512/625  loss_pxl 0.0816  loss_adv 0.7305  loss_D 0.0970
Epoch 27/100  train  loss_pxl 0.0902  loss_adv 0.6366  loss_D 0.1037
Epoch 27/100  val  loss_pxl 0.0985  loss_adv 0.6001  loss_D 0.1315

Batch 1/625  loss_pxl 0.0741  loss_adv 0.7475  loss_D 0.1773
Batch 2/625  loss_pxl 0.0962  loss_adv 0.5311  loss_D 0.1224
Batch 4/625  loss_pxl 0.0979  loss_adv 0.7240  loss_D 0.0760
Batch 8/625  loss_pxl 0.0976  loss_adv 0.6017  loss_D 0.0667
Batch 16/625  loss_pxl 0.0890  loss_adv 0.8489  loss_D 0.0610
Batch 32/625  loss_pxl 0.0847  loss_adv 0.5917  loss_D 0.1483
Batch 64/625  loss_pxl 0.0962  loss_adv 0.5329  loss_D 0.1088
Batch 128/625  loss_pxl 0.1044  loss_adv 0.4351  loss_D 0.1544
Batch 256/625  loss_pxl 0.0939  loss_adv 0.6969  loss_D 0.0944
Batch 512/625  loss_pxl 0.0806  loss_adv 0.5645  loss_D 0.1081
Epoch 28/100  train  loss_pxl 0.0903  loss_adv 0.6876  loss_D 0.0946
Epoch 28/100  val  loss_pxl 0.0983  loss_adv 0.6998  loss_D 0.0838

Batch 1/625  loss_pxl 0.0993  loss_adv 0.6697  loss_D 0.0655
Batch 2/625  loss_pxl 0.0920  loss_adv 0.9744  loss_D 0.1121
Batch 4/625  loss_pxl 0.0792  loss_adv 0.4419  loss_D 0.1295
Batch 8/625  loss_pxl 0.0871  loss_adv 0.7950  loss_D 0.0758
Batch 16/625  loss_pxl 0.0952  loss_adv 0.7521  loss_D 0.0672
Batch 32/625  loss_pxl 0.0947  loss_adv 0.5054  loss_D 0.0984
Batch 64/625  loss_pxl 0.0749  loss_adv 0.7486  loss_D 0.0744
Batch 128/625  loss_pxl 0.0963  loss_adv 0.7861  loss_D 0.0806
Batch 256/625  loss_pxl 0.0854  loss_adv 0.8301  loss_D 0.0999
Batch 512/625  loss_pxl 0.0914  loss_adv 0.9512  loss_D 0.0334
Epoch 29/100  train  loss_pxl 0.0898  loss_adv 0.7174  loss_D 0.0896
Epoch 29/100  val  loss_pxl 0.0976  loss_adv 1.0177  loss_D 0.1067

Batch 1/625  loss_pxl 0.0787  loss_adv 0.9034  loss_D 0.1608
Batch 2/625  loss_pxl 0.0922  loss_adv 0.5241  loss_D 0.0910
Batch 4/625  loss_pxl 0.0877  loss_adv 0.9247  loss_D 0.1097
Batch 8/625  loss_pxl 0.0917  loss_adv 0.7236  loss_D 0.0953
Batch 16/625  loss_pxl 0.0991  loss_adv 0.7114  loss_D 0.0755
Batch 32/625  loss_pxl 0.0896  loss_adv 0.6758  loss_D 0.0789
Batch 64/625  loss_pxl 0.0839  loss_adv 0.6400  loss_D 0.0779
```

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Batch 128/625  loss_pxl 0.0761  loss_adv 0.6757  loss_D 0.1159
Batch 256/625  loss_pxl 0.0861  loss_adv 0.4374  loss_D 0.1140
Batch 512/625  loss_pxl 0.0989  loss_adv 0.7506  loss_D 0.0694
Epoch 30/100  train  loss_pxl 0.0894  loss_adv 0.7405  loss_D 0.0857
Epoch 30/100  val  loss_pxl 0.0965  loss_adv 1.0336  loss_D 0.0699

Batch 1/625  loss_pxl 0.0833  loss_adv 0.8924  loss_D 0.0886
Batch 2/625  loss_pxl 0.0928  loss_adv 0.1720  loss_D 0.2724
Batch 4/625  loss_pxl 0.0929  loss_adv 0.1261  loss_D 0.3781
Batch 8/625  loss_pxl 0.0942  loss_adv 0.4705  loss_D 0.2249
Batch 16/625  loss_pxl 0.0920  loss_adv 0.4142  loss_D 0.2011
Batch 32/625  loss_pxl 0.0930  loss_adv 0.3339  loss_D 0.2101
Batch 64/625  loss_pxl 0.0899  loss_adv 0.6482  loss_D 0.1767
Batch 128/625  loss_pxl 0.0901  loss_adv 0.2988  loss_D 0.2311
Batch 256/625  loss_pxl 0.1181  loss_adv 0.3490  loss_D 0.1629
Batch 512/625  loss_pxl 0.0939  loss_adv 0.3965  loss_D 0.1298
Epoch 31/100  train  loss_pxl 0.0930  loss_adv 0.4684  loss_D 0.1816
Epoch 31/100  val  loss_pxl 0.1016  loss_adv 0.4529  loss_D 0.1638

Batch 1/625  loss_pxl 0.0946  loss_adv 0.3487  loss_D 0.1570
Batch 2/625  loss_pxl 0.0950  loss_adv 0.5362  loss_D 0.1873
Batch 4/625  loss_pxl 0.0870  loss_adv 0.3818  loss_D 0.1642
Batch 8/625  loss_pxl 0.0840  loss_adv 0.4700  loss_D 0.1497
Batch 16/625  loss_pxl 0.0898  loss_adv 0.3466  loss_D 0.1684
Batch 32/625  loss_pxl 0.0951  loss_adv 0.6069  loss_D 0.1601
Batch 64/625  loss_pxl 0.1004  loss_adv 0.5391  loss_D 0.1272
Batch 128/625  loss_pxl 0.0850  loss_adv 0.5107  loss_D 0.2243
Batch 256/625  loss_pxl 0.0932  loss_adv 0.4199  loss_D 0.1463
Batch 512/625  loss_pxl 0.0863  loss_adv 0.7529  loss_D 0.1605
Epoch 32/100  train  loss_pxl 0.0922  loss_adv 0.4928  loss_D 0.1683
Epoch 32/100  val  loss_pxl 0.0988  loss_adv 0.4834  loss_D 0.1406

Batch 1/625  loss_pxl 0.0961  loss_adv 0.3092  loss_D 0.2024
Batch 2/625  loss_pxl 0.0914  loss_adv 0.6401  loss_D 0.2340
Batch 4/625  loss_pxl 0.1016  loss_adv 0.4889  loss_D 0.1330
Batch 8/625  loss_pxl 0.0982  loss_adv 0.5568  loss_D 0.1543
Batch 16/625  loss_pxl 0.0958  loss_adv 0.4022  loss_D 0.1394
Batch 32/625  loss_pxl 0.0821  loss_adv 0.4957  loss_D 0.1661
Batch 64/625  loss_pxl 0.0874  loss_adv 0.2386  loss_D 0.1684
Batch 128/625  loss_pxl 0.0887  loss_adv 0.3714  loss_D 0.1769
Batch 256/625  loss_pxl 0.0797  loss_adv 0.6190  loss_D 0.2399
Batch 512/625  loss_pxl 0.0905  loss_adv 0.6710  loss_D 0.1779
Epoch 33/100  train  loss_pxl 0.0918  loss_adv 0.5018  loss_D 0.1655
Epoch 33/100  val  loss_pxl 0.1018  loss_adv 0.3523  loss_D 0.1706

Batch 1/625  loss_pxl 0.0784  loss_adv 0.3500  loss_D 0.1891
Batch 2/625  loss_pxl 0.0843  loss_adv 0.4383  loss_D 0.1956
Batch 4/625  loss_pxl 0.0757  loss_adv 0.3463  loss_D 0.2556
```

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Batch 8/625  loss_pxl 0.0915  loss_adv 0.5160  loss_D 0.1575
Batch 16/625  loss_pxl 0.0934  loss_adv 0.4446  loss_D 0.1407
Batch 32/625  loss_pxl 0.0923  loss_adv 0.6792  loss_D 0.2373
Batch 64/625  loss_pxl 0.0843  loss_adv 0.6256  loss_D 0.1723
Batch 128/625  loss_pxl 0.0930  loss_adv 0.3449  loss_D 0.1894
Batch 256/625  loss_pxl 0.0875  loss_adv 0.4270  loss_D 0.1763
Batch 512/625  loss_pxl 0.0995  loss_adv 0.3180  loss_D 0.1833
Epoch 34/100  train  loss_pxl 0.0913  loss_adv 0.5083  loss_D 0.1622
Epoch 34/100  val  loss_pxl 0.1039  loss_adv 0.4621  loss_D 0.1499

Batch 1/625  loss_pxl 0.0983  loss_adv 0.3860  loss_D 0.1771
Batch 2/625  loss_pxl 0.0967  loss_adv 0.5042  loss_D 0.1317
Batch 4/625  loss_pxl 0.0992  loss_adv 0.4491  loss_D 0.2041
Batch 8/625  loss_pxl 0.0958  loss_adv 0.5242  loss_D 0.1557
Batch 16/625  loss_pxl 0.0916  loss_adv 0.4793  loss_D 0.1599
Batch 32/625  loss_pxl 0.0881  loss_adv 0.5130  loss_D 0.1349
Batch 64/625  loss_pxl 0.0812  loss_adv 0.5995  loss_D 0.1523
Batch 128/625  loss_pxl 0.0960  loss_adv 0.5078  loss_D 0.1286
Batch 256/625  loss_pxl 0.0841  loss_adv 0.4228  loss_D 0.2018
Batch 512/625  loss_pxl 0.1025  loss_adv 0.6658  loss_D 0.0780
Epoch 35/100  train  loss_pxl 0.0906  loss_adv 0.5135  loss_D 0.1605
Epoch 35/100  val  loss_pxl 0.1006  loss_adv 0.6376  loss_D 0.1317

Batch 1/625  loss_pxl 0.0918  loss_adv 0.6371  loss_D 0.1255
Batch 2/625  loss_pxl 0.0870  loss_adv 0.4205  loss_D 0.1546
Batch 4/625  loss_pxl 0.0795  loss_adv 0.5367  loss_D 0.1339
Batch 8/625  loss_pxl 0.0874  loss_adv 0.3870  loss_D 0.1686
Batch 16/625  loss_pxl 0.0852  loss_adv 0.4425  loss_D 0.1770
Batch 32/625  loss_pxl 0.1001  loss_adv 0.5576  loss_D 0.0761
Batch 64/625  loss_pxl 0.0828  loss_adv 0.5511  loss_D 0.1504
Batch 128/625  loss_pxl 0.0931  loss_adv 0.6874  loss_D 0.1213
Batch 256/625  loss_pxl 0.0859  loss_adv 0.5188  loss_D 0.1719
Batch 512/625  loss_pxl 0.0995  loss_adv 0.4475  loss_D 0.1434
Epoch 36/100  train  loss_pxl 0.0902  loss_adv 0.5201  loss_D 0.1591
Epoch 36/100  val  loss_pxl 0.1002  loss_adv 0.4828  loss_D 0.1512

Batch 1/625  loss_pxl 0.1066  loss_adv 0.4291  loss_D 0.1166
Batch 2/625  loss_pxl 0.0987  loss_adv 0.8563  loss_D 0.1614
Batch 4/625  loss_pxl 0.0835  loss_adv 0.4438  loss_D 0.2323
Batch 8/625  loss_pxl 0.0837  loss_adv 0.4434  loss_D 0.1854
Batch 16/625  loss_pxl 0.0854  loss_adv 0.6548  loss_D 0.1336
Batch 32/625  loss_pxl 0.0974  loss_adv 0.4731  loss_D 0.1307
Batch 64/625  loss_pxl 0.0846  loss_adv 0.6654  loss_D 0.1506
Batch 128/625  loss_pxl 0.0874  loss_adv 0.3555  loss_D 0.1827
Batch 256/625  loss_pxl 0.0927  loss_adv 0.3077  loss_D 0.1492
Batch 512/625  loss_pxl 0.1061  loss_adv 0.4581  loss_D 0.1269
Epoch 37/100  train  loss_pxl 0.0894  loss_adv 0.5474  loss_D 0.2059
Epoch 37/100  val  loss_pxl 0.0984  loss_adv 0.3407  loss_D 0.1804
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Batch 1/625  loss_pxl 0.0877  loss_adv 0.3384  loss_D 0.1747
Batch 2/625  loss_pxl 0.0780  loss_adv 0.3711  loss_D 0.1785
Batch 4/625  loss_pxl 0.0855  loss_adv 0.3803  loss_D 0.1845
Batch 8/625  loss_pxl 0.0747  loss_adv 0.3275  loss_D 0.1861
Batch 16/625  loss_pxl 0.0839  loss_adv 0.3527  loss_D 0.1791
Batch 32/625  loss_pxl 0.0787  loss_adv 0.5037  loss_D 0.1900
Batch 64/625  loss_pxl 0.0797  loss_adv 0.4217  loss_D 0.1904
Batch 128/625  loss_pxl 0.0956  loss_adv 0.3748  loss_D 0.1720
Batch 256/625  loss_pxl 0.0804  loss_adv 0.3117  loss_D 0.2164
Batch 512/625  loss_pxl 0.0819  loss_adv 0.6038  loss_D 0.1844
Epoch 38/100  train  loss_pxl 0.0869  loss_adv 0.4305  loss_D 0.1755
Epoch 38/100  val  loss_pxl 0.0995  loss_adv 0.5729  loss_D 0.1613

Batch 1/625  loss_pxl 0.0966  loss_adv 0.4931  loss_D 0.1628
Batch 2/625  loss_pxl 0.0882  loss_adv 0.5194  loss_D 0.1913
Batch 4/625  loss_pxl 0.1027  loss_adv 0.5648  loss_D 0.1407
Batch 8/625  loss_pxl 0.0911  loss_adv 0.6825  loss_D 0.1596
Batch 16/625  loss_pxl 0.0840  loss_adv 0.3933  loss_D 0.1592
Batch 32/625  loss_pxl 0.0907  loss_adv 0.5359  loss_D 0.1567
Batch 64/625  loss_pxl 0.0922  loss_adv 0.3634  loss_D 0.1504
Batch 128/625  loss_pxl 0.0951  loss_adv 0.3488  loss_D 0.1247
Batch 256/625  loss_pxl 0.0794  loss_adv 0.4910  loss_D 0.1622
Batch 512/625  loss_pxl 0.0897  loss_adv 0.3908  loss_D 0.1620
Epoch 39/100  train  loss_pxl 0.0876  loss_adv 0.4759  loss_D 0.1647
Epoch 39/100  val  loss_pxl 0.0995  loss_adv 0.4343  loss_D 0.1589

Batch 1/625  loss_pxl 0.0803  loss_adv 0.4777  loss_D 0.1200
Batch 2/625  loss_pxl 0.0746  loss_adv 0.4731  loss_D 0.1829
Batch 4/625  loss_pxl 0.0831  loss_adv 0.4714  loss_D 0.1947
Batch 8/625  loss_pxl 0.0972  loss_adv 0.6628  loss_D 0.1170
Batch 16/625  loss_pxl 0.0856  loss_adv 0.4424  loss_D 0.1512
Batch 32/625  loss_pxl 0.0810  loss_adv 0.5026  loss_D 0.1672
Batch 64/625  loss_pxl 0.0919  loss_adv 0.6366  loss_D 0.1203
Batch 128/625  loss_pxl 0.0886  loss_adv 0.4626  loss_D 0.1500
Batch 256/625  loss_pxl 0.0901  loss_adv 0.5989  loss_D 0.1201
Batch 512/625  loss_pxl 0.0841  loss_adv 0.5006  loss_D 0.1646
Epoch 40/100  train  loss_pxl 0.0876  loss_adv 0.4939  loss_D 0.1620
Epoch 40/100  val  loss_pxl 0.1019  loss_adv 0.6065  loss_D 0.1622

Batch 1/625  loss_pxl 0.0890  loss_adv 0.5388  loss_D 0.1525
Batch 2/625  loss_pxl 0.0833  loss_adv 0.5948  loss_D 0.2081
Batch 4/625  loss_pxl 0.0916  loss_adv 0.5845  loss_D 0.1407
Batch 8/625  loss_pxl 0.0816  loss_adv 0.5740  loss_D 0.1687
Batch 16/625  loss_pxl 0.0792  loss_adv 0.5465  loss_D 0.1395
Batch 32/625  loss_pxl 0.0924  loss_adv 0.5409  loss_D 0.1035
Batch 64/625  loss_pxl 0.0889  loss_adv 0.5029  loss_D 0.1556
Batch 128/625  loss_pxl 0.0846  loss_adv 0.5913  loss_D 0.1404
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Batch 256/625  loss_pxl 0.0937  loss_adv 0.6334  loss_D 0.1145
Batch 512/625  loss_pxl 0.0800  loss_adv 0.4719  loss_D 0.1823
Epoch 41/100  train  loss_pxl 0.0871  loss_adv 0.5028  loss_D 0.1627
Epoch 41/100  val  loss_pxl 0.1008  loss_adv 0.2827  loss_D 0.2140

Batch 1/625  loss_pxl 0.0810  loss_adv 0.2454  loss_D 0.2056
Batch 2/625  loss_pxl 0.0940  loss_adv 0.7257  loss_D 0.1784
Batch 4/625  loss_pxl 0.0890  loss_adv 0.3196  loss_D 0.2017
Batch 8/625  loss_pxl 0.0945  loss_adv 0.5933  loss_D 0.1427
Batch 16/625  loss_pxl 0.0853  loss_adv 0.5321  loss_D 0.1228
Batch 32/625  loss_pxl 0.0817  loss_adv 0.5228  loss_D 0.1518
Batch 64/625  loss_pxl 0.0926  loss_adv 0.8138  loss_D 0.1425
Batch 128/625  loss_pxl 0.0910  loss_adv 0.4274  loss_D 0.1339
Batch 256/625  loss_pxl 0.0969  loss_adv 0.5511  loss_D 0.1086
Batch 512/625  loss_pxl 0.0920  loss_adv 0.5653  loss_D 0.0988
Epoch 42/100  train  loss_pxl 0.0869  loss_adv 0.5074  loss_D 0.1623
Epoch 42/100  val  loss_pxl 0.1003  loss_adv 0.5417  loss_D 0.1558

Batch 1/625  loss_pxl 0.1018  loss_adv 0.4680  loss_D 0.1314
Batch 2/625  loss_pxl 0.1032  loss_adv 0.7457  loss_D 0.1356
Batch 4/625  loss_pxl 0.0915  loss_adv 0.4845  loss_D 0.2090
Batch 8/625  loss_pxl 0.0845  loss_adv 0.6018  loss_D 0.1463
Batch 16/625  loss_pxl 0.0865  loss_adv 0.6274  loss_D 0.1464
Batch 32/625  loss_pxl 0.0916  loss_adv 0.3272  loss_D 0.1842
Batch 64/625  loss_pxl 0.0823  loss_adv 0.5141  loss_D 0.1481
Batch 128/625  loss_pxl 0.0815  loss_adv 0.6396  loss_D 0.1646
Batch 256/625  loss_pxl 0.0924  loss_adv 0.7063  loss_D 0.1137
Batch 512/625  loss_pxl 0.0876  loss_adv 0.4767  loss_D 0.1391
Epoch 43/100  train  loss_pxl 0.0866  loss_adv 0.5092  loss_D 0.1616
Epoch 43/100  val  loss_pxl 0.1019  loss_adv 0.4853  loss_D 0.1929

Batch 1/625  loss_pxl 0.0775  loss_adv 0.5027  loss_D 0.1949
Batch 2/625  loss_pxl 0.0900  loss_adv 0.4449  loss_D 0.1427
Batch 4/625  loss_pxl 0.0824  loss_adv 0.5851  loss_D 0.1726
Batch 8/625  loss_pxl 0.0836  loss_adv 0.3667  loss_D 0.1969
Batch 16/625  loss_pxl 0.0907  loss_adv 0.6056  loss_D 0.1213
Batch 32/625  loss_pxl 0.0848  loss_adv 0.6861  loss_D 0.1287
Batch 64/625  loss_pxl 0.0786  loss_adv 0.2732  loss_D 0.2606
Batch 128/625  loss_pxl 0.0753  loss_adv 0.6008  loss_D 0.1868
Batch 256/625  loss_pxl 0.0906  loss_adv 0.4053  loss_D 0.1466
Batch 512/625  loss_pxl 0.0829  loss_adv 0.4969  loss_D 0.1847
Epoch 44/100  train  loss_pxl 0.0859  loss_adv 0.5115  loss_D 0.1615
Epoch 44/100  val  loss_pxl 0.1026  loss_adv 0.2308  loss_D 0.2512

Batch 1/625  loss_pxl 0.0735  loss_adv 0.2967  loss_D 0.2288
Batch 2/625  loss_pxl 0.0856  loss_adv 0.5226  loss_D 0.1789
Batch 4/625  loss_pxl 0.0871  loss_adv 0.7525  loss_D 0.1589
Batch 8/625  loss_pxl 0.0876  loss_adv 0.3463  loss_D 0.1529
```

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Batch 16/625  loss_pxl 0.0862  loss_adv 0.4501  loss_D 0.1358
Batch 32/625  loss_pxl 0.0797  loss_adv 0.3581  loss_D 0.1788
Batch 64/625  loss_pxl 0.0830  loss_adv 0.5886  loss_D 0.1142
Batch 128/625  loss_pxl 0.0847  loss_adv 0.6429  loss_D 0.1286
Batch 256/625  loss_pxl 0.0875  loss_adv 0.6004  loss_D 0.1375
Batch 512/625  loss_pxl 0.0893  loss_adv 0.5591  loss_D 0.1388
Epoch 45/100  train  loss_pxl 0.0856  loss_adv 0.5138  loss_D 0.1613
Epoch 45/100  val  loss_pxl 0.0982  loss_adv 0.4773  loss_D 0.1422

Batch 1/625  loss_pxl 0.0921  loss_adv 0.4649  loss_D 0.1445
Batch 2/625  loss_pxl 0.0860  loss_adv 0.5280  loss_D 0.1479
Batch 4/625  loss_pxl 0.0925  loss_adv 0.5065  loss_D 0.1278
Batch 8/625  loss_pxl 0.0795  loss_adv 0.5429  loss_D 0.1475
Batch 16/625  loss_pxl 0.0735  loss_adv 0.5726  loss_D 0.2002
Batch 32/625  loss_pxl 0.0798  loss_adv 0.5438  loss_D 0.1791
Batch 64/625  loss_pxl 0.0754  loss_adv 0.4211  loss_D 0.1930
Batch 128/625  loss_pxl 0.0893  loss_adv 0.6570  loss_D 0.1463
Batch 256/625  loss_pxl 0.0738  loss_adv 0.4524  loss_D 0.1935
Batch 512/625  loss_pxl 0.0853  loss_adv 0.3716  loss_D 0.1911
Epoch 46/100  train  loss_pxl 0.0854  loss_adv 0.5555  loss_D 0.2781
Epoch 46/100  val  loss_pxl 0.0970  loss_adv 0.4219  loss_D 0.1725

Batch 1/625  loss_pxl 0.0776  loss_adv 0.4298  loss_D 0.1758
Batch 2/625  loss_pxl 0.0750  loss_adv 0.3711  loss_D 0.1901
Batch 4/625  loss_pxl 0.0850  loss_adv 0.3861  loss_D 0.1748
Batch 8/625  loss_pxl 0.0865  loss_adv 0.4106  loss_D 0.1922
Batch 16/625  loss_pxl 0.0818  loss_adv 0.3661  loss_D 0.1939
Batch 32/625  loss_pxl 0.0808  loss_adv 0.4468  loss_D 0.1898
Batch 64/625  loss_pxl 0.0919  loss_adv 0.4727  loss_D 0.1402
Batch 128/625  loss_pxl 0.0700  loss_adv 0.3968  loss_D 0.2121
Batch 256/625  loss_pxl 0.0884  loss_adv 0.3209  loss_D 0.1993
Batch 512/625  loss_pxl 0.0850  loss_adv 0.5232  loss_D 0.1427
Epoch 47/100  train  loss_pxl 0.0822  loss_adv 0.4119  loss_D 0.1809
Epoch 47/100  val  loss_pxl 0.0974  loss_adv 0.4000  loss_D 0.1799

Batch 1/625  loss_pxl 0.0770  loss_adv 0.4374  loss_D 0.1885
Batch 2/625  loss_pxl 0.0779  loss_adv 0.4401  loss_D 0.1850
Batch 4/625  loss_pxl 0.0900  loss_adv 0.5942  loss_D 0.1307
Batch 8/625  loss_pxl 0.0827  loss_adv 0.4123  loss_D 0.1728
Batch 16/625  loss_pxl 0.0876  loss_adv 0.3555  loss_D 0.1772
Batch 32/625  loss_pxl 0.0830  loss_adv 0.4628  loss_D 0.1484
Batch 64/625  loss_pxl 0.0733  loss_adv 0.4415  loss_D 0.1639
Batch 128/625  loss_pxl 0.0775  loss_adv 0.3272  loss_D 0.2068
Batch 256/625  loss_pxl 0.0786  loss_adv 0.3701  loss_D 0.1488
Batch 512/625  loss_pxl 0.0974  loss_adv 0.4995  loss_D 0.1315
Epoch 48/100  train  loss_pxl 0.0825  loss_adv 0.4392  loss_D 0.1736
Epoch 48/100  val  loss_pxl 0.0988  loss_adv 0.6219  loss_D 0.1620
```

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Batch 1/625  loss_pxl 0.0799  loss_adv 0.5216  loss_D 0.1907
Batch 2/625  loss_pxl 0.0777  loss_adv 0.4909  loss_D 0.1709
Batch 4/625  loss_pxl 0.0829  loss_adv 0.5328  loss_D 0.1593
Batch 8/625  loss_pxl 0.0802  loss_adv 0.3958  loss_D 0.1653
Batch 16/625  loss_pxl 0.0853  loss_adv 0.4483  loss_D 0.1419
Batch 32/625  loss_pxl 0.0837  loss_adv 0.5052  loss_D 0.1542
Batch 64/625  loss_pxl 0.0789  loss_adv 0.5410  loss_D 0.2167
Batch 128/625  loss_pxl 0.0864  loss_adv 0.3518  loss_D 0.1899
Batch 256/625  loss_pxl 0.0802  loss_adv 0.4443  loss_D 0.1996
Batch 512/625  loss_pxl 0.0840  loss_adv 0.4094  loss_D 0.1865
Epoch 49/100  train  loss_pxl 0.0827  loss_adv 0.4664  loss_D 0.1664
Epoch 49/100  val  loss_pxl 0.0983  loss_adv 0.4862  loss_D 0.1361

Batch 1/625  loss_pxl 0.0984  loss_adv 0.4226  loss_D 0.1129
Batch 2/625  loss_pxl 0.0869  loss_adv 0.5409  loss_D 0.1484
Batch 4/625  loss_pxl 0.0819  loss_adv 0.4766  loss_D 0.2011
Batch 8/625  loss_pxl 0.0788  loss_adv 0.4719  loss_D 0.1752
Batch 16/625  loss_pxl 0.0797  loss_adv 0.5185  loss_D 0.1906
Batch 32/625  loss_pxl 0.0751  loss_adv 0.4416  loss_D 0.1726
Batch 64/625  loss_pxl 0.0821  loss_adv 0.3520  loss_D 0.1706
Batch 128/625  loss_pxl 0.0832  loss_adv 0.5642  loss_D 0.1691
Batch 256/625  loss_pxl 0.0862  loss_adv 0.3819  loss_D 0.1876
Batch 512/625  loss_pxl 0.0826  loss_adv 0.3616  loss_D 0.1773
Epoch 50/100  train  loss_pxl 0.0828  loss_adv 0.4855  loss_D 0.1633
Epoch 50/100  val  loss_pxl 0.1001  loss_adv 0.5443  loss_D 0.1771

Batch 1/625  loss_pxl 0.0825  loss_adv 0.6981  loss_D 0.1285
Batch 2/625  loss_pxl 0.0773  loss_adv 0.4632  loss_D 0.1578
Batch 4/625  loss_pxl 0.0794  loss_adv 0.5992  loss_D 0.1500
Batch 8/625  loss_pxl 0.0771  loss_adv 0.5825  loss_D 0.1778
Batch 16/625  loss_pxl 0.0800  loss_adv 0.4835  loss_D 0.1601
Batch 32/625  loss_pxl 0.0797  loss_adv 0.4955  loss_D 0.1460
Batch 64/625  loss_pxl 0.0898  loss_adv 0.4178  loss_D 0.1304
Batch 128/625  loss_pxl 0.0796  loss_adv 0.5770  loss_D 0.1397
Batch 256/625  loss_pxl 0.0779  loss_adv 0.6115  loss_D 0.1805
Batch 512/625  loss_pxl 0.0904  loss_adv 0.4405  loss_D 0.2023
Epoch 51/100  train  loss_pxl 0.0825  loss_adv 0.4957  loss_D 0.1636
Epoch 51/100  val  loss_pxl 0.1031  loss_adv 0.4365  loss_D 0.1852

Batch 1/625  loss_pxl 0.0724  loss_adv 0.4234  loss_D 0.1959
Batch 2/625  loss_pxl 0.0880  loss_adv 0.4395  loss_D 0.1739
Batch 4/625  loss_pxl 0.0848  loss_adv 0.3545  loss_D 0.1343
Batch 8/625  loss_pxl 0.0837  loss_adv 0.5080  loss_D 0.1574
Batch 16/625  loss_pxl 0.0739  loss_adv 0.5221  loss_D 0.1627
Batch 32/625  loss_pxl 0.0766  loss_adv 0.5064  loss_D 0.1618
Batch 64/625  loss_pxl 0.0930  loss_adv 0.5897  loss_D 0.1303
Batch 128/625  loss_pxl 0.0721  loss_adv 0.4466  loss_D 0.1855
Batch 256/625  loss_pxl 0.0867  loss_adv 0.4485  loss_D 0.1470
```

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Batch 512/625  loss_pxl 0.0769  loss_adv 0.6420  loss_D 0.1714
Epoch 52/100  train  loss_pxl 0.0824  loss_adv 0.4998  loss_D 0.1634
Epoch 52/100  val  loss_pxl 0.0978  loss_adv 0.6812  loss_D 0.1358

Batch 1/625  loss_pxl 0.0834  loss_adv 0.5667  loss_D 0.1386
Batch 2/625  loss_pxl 0.0763  loss_adv 0.6399  loss_D 0.1746
Batch 4/625  loss_pxl 0.0826  loss_adv 0.8208  loss_D 0.1860
Batch 8/625  loss_pxl 0.0873  loss_adv 0.4648  loss_D 0.1171
Batch 16/625  loss_pxl 0.0765  loss_adv 0.3993  loss_D 0.2229
Batch 32/625  loss_pxl 0.0901  loss_adv 0.5710  loss_D 0.1229
Batch 64/625  loss_pxl 0.0921  loss_adv 0.4138  loss_D 0.1604
Batch 128/625  loss_pxl 0.0810  loss_adv 0.2819  loss_D 0.2231
Batch 256/625  loss_pxl 0.0850  loss_adv 0.4364  loss_D 0.1449
Batch 512/625  loss_pxl 0.0846  loss_adv 0.4848  loss_D 0.1311
Epoch 53/100  train  loss_pxl 0.0819  loss_adv 0.5041  loss_D 0.1634
Epoch 53/100  val  loss_pxl 0.0992  loss_adv 0.4569  loss_D 0.1512

Batch 1/625  loss_pxl 0.0747  loss_adv 0.4871  loss_D 0.1491
Batch 2/625  loss_pxl 0.0820  loss_adv 0.4766  loss_D 0.1352
Batch 4/625  loss_pxl 0.0817  loss_adv 0.5428  loss_D 0.1182
Batch 8/625  loss_pxl 0.0961  loss_adv 0.3773  loss_D 0.1869
Batch 16/625  loss_pxl 0.0802  loss_adv 0.3559  loss_D 0.1622
Batch 32/625  loss_pxl 0.0722  loss_adv 0.5163  loss_D 0.1788
Batch 64/625  loss_pxl 0.0924  loss_adv 0.3722  loss_D 0.1593
Batch 128/625  loss_pxl 0.0799  loss_adv 0.8013  loss_D 0.2320
Batch 256/625  loss_pxl 0.0823  loss_adv 0.4215  loss_D 0.1369
Batch 512/625  loss_pxl 0.0738  loss_adv 0.7082  loss_D 0.1993
Epoch 54/100  train  loss_pxl 0.0817  loss_adv 0.5074  loss_D 0.1626
Epoch 54/100  val  loss_pxl 0.0985  loss_adv 0.6701  loss_D 0.1761

Batch 1/625  loss_pxl 0.0801  loss_adv 0.7642  loss_D 0.1518
Batch 2/625  loss_pxl 0.0813  loss_adv 0.4172  loss_D 0.1146
Batch 4/625  loss_pxl 0.0752  loss_adv 0.6778  loss_D 0.2372
Batch 8/625  loss_pxl 0.0784  loss_adv 0.4945  loss_D 0.1301
Batch 16/625  loss_pxl 0.0855  loss_adv 0.6019  loss_D 0.1365
Batch 32/625  loss_pxl 0.0902  loss_adv 0.5245  loss_D 0.1077
Batch 64/625  loss_pxl 0.0783  loss_adv 0.4512  loss_D 0.1909
Batch 128/625  loss_pxl 0.0727  loss_adv 0.4195  loss_D 0.2048
Batch 256/625  loss_pxl 0.0821  loss_adv 0.4060  loss_D 0.1991
Batch 512/625  loss_pxl 0.0820  loss_adv 0.3480  loss_D 0.1601
Epoch 55/100  train  loss_pxl 0.0813  loss_adv 0.5087  loss_D 0.1626
Epoch 55/100  val  loss_pxl 0.1010  loss_adv 0.3409  loss_D 0.1815

Batch 1/625  loss_pxl 0.0708  loss_adv 0.3578  loss_D 0.1556
Batch 2/625  loss_pxl 0.0789  loss_adv 0.4705  loss_D 0.1752
Batch 4/625  loss_pxl 0.0836  loss_adv 0.5019  loss_D 0.1286
Batch 8/625  loss_pxl 0.0765  loss_adv 0.2947  loss_D 0.1989
Batch 16/625  loss_pxl 0.0869  loss_adv 0.4941  loss_D 0.1711
```

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Batch 32/625  loss_pxl 0.0770  loss_adv 0.6803  loss_D 0.1552
Batch 64/625  loss_pxl 0.0771  loss_adv 0.2770  loss_D 0.2034
Batch 128/625  loss_pxl 0.0823  loss_adv 0.7456  loss_D 0.1417
Batch 256/625  loss_pxl 0.0775  loss_adv 0.6642  loss_D 0.1311
Batch 512/625  loss_pxl 0.0813  loss_adv 0.5519  loss_D 0.1651
Epoch 56/100  train  loss_pxl 0.0809  loss_adv 0.5124  loss_D 0.1609
Epoch 56/100  val  loss_pxl 0.0995  loss_adv 0.4172  loss_D 0.1641

Batch 1/625  loss_pxl 0.0750  loss_adv 0.3864  loss_D 0.1963
Batch 2/625  loss_pxl 0.0762  loss_adv 0.4293  loss_D 0.1691
Batch 4/625  loss_pxl 0.0857  loss_adv 0.4496  loss_D 0.1570
Batch 8/625  loss_pxl 0.0783  loss_adv 0.3734  loss_D 0.1466
Batch 16/625  loss_pxl 0.0765  loss_adv 0.2676  loss_D 0.2108
Batch 32/625  loss_pxl 0.0759  loss_adv 0.5267  loss_D 0.2041
Batch 64/625  loss_pxl 0.0774  loss_adv 0.5571  loss_D 0.1701
Batch 128/625  loss_pxl 0.0734  loss_adv 0.3223  loss_D 0.2211
Batch 256/625  loss_pxl 0.0894  loss_adv 0.6300  loss_D 0.1198
Batch 512/625  loss_pxl 0.0774  loss_adv 0.4988  loss_D 0.1626
Epoch 57/100  train  loss_pxl 0.0808  loss_adv 0.5146  loss_D 0.1607
Epoch 57/100  val  loss_pxl 0.0990  loss_adv 0.5738  loss_D 0.1501

Batch 1/625  loss_pxl 0.0932  loss_adv 0.6073  loss_D 0.1195
Batch 2/625  loss_pxl 0.0803  loss_adv 0.5383  loss_D 0.1983
Batch 4/625  loss_pxl 0.0943  loss_adv 0.5387  loss_D 0.1143
Batch 8/625  loss_pxl 0.0645  loss_adv 0.3549  loss_D 0.2048
Batch 16/625  loss_pxl 0.0727  loss_adv 0.2503  loss_D 0.2267
Batch 32/625  loss_pxl 0.0725  loss_adv 0.7052  loss_D 0.1778
Batch 64/625  loss_pxl 0.0878  loss_adv 0.7032  loss_D 0.1074
Batch 128/625  loss_pxl 0.0752  loss_adv 0.7377  loss_D 0.2221
Batch 256/625  loss_pxl 0.0769  loss_adv 0.3102  loss_D 0.2075
Batch 512/625  loss_pxl 0.0819  loss_adv 0.4076  loss_D 0.1594
Epoch 58/100  train  loss_pxl 0.0791  loss_adv 0.4955  loss_D 0.2298
Epoch 58/100  val  loss_pxl 0.0991  loss_adv 0.3979  loss_D 0.1818

Batch 1/625  loss_pxl 0.0755  loss_adv 0.4330  loss_D 0.1805
Batch 2/625  loss_pxl 0.0782  loss_adv 0.3420  loss_D 0.2208
Batch 4/625  loss_pxl 0.0835  loss_adv 0.5570  loss_D 0.1658
Batch 8/625  loss_pxl 0.0755  loss_adv 0.4023  loss_D 0.1630
Batch 16/625  loss_pxl 0.0750  loss_adv 0.4631  loss_D 0.1726
Batch 32/625  loss_pxl 0.0734  loss_adv 0.4570  loss_D 0.1921
Batch 64/625  loss_pxl 0.0796  loss_adv 0.4182  loss_D 0.1808
Batch 128/625  loss_pxl 0.0802  loss_adv 0.3242  loss_D 0.1775
Batch 256/625  loss_pxl 0.0775  loss_adv 0.4587  loss_D 0.1649
Batch 512/625  loss_pxl 0.0761  loss_adv 0.5373  loss_D 0.1757
Epoch 59/100  train  loss_pxl 0.0781  loss_adv 0.4234  loss_D 0.1787
Epoch 59/100  val  loss_pxl 0.0978  loss_adv 0.3508  loss_D 0.1713

Batch 1/625  loss_pxl 0.0768  loss_adv 0.3883  loss_D 0.1567
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Batch 2/625  loss_pxl 0.0748  loss_adv 0.4348  loss_D 0.1662
Batch 4/625  loss_pxl 0.0796  loss_adv 0.5594  loss_D 0.1724
Batch 8/625  loss_pxl 0.0801  loss_adv 0.3620  loss_D 0.1918
Batch 16/625  loss_pxl 0.0775  loss_adv 0.3880  loss_D 0.1696
Batch 32/625  loss_pxl 0.0751  loss_adv 0.4972  loss_D 0.1603
Batch 64/625  loss_pxl 0.0819  loss_adv 0.5568  loss_D 0.1688
Batch 128/625  loss_pxl 0.0790  loss_adv 0.3369  loss_D 0.1567
Batch 256/625  loss_pxl 0.0840  loss_adv 0.4043  loss_D 0.1233
Batch 512/625  loss_pxl 0.0811  loss_adv 0.4579  loss_D 0.1572
Epoch 60/100  train  loss_pxl 0.0786  loss_adv 0.4659  loss_D 0.1678
Epoch 60/100  val  loss_pxl 0.0989  loss_adv 0.4818  loss_D 0.1753

Batch 1/625  loss_pxl 0.0754  loss_adv 0.5231  loss_D 0.1752
Batch 2/625  loss_pxl 0.0829  loss_adv 0.2950  loss_D 0.2572
Batch 4/625  loss_pxl 0.0970  loss_adv 0.3372  loss_D 0.4072
Batch 8/625  loss_pxl 0.0869  loss_adv 0.1514  loss_D 0.3611
Batch 16/625  loss_pxl 0.0858  loss_adv 0.3585  loss_D 0.2426
Batch 32/625  loss_pxl 0.0947  loss_adv 0.3377  loss_D 0.2171
Batch 64/625  loss_pxl 0.0898  loss_adv 0.4305  loss_D 0.2171
Batch 128/625  loss_pxl 0.0856  loss_adv 0.3673  loss_D 0.1920
Batch 256/625  loss_pxl 0.0823  loss_adv 0.3045  loss_D 0.2771
Batch 512/625  loss_pxl 0.0797  loss_adv 0.3346  loss_D 0.2693
Epoch 61/100  train  loss_pxl 0.0832  loss_adv 0.3503  loss_D 0.2199
Epoch 61/100  val  loss_pxl 0.1038  loss_adv 0.3035  loss_D 0.2221

Batch 1/625  loss_pxl 0.0859  loss_adv 0.2718  loss_D 0.2063
Batch 2/625  loss_pxl 0.0806  loss_adv 0.4001  loss_D 0.2472
Batch 4/625  loss_pxl 0.0784  loss_adv 0.4097  loss_D 0.2611
Batch 8/625  loss_pxl 0.0854  loss_adv 0.2456  loss_D 0.2062
Batch 16/625  loss_pxl 0.0913  loss_adv 0.3940  loss_D 0.1527
Batch 32/625  loss_pxl 0.0836  loss_adv 0.3720  loss_D 0.1966
Batch 64/625  loss_pxl 0.0790  loss_adv 0.2668  loss_D 0.2553
Batch 128/625  loss_pxl 0.0820  loss_adv 0.3466  loss_D 0.1990
Batch 256/625  loss_pxl 0.0703  loss_adv 0.3526  loss_D 0.2405
Batch 512/625  loss_pxl 0.0874  loss_adv 0.4120  loss_D 0.1816
Epoch 62/100  train  loss_pxl 0.0825  loss_adv 0.3662  loss_D 0.2124
Epoch 62/100  val  loss_pxl 0.1046  loss_adv 0.2321  loss_D 0.2604

Batch 1/625  loss_pxl 0.0831  loss_adv 0.2684  loss_D 0.2127
Batch 2/625  loss_pxl 0.0784  loss_adv 0.5946  loss_D 0.2175
Batch 4/625  loss_pxl 0.0757  loss_adv 0.3749  loss_D 0.2122
Batch 8/625  loss_pxl 0.0872  loss_adv 0.2525  loss_D 0.2120
Batch 16/625  loss_pxl 0.0835  loss_adv 0.1893  loss_D 0.2565
Batch 32/625  loss_pxl 0.0744  loss_adv 0.2470  loss_D 0.2213
Batch 64/625  loss_pxl 0.0831  loss_adv 0.2978  loss_D 0.2049
Batch 128/625  loss_pxl 0.0849  loss_adv 0.3871  loss_D 0.2169
Batch 256/625  loss_pxl 0.0883  loss_adv 0.3813  loss_D 0.1923
Batch 512/625  loss_pxl 0.0802  loss_adv 0.2235  loss_D 0.2115
```

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Epoch 63/100  train  loss_pxl 0.0822  loss_adv 0.3731  loss_D 0.2110
Epoch 63/100  val  loss_pxl 0.1034  loss_adv 0.2354  loss_D 0.2393

Batch 1/625  loss_pxl 0.0806  loss_adv 0.2259  loss_D 0.2385
Batch 2/625  loss_pxl 0.0872  loss_adv 0.4039  loss_D 0.2159
Batch 4/625  loss_pxl 0.0877  loss_adv 0.2956  loss_D 0.2057
Batch 8/625  loss_pxl 0.0818  loss_adv 0.4198  loss_D 0.1870
Batch 16/625  loss_pxl 0.0841  loss_adv 0.4672  loss_D 0.2310
Batch 32/625  loss_pxl 0.0838  loss_adv 0.2675  loss_D 0.2160
Batch 64/625  loss_pxl 0.0786  loss_adv 0.2825  loss_D 0.2034
Batch 128/625  loss_pxl 0.0879  loss_adv 0.3994  loss_D 0.1634
Batch 256/625  loss_pxl 0.0745  loss_adv 0.4553  loss_D 0.2885
Batch 512/625  loss_pxl 0.0781  loss_adv 0.4548  loss_D 0.2073
Epoch 64/100  train  loss_pxl 0.0821  loss_adv 0.3797  loss_D 0.2086
Epoch 64/100  val  loss_pxl 0.1029  loss_adv 0.3331  loss_D 0.2079

Batch 1/625  loss_pxl 0.0817  loss_adv 0.3624  loss_D 0.1678
Batch 2/625  loss_pxl 0.0818  loss_adv 0.5015  loss_D 0.1930
Batch 4/625  loss_pxl 0.0696  loss_adv 0.3742  loss_D 0.2391
Batch 8/625  loss_pxl 0.0760  loss_adv 0.5284  loss_D 0.2227
Batch 16/625  loss_pxl 0.0910  loss_adv 0.4581  loss_D 0.1790
Batch 32/625  loss_pxl 0.0822  loss_adv 0.5448  loss_D 0.1993
Batch 64/625  loss_pxl 0.0726  loss_adv 0.3078  loss_D 0.2308
Batch 128/625  loss_pxl 0.0808  loss_adv 0.4076  loss_D 0.2539
Batch 256/625  loss_pxl 0.0865  loss_adv 0.4407  loss_D 0.1926
Batch 512/625  loss_pxl 0.0739  loss_adv 0.3782  loss_D 0.2517
Epoch 65/100  train  loss_pxl 0.0816  loss_adv 0.3864  loss_D 0.2063
Epoch 65/100  val  loss_pxl 0.1079  loss_adv 0.2124  loss_D 0.2866

Batch 1/625  loss_pxl 0.0846  loss_adv 0.1859  loss_D 0.3188
Batch 2/625  loss_pxl 0.0878  loss_adv 0.4758  loss_D 0.2149
Batch 4/625  loss_pxl 0.0777  loss_adv 0.3025  loss_D 0.2291
Batch 8/625  loss_pxl 0.0735  loss_adv 0.5874  loss_D 0.1952
Batch 16/625  loss_pxl 0.0821  loss_adv 0.3085  loss_D 0.2123
Batch 32/625  loss_pxl 0.0877  loss_adv 0.3564  loss_D 0.1885
Batch 64/625  loss_pxl 0.0792  loss_adv 0.4056  loss_D 0.2107
Batch 128/625  loss_pxl 0.0753  loss_adv 0.4313  loss_D 0.2037
Batch 256/625  loss_pxl 0.0778  loss_adv 0.4251  loss_D 0.2010
Batch 512/625  loss_pxl 0.0890  loss_adv 0.4443  loss_D 0.1835
Epoch 66/100  train  loss_pxl 0.0814  loss_adv 0.3893  loss_D 0.2047
Epoch 66/100  val  loss_pxl 0.1029  loss_adv 0.3690  loss_D 0.1967

Batch 1/625  loss_pxl 0.0791  loss_adv 0.3620  loss_D 0.2036
Batch 2/625  loss_pxl 0.0814  loss_adv 0.4531  loss_D 0.2072
Batch 4/625  loss_pxl 0.0744  loss_adv 0.6544  loss_D 0.2899
Batch 8/625  loss_pxl 0.0814  loss_adv 0.3661  loss_D 0.2415
Batch 16/625  loss_pxl 0.0826  loss_adv 0.2607  loss_D 0.1951
Batch 32/625  loss_pxl 0.0747  loss_adv 0.4985  loss_D 0.2278
```

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Batch 64/625  loss_pxl 0.0779  loss_adv 0.4507  loss_D 0.1945
Batch 128/625  loss_pxl 0.0763  loss_adv 0.4820  loss_D 0.2147
Batch 256/625  loss_pxl 0.0828  loss_adv 0.3820  loss_D 0.2540
Batch 512/625  loss_pxl 0.0819  loss_adv 0.3909  loss_D 0.2074
Epoch 67/100  train  loss_pxl 0.0811  loss_adv 0.3936  loss_D 0.2031
Epoch 67/100  val  loss_pxl 0.1077  loss_adv 0.3572  loss_D 0.2380

Batch 1/625  loss_pxl 0.0874  loss_adv 0.4929  loss_D 0.1842
Batch 2/625  loss_pxl 0.0855  loss_adv 0.3363  loss_D 0.1828
Batch 4/625  loss_pxl 0.0851  loss_adv 0.5337  loss_D 0.1688
Batch 8/625  loss_pxl 0.0778  loss_adv 0.2993  loss_D 0.2415
Batch 16/625  loss_pxl 0.0746  loss_adv 0.3704  loss_D 0.2349
Batch 32/625  loss_pxl 0.0819  loss_adv 0.3525  loss_D 0.1689
Batch 64/625  loss_pxl 0.0790  loss_adv 0.3498  loss_D 0.2003
Batch 128/625  loss_pxl 0.0827  loss_adv 0.3743  loss_D 0.1767
Batch 256/625  loss_pxl 0.0847  loss_adv 0.6241  loss_D 0.2097
Batch 512/625  loss_pxl 0.0754  loss_adv 0.3626  loss_D 0.2087
Epoch 68/100  train  loss_pxl 0.0808  loss_adv 0.3998  loss_D 0.2014
Epoch 68/100  val  loss_pxl 0.1015  loss_adv 0.5415  loss_D 0.1937

Batch 1/625  loss_pxl 0.0745  loss_adv 0.4081  loss_D 0.2290
Batch 2/625  loss_pxl 0.0872  loss_adv 0.3356  loss_D 0.1874
Batch 4/625  loss_pxl 0.0799  loss_adv 0.2759  loss_D 0.2091
Batch 8/625  loss_pxl 0.0744  loss_adv 0.4349  loss_D 0.2214
Batch 16/625  loss_pxl 0.0731  loss_adv 0.3400  loss_D 0.2095
Batch 32/625  loss_pxl 0.0881  loss_adv 0.3279  loss_D 0.1938
Batch 64/625  loss_pxl 0.0786  loss_adv 0.3270  loss_D 0.1854
Batch 128/625  loss_pxl 0.0845  loss_adv 0.2315  loss_D 0.2349
Batch 256/625  loss_pxl 0.0795  loss_adv 0.4284  loss_D 0.1551
Batch 512/625  loss_pxl 0.0801  loss_adv 0.4573  loss_D 0.1912
Epoch 69/100  train  loss_pxl 0.0806  loss_adv 0.4037  loss_D 0.1999
Epoch 69/100  val  loss_pxl 0.1027  loss_adv 0.4201  loss_D 0.1763

Batch 1/625  loss_pxl 0.0864  loss_adv 0.3686  loss_D 0.1805
Batch 2/625  loss_pxl 0.0775  loss_adv 0.6185  loss_D 0.2340
Batch 4/625  loss_pxl 0.0833  loss_adv 0.4470  loss_D 0.2108
Batch 8/625  loss_pxl 0.0870  loss_adv 0.3523  loss_D 0.1738
Batch 16/625  loss_pxl 0.0848  loss_adv 0.5571  loss_D 0.1648
Batch 32/625  loss_pxl 0.0807  loss_adv 0.2831  loss_D 0.1918
Batch 64/625  loss_pxl 0.0782  loss_adv 0.3726  loss_D 0.1917
Batch 128/625  loss_pxl 0.0808  loss_adv 0.3088  loss_D 0.2105
Batch 256/625  loss_pxl 0.0791  loss_adv 0.3967  loss_D 0.2061
Batch 512/625  loss_pxl 0.0890  loss_adv 0.3189  loss_D 0.1912
Epoch 70/100  train  loss_pxl 0.0805  loss_adv 0.4072  loss_D 0.1986
Epoch 70/100  val  loss_pxl 0.1070  loss_adv 0.2581  loss_D 0.2324

Batch 1/625  loss_pxl 0.0812  loss_adv 0.2947  loss_D 0.2113
Batch 2/625  loss_pxl 0.0843  loss_adv 0.4120  loss_D 0.1599
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Batch 4/625  loss_pxl 0.0842  loss_adv 0.2697  loss_D 0.2215
Batch 8/625  loss_pxl 0.0849  loss_adv 0.3647  loss_D 0.1861
Batch 16/625  loss_pxl 0.0842  loss_adv 0.3565  loss_D 0.1671
Batch 32/625  loss_pxl 0.0788  loss_adv 0.3398  loss_D 0.1882
Batch 64/625  loss_pxl 0.0758  loss_adv 0.3562  loss_D 0.1906
Batch 128/625  loss_pxl 0.0750  loss_adv 0.5317  loss_D 0.2358
Batch 256/625  loss_pxl 0.0704  loss_adv 0.3989  loss_D 0.2028
Batch 512/625  loss_pxl 0.0880  loss_adv 0.4675  loss_D 0.1857
Epoch 71/100  train  loss_pxl 0.0800  loss_adv 0.4118  loss_D 0.1956
Epoch 71/100  val  loss_pxl 0.1030  loss_adv 0.4938  loss_D 0.2013

Batch 1/625  loss_pxl 0.0677  loss_adv 0.4261  loss_D 0.2565
Batch 2/625  loss_pxl 0.0793  loss_adv 0.2692  loss_D 0.2329
Batch 4/625  loss_pxl 0.0840  loss_adv 0.4640  loss_D 0.1793
Batch 8/625  loss_pxl 0.0805  loss_adv 0.3863  loss_D 0.2062
Batch 16/625  loss_pxl 0.0811  loss_adv 0.2449  loss_D 0.2133
Batch 32/625  loss_pxl 0.0830  loss_adv 0.2907  loss_D 0.1963
Batch 64/625  loss_pxl 0.0745  loss_adv 0.3079  loss_D 0.1976
Batch 128/625  loss_pxl 0.0810  loss_adv 0.3475  loss_D 0.1704
Batch 256/625  loss_pxl 0.0781  loss_adv 0.3801  loss_D 0.2072
Batch 512/625  loss_pxl 0.2457  loss_adv 5.2019  loss_D 6.9914
Epoch 72/100  train  loss_pxl 0.0834  loss_adv 0.4322  loss_D 0.2535
Epoch 72/100  val  loss_pxl 0.0988  loss_adv 0.3705  loss_D 0.2150

Batch 1/625  loss_pxl 0.0848  loss_adv 0.3634  loss_D 0.1974
Batch 2/625  loss_pxl 0.0828  loss_adv 0.3337  loss_D 0.2271
Batch 4/625  loss_pxl 0.0786  loss_adv 0.3084  loss_D 0.2124
Batch 8/625  loss_pxl 0.0730  loss_adv 0.2996  loss_D 0.2332
Batch 16/625  loss_pxl 0.0794  loss_adv 0.2496  loss_D 0.2246
Batch 32/625  loss_pxl 0.0715  loss_adv 0.3462  loss_D 0.2305
Batch 64/625  loss_pxl 0.0832  loss_adv 0.2897  loss_D 0.2181
Batch 128/625  loss_pxl 0.0738  loss_adv 0.2873  loss_D 0.2172
Batch 256/625  loss_pxl 0.0812  loss_adv 0.2988  loss_D 0.2032
Batch 512/625  loss_pxl 0.0763  loss_adv 0.3323  loss_D 0.2063
Epoch 73/100  train  loss_pxl 0.0769  loss_adv 0.3123  loss_D 0.2240
Epoch 73/100  val  loss_pxl 0.0997  loss_adv 0.2496  loss_D 0.2256

Batch 1/625  loss_pxl 0.0735  loss_adv 0.2449  loss_D 0.2329
Batch 2/625  loss_pxl 0.0733  loss_adv 0.3005  loss_D 0.2364
Batch 4/625  loss_pxl 0.0815  loss_adv 0.3453  loss_D 0.1947
Batch 8/625  loss_pxl 0.0763  loss_adv 0.2633  loss_D 0.2240
Batch 16/625  loss_pxl 0.0800  loss_adv 0.3295  loss_D 0.2006
Batch 32/625  loss_pxl 0.0747  loss_adv 0.3566  loss_D 0.2244
Batch 64/625  loss_pxl 0.0803  loss_adv 0.3394  loss_D 0.2017
Batch 128/625  loss_pxl 0.0748  loss_adv 0.2910  loss_D 0.2502
Batch 256/625  loss_pxl 0.0770  loss_adv 0.3595  loss_D 0.2143
Batch 512/625  loss_pxl 0.0767  loss_adv 0.3600  loss_D 0.1933
Epoch 74/100  train  loss_pxl 0.0767  loss_adv 0.3327  loss_D 0.2167
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Epoch 74/100  val  loss_pxl 0.1019  loss_adv 0.3457  loss_D 0.2169

Batch 1/625  loss_pxl 0.0751  loss_adv 0.3506  loss_D 0.2272
Batch 2/625  loss_pxl 0.0733  loss_adv 0.3479  loss_D 0.2219
Batch 4/625  loss_pxl 0.0809  loss_adv 0.3533  loss_D 0.1831
Batch 8/625  loss_pxl 0.0703  loss_adv 0.4466  loss_D 0.2129
Batch 16/625  loss_pxl 0.0701  loss_adv 0.3924  loss_D 0.2328
Batch 32/625  loss_pxl 0.0751  loss_adv 0.3251  loss_D 0.2323
Batch 64/625  loss_pxl 0.0657  loss_adv 0.3458  loss_D 0.2157
Batch 128/625  loss_pxl 0.0774  loss_adv 0.3637  loss_D 0.2078
Batch 256/625  loss_pxl 0.0818  loss_adv 0.4124  loss_D 0.1966
Batch 512/625  loss_pxl 0.0780  loss_adv 0.3590  loss_D 0.2088
Epoch 75/100  train  loss_pxl 0.0776  loss_adv 0.3683  loss_D 0.2048
Epoch 75/100  val  loss_pxl 0.1023  loss_adv 0.4296  loss_D 0.2032

Batch 1/625  loss_pxl 0.0860  loss_adv 0.4061  loss_D 0.1862
Batch 2/625  loss_pxl 0.0827  loss_adv 0.4112  loss_D 0.2064
Batch 4/625  loss_pxl 0.0797  loss_adv 0.3060  loss_D 0.2163
Batch 8/625  loss_pxl 0.0791  loss_adv 0.3905  loss_D 0.1751
Batch 16/625  loss_pxl 0.0734  loss_adv 0.4899  loss_D 0.2055
Batch 32/625  loss_pxl 0.0760  loss_adv 0.3499  loss_D 0.2100
Batch 64/625  loss_pxl 0.0782  loss_adv 0.3564  loss_D 0.1933
Batch 128/625  loss_pxl 0.0700  loss_adv 0.3787  loss_D 0.2201
Batch 256/625  loss_pxl 0.0787  loss_adv 0.3940  loss_D 0.1767
Batch 512/625  loss_pxl 0.0664  loss_adv 0.3581  loss_D 0.2221
Epoch 76/100  train  loss_pxl 0.0783  loss_adv 0.3945  loss_D 0.1991
Epoch 76/100  val  loss_pxl 0.1010  loss_adv 0.3002  loss_D 0.1939

Batch 1/625  loss_pxl 0.0769  loss_adv 0.3174  loss_D 0.1797
Batch 2/625  loss_pxl 0.0766  loss_adv 0.5326  loss_D 0.1733
Batch 4/625  loss_pxl 0.0794  loss_adv 0.4431  loss_D 0.1780
Batch 8/625  loss_pxl 0.0843  loss_adv 0.4071  loss_D 0.1801
Batch 16/625  loss_pxl 0.0741  loss_adv 0.5193  loss_D 0.1764
Batch 32/625  loss_pxl 0.0757  loss_adv 0.2583  loss_D 0.2279
Batch 64/625  loss_pxl 0.0849  loss_adv 0.4239  loss_D 0.1952
Batch 128/625  loss_pxl 0.0710  loss_adv 0.2358  loss_D 0.2438
Batch 256/625  loss_pxl 0.0813  loss_adv 0.2656  loss_D 0.2027
Batch 512/625  loss_pxl 0.0749  loss_adv 0.5459  loss_D 0.2029
Epoch 77/100  train  loss_pxl 0.0784  loss_adv 0.4029  loss_D 0.1971
Epoch 77/100  val  loss_pxl 0.1034  loss_adv 0.3382  loss_D 0.2043

Batch 1/625  loss_pxl 0.0707  loss_adv 0.3473  loss_D 0.1848
Batch 2/625  loss_pxl 0.0793  loss_adv 0.4585  loss_D 0.1858
Batch 4/625  loss_pxl 0.0819  loss_adv 0.4910  loss_D 0.2107
Batch 8/625  loss_pxl 0.0830  loss_adv 0.3471  loss_D 0.2223
Batch 16/625  loss_pxl 0.0825  loss_adv 0.3821  loss_D 0.1912
Batch 32/625  loss_pxl 0.0764  loss_adv 0.4812  loss_D 0.2037
Batch 64/625  loss_pxl 0.0772  loss_adv 0.4383  loss_D 0.1850
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Batch 128/625  loss_pxl 0.0801  loss_adv 0.1625  loss_D 0.2742
Batch 256/625  loss_pxl 0.0781  loss_adv 0.4462  loss_D 0.1927
Batch 512/625  loss_pxl 0.0763  loss_adv 0.4983  loss_D 0.1867
Epoch 78/100  train  loss_pxl 0.0782  loss_adv 0.4087  loss_D 0.1964
Epoch 78/100  val  loss_pxl 0.1051  loss_adv 0.2329  loss_D 0.2372

Batch 1/625  loss_pxl 0.0783  loss_adv 0.2909  loss_D 0.2053
Batch 2/625  loss_pxl 0.0750  loss_adv 0.5052  loss_D 0.2067
Batch 4/625  loss_pxl 0.0707  loss_adv 0.4718  loss_D 0.2407
Batch 8/625  loss_pxl 0.0833  loss_adv 0.4506  loss_D 0.1572
Batch 16/625  loss_pxl 0.0798  loss_adv 0.3214  loss_D 0.1942
Batch 32/625  loss_pxl 0.0833  loss_adv 0.3908  loss_D 0.1880
Batch 64/625  loss_pxl 0.0882  loss_adv 0.5638  loss_D 0.1693
Batch 128/625  loss_pxl 0.0808  loss_adv 0.2918  loss_D 0.2138
Batch 256/625  loss_pxl 0.0754  loss_adv 0.4454  loss_D 0.1816
Batch 512/625  loss_pxl 0.0749  loss_adv 0.3250  loss_D 0.1894
Epoch 79/100  train  loss_pxl 0.0781  loss_adv 0.4131  loss_D 0.1959
Epoch 79/100  val  loss_pxl 0.1076  loss_adv 0.4246  loss_D 0.2412

Batch 1/625  loss_pxl 0.0864  loss_adv 0.5352  loss_D 0.1813
Batch 2/625  loss_pxl 0.0899  loss_adv 0.3761  loss_D 0.1651
Batch 4/625  loss_pxl 0.0724  loss_adv 0.4069  loss_D 0.2241
Batch 8/625  loss_pxl 0.0800  loss_adv 0.3186  loss_D 0.1664
Batch 16/625  loss_pxl 0.0768  loss_adv 0.2025  loss_D 0.2400
Batch 32/625  loss_pxl 0.0851  loss_adv 0.6485  loss_D 0.2075
Batch 64/625  loss_pxl 0.0825  loss_adv 0.4397  loss_D 0.2041
Batch 128/625  loss_pxl 0.0727  loss_adv 0.2732  loss_D 0.2513
Batch 256/625  loss_pxl 0.0759  loss_adv 0.3389  loss_D 0.2056
Batch 512/625  loss_pxl 0.0762  loss_adv 0.4114  loss_D 0.1940
Epoch 80/100  train  loss_pxl 0.0781  loss_adv 0.4153  loss_D 0.1939
Epoch 80/100  val  loss_pxl 0.1014  loss_adv 0.5355  loss_D 0.1654

Batch 1/625  loss_pxl 0.0850  loss_adv 0.4238  loss_D 0.1531
Batch 2/625  loss_pxl 0.0824  loss_adv 0.5264  loss_D 0.1587
Batch 4/625  loss_pxl 0.0821  loss_adv 0.2929  loss_D 0.2096
Batch 8/625  loss_pxl 0.0847  loss_adv 0.4938  loss_D 0.1814
Batch 16/625  loss_pxl 0.0701  loss_adv 0.2887  loss_D 0.1980
Batch 32/625  loss_pxl 0.0878  loss_adv 0.3407  loss_D 0.1701
Batch 64/625  loss_pxl 0.0758  loss_adv 0.3919  loss_D 0.2066
Batch 128/625  loss_pxl 0.0776  loss_adv 0.2641  loss_D 0.1970
Batch 256/625  loss_pxl 0.0738  loss_adv 0.4254  loss_D 0.1955
Batch 512/625  loss_pxl 0.0794  loss_adv 0.5049  loss_D 0.2011
Epoch 81/100  train  loss_pxl 0.0778  loss_adv 0.4189  loss_D 0.1931
Epoch 81/100  val  loss_pxl 0.1053  loss_adv 0.3685  loss_D 0.2012

Batch 1/625  loss_pxl 0.0790  loss_adv 0.4714  loss_D 0.1784
Batch 2/625  loss_pxl 0.0692  loss_adv 0.2780  loss_D 0.2097
Batch 4/625  loss_pxl 0.0706  loss_adv 0.3874  loss_D 0.1847
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Batch 8/625  loss_pxl 0.0718  loss_adv 0.5503  loss_D 0.2054
Batch 16/625  loss_pxl 0.0782  loss_adv 0.3531  loss_D 0.1903
Batch 32/625  loss_pxl 0.0701  loss_adv 0.3822  loss_D 0.1995
Batch 64/625  loss_pxl 0.0768  loss_adv 0.5052  loss_D 0.1961
Batch 128/625  loss_pxl 0.0805  loss_adv 0.3901  loss_D 0.2013
Batch 256/625  loss_pxl 0.0832  loss_adv 0.3315  loss_D 0.2004
Batch 512/625  loss_pxl 0.0795  loss_adv 0.3030  loss_D 0.2045
Epoch 82/100  train  loss_pxl 0.0811  loss_adv 0.3818  loss_D 0.2648
Epoch 82/100  val  loss_pxl 0.0991  loss_adv 0.4009  loss_D 0.2252

Batch 1/625  loss_pxl 0.0802  loss_adv 0.3345  loss_D 0.2379
Batch 2/625  loss_pxl 0.0851  loss_adv 0.3360  loss_D 0.2209
Batch 4/625  loss_pxl 0.0742  loss_adv 0.3186  loss_D 0.2478
Batch 8/625  loss_pxl 0.0824  loss_adv 0.3902  loss_D 0.1996
Batch 16/625  loss_pxl 0.0759  loss_adv 0.3155  loss_D 0.2010
Batch 32/625  loss_pxl 0.0771  loss_adv 0.2686  loss_D 0.2264
Batch 64/625  loss_pxl 0.0662  loss_adv 0.3417  loss_D 0.2554
Batch 128/625  loss_pxl 0.0762  loss_adv 0.2870  loss_D 0.2111
Batch 256/625  loss_pxl 0.0714  loss_adv 0.3542  loss_D 0.2122
Batch 512/625  loss_pxl 0.0814  loss_adv 0.2341  loss_D 0.2265
Epoch 83/100  train  loss_pxl 0.0753  loss_adv 0.3309  loss_D 0.2178
Epoch 83/100  val  loss_pxl 0.1011  loss_adv 0.3738  loss_D 0.2178

Batch 1/625  loss_pxl 0.0710  loss_adv 0.4040  loss_D 0.2140
Batch 2/625  loss_pxl 0.0714  loss_adv 0.3441  loss_D 0.2068
Batch 4/625  loss_pxl 0.0724  loss_adv 0.3170  loss_D 0.2154
Batch 8/625  loss_pxl 0.0758  loss_adv 0.3100  loss_D 0.2072
Batch 16/625  loss_pxl 0.0629  loss_adv 0.3135  loss_D 0.2254
Batch 32/625  loss_pxl 0.0807  loss_adv 0.2926  loss_D 0.2189
Batch 64/625  loss_pxl 0.0761  loss_adv 0.4171  loss_D 0.2212
Batch 128/625  loss_pxl 0.0816  loss_adv 0.3477  loss_D 0.1882
Batch 256/625  loss_pxl 0.0808  loss_adv 0.2716  loss_D 0.2027
Batch 512/625  loss_pxl 0.0782  loss_adv 0.4784  loss_D 0.1850
Epoch 84/100  train  loss_pxl 0.0757  loss_adv 0.3718  loss_D 0.2035
Epoch 84/100  val  loss_pxl 0.0990  loss_adv 0.5416  loss_D 0.1918

Batch 1/625  loss_pxl 0.0832  loss_adv 0.4520  loss_D 0.1718
Batch 2/625  loss_pxl 0.0759  loss_adv 0.5680  loss_D 0.2060
Batch 4/625  loss_pxl 0.0724  loss_adv 0.5091  loss_D 0.2258
Batch 8/625  loss_pxl 0.0762  loss_adv 0.3567  loss_D 0.1874
Batch 16/625  loss_pxl 0.0696  loss_adv 0.4595  loss_D 0.2118
Batch 32/625  loss_pxl 0.0823  loss_adv 0.4329  loss_D 0.1660
Batch 64/625  loss_pxl 0.0790  loss_adv 0.3608  loss_D 0.1804
Batch 128/625  loss_pxl 0.0714  loss_adv 0.3692  loss_D 0.1834
Batch 256/625  loss_pxl 0.0699  loss_adv 0.4526  loss_D 0.2054
Batch 512/625  loss_pxl 0.0745  loss_adv 0.3156  loss_D 0.2103
Epoch 85/100  train  loss_pxl 0.0761  loss_adv 0.3983  loss_D 0.1974
Epoch 85/100  val  loss_pxl 0.1025  loss_adv 0.2898  loss_D 0.2078
```

```
Batch 1/625  loss_pxl 0.0811  loss_adv 0.2334  loss_D 0.2222
Batch 2/625  loss_pxl 0.0798  loss_adv 0.6467  loss_D 0.2418
Batch 4/625  loss_pxl 0.0735  loss_adv 0.3704  loss_D 0.2147
Batch 8/625  loss_pxl 0.0751  loss_adv 0.4212  loss_D 0.2038
Batch 16/625  loss_pxl 0.0700  loss_adv 0.3806  loss_D 0.2220
Batch 32/625  loss_pxl 0.0771  loss_adv 0.4864  loss_D 0.2014
Batch 64/625  loss_pxl 0.0752  loss_adv 0.2513  loss_D 0.2185
Batch 128/625  loss_pxl 0.0752  loss_adv 0.4356  loss_D 0.2045
Batch 256/625  loss_pxl 0.0740  loss_adv 0.3648  loss_D 0.1946
Batch 512/625  loss_pxl 0.0772  loss_adv 0.2588  loss_D 0.2087
Epoch 86/100  train  loss_pxl 0.0764  loss_adv 0.4083  loss_D 0.1951
Epoch 86/100  val  loss_pxl 0.1006  loss_adv 0.6230  loss_D 0.1965

Batch 1/625  loss_pxl 0.0785  loss_adv 0.6053  loss_D 0.1873
Batch 2/625  loss_pxl 0.0706  loss_adv 0.3712  loss_D 0.1908
Batch 4/625  loss_pxl 0.0717  loss_adv 0.6574  loss_D 0.2303
Batch 8/625  loss_pxl 0.0733  loss_adv 0.3650  loss_D 0.1940
Batch 16/625  loss_pxl 0.0762  loss_adv 0.2492  loss_D 0.2462
Batch 32/625  loss_pxl 0.0765  loss_adv 0.4025  loss_D 0.1962
Batch 64/625  loss_pxl 0.0709  loss_adv 0.2814  loss_D 0.2014
Batch 128/625  loss_pxl 0.0820  loss_adv 0.4559  loss_D 0.1881
Batch 256/625  loss_pxl 0.0800  loss_adv 0.4180  loss_D 0.1923
Batch 512/625  loss_pxl 0.0896  loss_adv 0.3559  loss_D 0.2009
Epoch 87/100  train  loss_pxl 0.0764  loss_adv 0.4126  loss_D 0.1947
Epoch 87/100  val  loss_pxl 0.1029  loss_adv 0.4192  loss_D 0.1849

Batch 1/625  loss_pxl 0.0785  loss_adv 0.3852  loss_D 0.1833
Batch 2/625  loss_pxl 0.0775  loss_adv 0.3932  loss_D 0.1826
Batch 4/625  loss_pxl 0.0701  loss_adv 0.3514  loss_D 0.2142
Batch 8/625  loss_pxl 0.0782  loss_adv 0.6033  loss_D 0.1745
Batch 16/625  loss_pxl 0.0768  loss_adv 0.3976  loss_D 0.2292
Batch 32/625  loss_pxl 0.0743  loss_adv 0.5369  loss_D 0.2035
Batch 64/625  loss_pxl 0.0745  loss_adv 0.3782  loss_D 0.2146
Batch 128/625  loss_pxl 0.0779  loss_adv 0.3047  loss_D 0.1938
Batch 256/625  loss_pxl 0.0709  loss_adv 0.3985  loss_D 0.2049
Batch 512/625  loss_pxl 0.0688  loss_adv 0.4756  loss_D 0.2152
Epoch 88/100  train  loss_pxl 0.0763  loss_adv 0.4159  loss_D 0.1937
Epoch 88/100  val  loss_pxl 0.1018  loss_adv 0.5139  loss_D 0.1867

Batch 1/625  loss_pxl 0.0777  loss_adv 0.4389  loss_D 0.1809
Batch 2/625  loss_pxl 0.0711  loss_adv 0.4903  loss_D 0.1963
Batch 4/625  loss_pxl 0.0713  loss_adv 0.5656  loss_D 0.2148
Batch 8/625  loss_pxl 0.0814  loss_adv 0.3817  loss_D 0.1931
Batch 16/625  loss_pxl 0.0732  loss_adv 0.3288  loss_D 0.1969
Batch 32/625  loss_pxl 0.0782  loss_adv 0.4643  loss_D 0.1594
Batch 64/625  loss_pxl 0.0797  loss_adv 0.3695  loss_D 0.1929
Batch 128/625  loss_pxl 0.0809  loss_adv 0.4535  loss_D 0.1914
```

```
Batch 256/625  loss_pxl 0.0858  loss_adv 0.3288  loss_D 0.1827
Batch 512/625  loss_pxl 0.0696  loss_adv 0.3756  loss_D 0.2152
Epoch 89/100  train  loss_pxl 0.0762  loss_adv 0.4204  loss_D 0.1928
Epoch 89/100  val  loss_pxl 0.1023  loss_adv 0.3996  loss_D 0.1813

Batch 1/625  loss_pxl 0.0838  loss_adv 0.4393  loss_D 0.1564
Batch 2/625  loss_pxl 0.0769  loss_adv 0.4189  loss_D 0.1892
Batch 4/625  loss_pxl 0.0745  loss_adv 0.3119  loss_D 0.2223
Batch 8/625  loss_pxl 0.0764  loss_adv 0.4632  loss_D 0.1403
Batch 16/625  loss_pxl 0.0622  loss_adv 0.4460  loss_D 0.2235
Batch 32/625  loss_pxl 0.0827  loss_adv 0.4201  loss_D 0.1738
Batch 64/625  loss_pxl 0.0739  loss_adv 0.2783  loss_D 0.2118
Batch 128/625  loss_pxl 0.0764  loss_adv 0.3674  loss_D 0.1826
Batch 256/625  loss_pxl 0.0683  loss_adv 0.4139  loss_D 0.1942
Batch 512/625  loss_pxl 0.0792  loss_adv 0.3303  loss_D 0.1719
Epoch 90/100  train  loss_pxl 0.0760  loss_adv 0.4229  loss_D 0.1920
Epoch 90/100  val  loss_pxl 0.1004  loss_adv 0.3612  loss_D 0.1781

Batch 1/625  loss_pxl 0.0743  loss_adv 0.2897  loss_D 0.1925
Batch 2/625  loss_pxl 0.0773  loss_adv 0.4919  loss_D 0.1989
Batch 4/625  loss_pxl 0.0790  loss_adv 0.2752  loss_D 0.1939
Batch 8/625  loss_pxl 0.0722  loss_adv 0.3910  loss_D 0.1774
Batch 16/625  loss_pxl 0.0737  loss_adv 0.4366  loss_D 0.1671
Batch 32/625  loss_pxl 0.0757  loss_adv 0.3682  loss_D 0.1968
Batch 64/625  loss_pxl 0.0866  loss_adv 0.5488  loss_D 0.1630
Batch 128/625  loss_pxl 0.0827  loss_adv 0.3358  loss_D 0.1958
Batch 256/625  loss_pxl 0.0718  loss_adv 0.1961  loss_D 0.2434
Batch 512/625  loss_pxl 0.0714  loss_adv 0.4245  loss_D 0.2055
Epoch 91/100  train  loss_pxl 0.0759  loss_adv 0.4238  loss_D 0.1911
Epoch 91/100  val  loss_pxl 0.0994  loss_adv 0.6214  loss_D 0.1822

Batch 1/625  loss_pxl 0.0743  loss_adv 0.4873  loss_D 0.1930
Batch 2/625  loss_pxl 0.0772  loss_adv 0.4224  loss_D 0.1986
Batch 4/625  loss_pxl 0.0706  loss_adv 0.3816  loss_D 0.2230
Batch 8/625  loss_pxl 0.0791  loss_adv 0.7836  loss_D 0.2208
Batch 16/625  loss_pxl 0.0834  loss_adv 0.4810  loss_D 0.1577
Batch 32/625  loss_pxl 0.0744  loss_adv 0.4127  loss_D 0.2093
Batch 64/625  loss_pxl 0.0772  loss_adv 0.3859  loss_D 0.1741
Batch 128/625  loss_pxl 0.0806  loss_adv 0.5116  loss_D 0.1634
Batch 256/625  loss_pxl 0.0698  loss_adv 0.4268  loss_D 0.1731
Batch 512/625  loss_pxl 0.0797  loss_adv 0.3266  loss_D 0.1747
Epoch 92/100  train  loss_pxl 0.0758  loss_adv 0.4285  loss_D 0.1911
Epoch 92/100  val  loss_pxl 0.1023  loss_adv 0.3395  loss_D 0.1733

Batch 1/625  loss_pxl 0.0738  loss_adv 0.2871  loss_D 0.2025
Batch 2/625  loss_pxl 0.0774  loss_adv 0.4433  loss_D 0.1789
Batch 4/625  loss_pxl 0.0713  loss_adv 0.4136  loss_D 0.1696
Batch 8/625  loss_pxl 0.0743  loss_adv 0.4951  loss_D 0.1909
```

```
Batch 16/625  loss_pxl 0.0749  loss_adv 0.5891  loss_D 0.2243
Batch 32/625  loss_pxl 0.0785  loss_adv 0.4432  loss_D 0.1501
Batch 64/625  loss_pxl 0.0787  loss_adv 0.2711  loss_D 0.1992
Batch 128/625  loss_pxl 0.0756  loss_adv 0.5101  loss_D 0.1810
Batch 256/625  loss_pxl 0.0773  loss_adv 0.3944  loss_D 0.1684
Batch 512/625  loss_pxl 0.0761  loss_adv 0.5390  loss_D 0.1520
Epoch 93/100  train  loss_pxl 0.0756  loss_adv 0.4329  loss_D 0.1879
Epoch 93/100  val  loss_pxl 0.1012  loss_adv 0.4884  loss_D 0.1862

Batch 1/625  loss_pxl 0.0795  loss_adv 0.4391  loss_D 0.2071
Batch 2/625  loss_pxl 0.0740  loss_adv 0.3746  loss_D 0.2138
Batch 4/625  loss_pxl 0.0785  loss_adv 0.4582  loss_D 0.1397
Batch 8/625  loss_pxl 0.0751  loss_adv 0.3434  loss_D 0.2013
Batch 16/625  loss_pxl 0.0794  loss_adv 0.3656  loss_D 0.1704
Batch 32/625  loss_pxl 0.0841  loss_adv 0.3493  loss_D 0.1576
Batch 64/625  loss_pxl 0.0739  loss_adv 0.2225  loss_D 0.2225
Batch 128/625  loss_pxl 0.0765  loss_adv 0.5811  loss_D 0.1713
Batch 256/625  loss_pxl 0.0744  loss_adv 0.5313  loss_D 0.1491
Batch 512/625  loss_pxl 0.0799  loss_adv 0.3752  loss_D 0.1921
Epoch 94/100  train  loss_pxl 0.0756  loss_adv 0.4385  loss_D 0.1867
Epoch 94/100  val  loss_pxl 0.1015  loss_adv 0.5583  loss_D 0.1771

Batch 1/625  loss_pxl 0.0750  loss_adv 0.5096  loss_D 0.1716
Batch 2/625  loss_pxl 0.0738  loss_adv 0.4987  loss_D 0.1577
Batch 4/625  loss_pxl 0.0776  loss_adv 0.5383  loss_D 0.1751
Batch 8/625  loss_pxl 0.0748  loss_adv 0.3115  loss_D 0.1994
Batch 16/625  loss_pxl 0.0798  loss_adv 0.2154  loss_D 0.2298
Batch 32/625  loss_pxl 0.0699  loss_adv 0.3201  loss_D 0.1899
Batch 64/625  loss_pxl 0.0813  loss_adv 0.3713  loss_D 0.1698
Batch 128/625  loss_pxl 0.0710  loss_adv 0.6320  loss_D 0.1935
Batch 256/625  loss_pxl 0.0656  loss_adv 0.4087  loss_D 0.1904
Batch 512/625  loss_pxl 0.0704  loss_adv 0.5012  loss_D 0.1895
Epoch 95/100  train  loss_pxl 0.0754  loss_adv 0.4448  loss_D 0.1848
Epoch 95/100  val  loss_pxl 0.1013  loss_adv 0.4204  loss_D 0.1749

Batch 1/625  loss_pxl 0.0702  loss_adv 0.3699  loss_D 0.1910
Batch 2/625  loss_pxl 0.0737  loss_adv 0.3776  loss_D 0.1695
Batch 4/625  loss_pxl 0.0766  loss_adv 0.2813  loss_D 0.1868
Batch 8/625  loss_pxl 0.0702  loss_adv 0.4302  loss_D 0.1583
Batch 16/625  loss_pxl 0.0747  loss_adv 0.4124  loss_D 0.1961
Batch 32/625  loss_pxl 0.0733  loss_adv 0.3528  loss_D 0.1541
Batch 64/625  loss_pxl 0.0854  loss_adv 0.4906  loss_D 0.1488
Batch 128/625  loss_pxl 0.0802  loss_adv 0.4352  loss_D 0.1391
Batch 256/625  loss_pxl 0.0740  loss_adv 0.3497  loss_D 0.1758
Batch 512/625  loss_pxl 0.0736  loss_adv 0.6208  loss_D 0.1773
Epoch 96/100  train  loss_pxl 0.0756  loss_adv 0.4616  loss_D 0.1791
Epoch 96/100  val  loss_pxl 0.1050  loss_adv 0.6710  loss_D 0.1983
```

```
Batch 1/625  loss_pxl 0.0775  loss_adv 0.7032  loss_D 0.1917
Batch 2/625  loss_pxl 0.0719  loss_adv 0.3460  loss_D 0.1769
Batch 4/625  loss_pxl 0.0735  loss_adv 0.6004  loss_D 0.1767
Batch 8/625  loss_pxl 0.0713  loss_adv 0.5301  loss_D 0.1759
Batch 16/625  loss_pxl 0.0817  loss_adv 0.4186  loss_D 0.1486
Batch 32/625  loss_pxl 0.0697  loss_adv 0.4741  loss_D 0.1777
Batch 64/625  loss_pxl 0.0774  loss_adv 0.4776  loss_D 0.1649
Batch 128/625  loss_pxl 0.0702  loss_adv 0.5268  loss_D 0.1961
Batch 256/625  loss_pxl 0.0782  loss_adv 0.4338  loss_D 0.1916
Batch 512/625  loss_pxl 0.0755  loss_adv 0.6129  loss_D 0.1702
Epoch 97/100  train  loss_pxl 0.0758  loss_adv 0.4782  loss_D 0.1724
Epoch 97/100  val  loss_pxl 0.1009  loss_adv 0.4669  loss_D 0.1541

Batch 1/625  loss_pxl 0.0691  loss_adv 0.4161  loss_D 0.1808
Batch 2/625  loss_pxl 0.0717  loss_adv 0.4237  loss_D 0.1530
Batch 4/625  loss_pxl 0.0730  loss_adv 0.3063  loss_D 0.2012
Batch 8/625  loss_pxl 0.0721  loss_adv 0.5261  loss_D 0.1971
Batch 16/625  loss_pxl 0.0719  loss_adv 0.5040  loss_D 0.1637
Batch 32/625  loss_pxl 0.0715  loss_adv 0.2690  loss_D 0.1992
Batch 64/625  loss_pxl 0.0732  loss_adv 0.4468  loss_D 0.1659
Batch 128/625  loss_pxl 0.0787  loss_adv 0.4679  loss_D 0.1752
Batch 256/625  loss_pxl 0.0832  loss_adv 0.3295  loss_D 0.2166
Batch 512/625  loss_pxl 0.0769  loss_adv 0.3085  loss_D 0.2152
Epoch 98/100  train  loss_pxl 0.0815  loss_adv 0.4189  loss_D 0.3023
Epoch 98/100  val  loss_pxl 0.0988  loss_adv 0.3385  loss_D 0.2288

Batch 1/625  loss_pxl 0.0773  loss_adv 0.3402  loss_D 0.2140
Batch 2/625  loss_pxl 0.0758  loss_adv 0.2868  loss_D 0.2427
Batch 4/625  loss_pxl 0.0697  loss_adv 0.2898  loss_D 0.2404
Batch 8/625  loss_pxl 0.0730  loss_adv 0.3838  loss_D 0.1887
Batch 16/625  loss_pxl 0.0689  loss_adv 0.2838  loss_D 0.2408
Batch 32/625  loss_pxl 0.0763  loss_adv 0.2787  loss_D 0.1995
Batch 64/625  loss_pxl 0.0732  loss_adv 0.3577  loss_D 0.2192
Batch 128/625  loss_pxl 0.0767  loss_adv 0.3277  loss_D 0.1983
Batch 256/625  loss_pxl 0.0784  loss_adv 0.3216  loss_D 0.1903
Batch 512/625  loss_pxl 0.0689  loss_adv 0.3677  loss_D 0.2074
Epoch 99/100  train  loss_pxl 0.0725  loss_adv 0.3302  loss_D 0.2159
Epoch 99/100  val  loss_pxl 0.1001  loss_adv 0.3269  loss_D 0.2044

Batch 1/625  loss_pxl 0.0700  loss_adv 0.2931  loss_D 0.2138
Batch 2/625  loss_pxl 0.0669  loss_adv 0.4141  loss_D 0.2125
Batch 4/625  loss_pxl 0.0708  loss_adv 0.3128  loss_D 0.1871
Batch 8/625  loss_pxl 0.0709  loss_adv 0.4147  loss_D 0.2129
Batch 16/625  loss_pxl 0.0794  loss_adv 0.3979  loss_D 0.1979
Batch 32/625  loss_pxl 0.0634  loss_adv 0.3729  loss_D 0.2382
Batch 64/625  loss_pxl 0.0691  loss_adv 0.3537  loss_D 0.2305
Batch 128/625  loss_pxl 0.0661  loss_adv 0.3215  loss_D 0.2120
Batch 256/625  loss_pxl 0.0807  loss_adv 0.3042  loss_D 0.1921
```

```
Batch 512/625  loss_pxl 0.0727  loss_adv 0.3791  loss_D 0.1976
Epoch 100/100  train  loss_pxl 0.0726  loss_adv 0.3682  loss_D 0.1989
Epoch 100/100  val  loss_pxl 0.1003  loss_adv 0.4569  loss_D 0.1793

Done!
```

[14]:
```
!python forward.py 'val/Places365_val_00000003.jpg' '123.jpg'
```

```
PyTorch version:  1.9.0+cu111
Torchvision version:  0.10.0+cu111
Source file: val/Places365_val_00000003.jpg…
Input size: (256, 256, 3)
Output size: (192, 192, 3)
Blended size: (384, 384, 3)
Destination file: 123.jpg written
```

[31]:
```
from PIL import Image

def gray_out_image(image_path, output_path, size):
    # Open the image
    image = Image.open(image_path)

    # Resize the image to 192x192
    resized_image = image.resize((192, 192))

    # Get the size of the resized image
    width, height = resized_image.size
    print(f"The resized image size is {width} x {height} pixels.")

    # Create a new blank image with the same size as the resized image
    grayed_image = Image.new("RGB", (width, height), color=(128, 128, 128))

    # Calculate the coordinates for cropping
    left = (width - size) // 2
    top = (height - size) // 2
    right = left + size
    bottom = top + size

    # Paste the cropped region from the resized image onto the new image
    grayed_image.paste(resized_image.crop((left, top, right, bottom)), (left,␣
 ↪top))

    # Save the grayed-out image
    grayed_image.save(output_path)

    # Get the size of the grayed-out image
    grayed_width, grayed_height = grayed_image.size
```

```
    print(f"The grayed-out image size is {grayed_width} x {grayed_height}␣
 ↪pixels.")


image_path = "test/Places365_val_00015857.jpg"
output_path = "output_image.jpg"
crop_size = 128

gray_out_image(image_path, output_path, crop_size)
```

```
The resized image size is 192 x 192 pixels.
The grayed-out image size is 192 x 192 pixels.
```

[33]:
```
!python forward.py 'test/Places365_val_00015857.jpg' '123.jpg'
```

```
PyTorch version:  1.9.0+cu111
Torchvision version:  0.10.0+cu111
Source file: test/Places365_val_00015857.jpg…
Input size: (256, 256, 3)
Output size: (192, 192, 3)
Blended size: (384, 384, 3)
Destination file: 123.jpg written
```

[5]:
```
import pickle

# Load the contents of the .p file
hist_loss = pickle.load(open('hist_loss.p', 'rb'))

train_pxl = hist_loss['train_pxl']
train_adv = hist_loss['train_adv']
train_D = hist_loss['train_D']
val_pxl = hist_loss['val_pxl']
val_adv = hist_loss['val_adv']
val_D = hist_loss['val_D']

print(val_pxl[-1])
print(val_adv[-1])
print(val_D[-1])
```

```
0.10028350684377882
0.4569007716481648
0.17928953894547053
```

[3]:
```
import matplotlib.pyplot as plt

# Define the x-axis values (epochs)
epochs = range(1, len(train_pxl) + 1)
```

```
# Create a figure with three subplots
fig, axs = plt.subplots(1, 3, figsize=(15, 5))

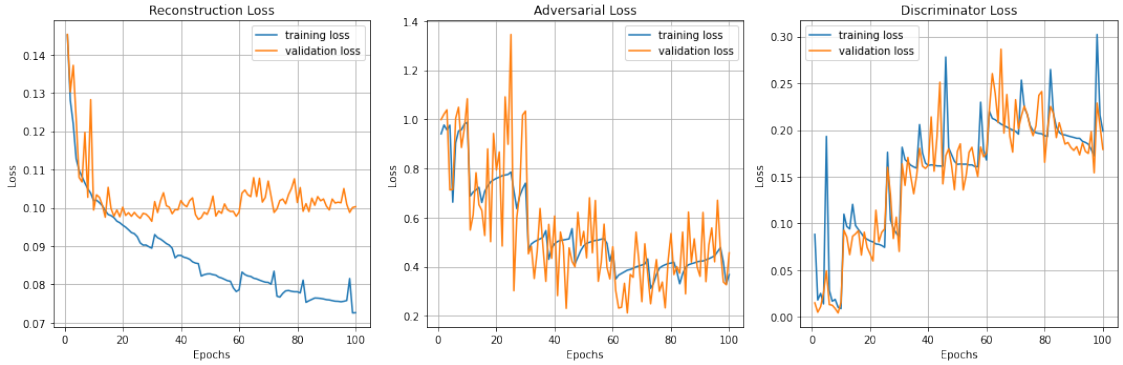
# Plot the train_pxl and val_pxl curves
axs[0].plot(epochs, train_pxl, label='training loss')
axs[0].plot(epochs, val_pxl, label='validation loss')
axs[0].set_title('Reconstruction Loss')
axs[0].set_xlabel('Epochs')
axs[0].set_ylabel('Loss')
axs[0].grid(True)
axs[0].legend()

# Plot the train_adv and val_adv curves
axs[1].plot(epochs, train_adv, label='training loss')
axs[1].plot(epochs, val_adv, label='validation loss')
axs[1].set_title('Adversarial Loss')
axs[1].set_xlabel('Epochs')
axs[1].set_ylabel('Loss')
axs[1].grid(True)
axs[1].legend()

# Plot the train_D and val_D curves
axs[2].plot(epochs, train_D, label='training loss')
axs[2].plot(epochs, val_D, label='validation loss')
axs[2].set_title('Discriminator Loss')
axs[2].set_xlabel('Epochs')
axs[2].set_ylabel('Loss')
axs[2].grid(True)
axs[2].legend()

# Adjust the spacing between subplots
plt.tight_layout()

# Display the figure
plt.show()
```



[6]:
```
import pickle

# Load the contents of the .p file
hist_loss = pickle.load(open('hist_loss_original.p', 'rb'))

train_pxl = hist_loss['train_pxl']
train_adv = hist_loss['train_adv']
train_D = hist_loss['train_D']
val_pxl = hist_loss['val_pxl']
val_adv = hist_loss['val_adv']
val_D = hist_loss['val_D']

import matplotlib.pyplot as plt

# Define the x-axis values (epochs)
epochs = range(1, len(train_pxl) + 1)

# Create a figure with three subplots
fig, axs = plt.subplots(1, 3, figsize=(15, 5))

# Plot the train_pxl and val_pxl curves
axs[0].plot(epochs, train_pxl, label='training loss')
axs[0].plot(epochs, val_pxl, label='validation loss')
axs[0].set_title('Reconstruction Loss')
axs[0].set_xlabel('Epochs')
axs[0].set_ylabel('Loss')
axs[0].grid(True)
axs[0].legend()

# Plot the train_adv and val_adv curves
axs[1].plot(epochs, train_adv, label='training loss')
axs[1].plot(epochs, val_adv, label='validation loss')
axs[1].set_title('Adversarial Loss')
axs[1].set_xlabel('Epochs')
axs[1].set_ylabel('Loss')
axs[1].grid(True)
axs[1].legend()

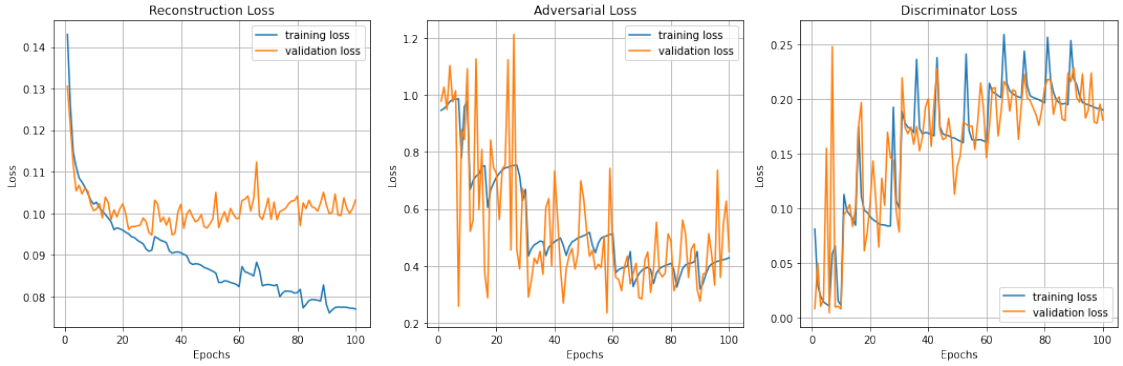
# Plot the train_D and val_D curves
axs[2].plot(epochs, train_D, label='training loss')
axs[2].plot(epochs, val_D, label='validation loss')
axs[2].set_title('Discriminator Loss')
axs[2].set_xlabel('Epochs')
axs[2].set_ylabel('Loss')
axs[2].grid(True)
```

```
axs[2].legend()

# Adjust the spacing between subplots
plt.tight_layout()

# Display the figure
plt.show()

print(val_pxl[-1])
print(val_adv[-1])
print(val_D[-1])
```




```
0.10321953762618322
0.45003678354005966
0.18110013741349418
```

[53]:
```
!python forward_original.py 'test/Places365_val_00021770.jpg' 'output_GAN.jpg'
```

```
PyTorch version:  1.9.0+cu111
Torchvision version:  0.10.0+cu111
Source file: test/Places365_val_00021770.jpg…
Input size: (256, 256, 3)
Output size: (192, 192, 3)
Blended size: (384, 384, 3)
Destination file: output_GAN.jpg written
```

[54]:
```
!python forward.py 'test/Places365_val_00021770.jpg' 'output_SAGAN.jpg'
```

```
PyTorch version:  1.9.0+cu111
Torchvision version:  0.10.0+cu111
Source file: test/Places365_val_00021770.jpg…
Input size: (256, 256, 3)
Output size: (192, 192, 3)
Blended size: (384, 384, 3)
```

```
Destination file: output_SAGAN.jpg written
```

[55]:
```python
from PIL import Image
import matplotlib.pyplot as plt

# Open the original image
original_image = Image.open('test/Places365_val_00021770.jpg')

# Open the processed images
processed_image_GAN = Image.open('output_GAN.jpg')
processed_image_SAGAN = Image.open('output_SAGAN.jpg')

# Create a figure with a 1x3 grid of subplots
fig, axes = plt.subplots(1, 3, figsize=(15, 5))

# Display the original image
axes[0].imshow(original_image)
axes[0].axis('off')
axes[0].set_title('Original Image')

# Display the processed GAN image
axes[1].imshow(processed_image_GAN)
axes[1].axis('off')
axes[1].set_title('GAN Processed Image')

# Display the processed SAGAN image
axes[2].imshow(processed_image_SAGAN)
axes[2].axis('off')
axes[2].set_title('SAGAN Processed Image')

# Adjust the spacing between subplots
plt.tight_layout()

# Show the figure with all subplots
plt.show()
```

[ ]: