

0724-small_classical_model

July 24, 2023

```
[1]: import torch
import torch.nn as nn
import torch.optim as optim
```

```
[2]: import numpy as np
```

```
[3]: import sys
sys.path.append('.')

from my_code import functions as f
```

1 Data

```
[4]: file_path = '../data/energies/Trial/Strings_Energies_4_aa.txt' # Replace with
    ↳ the actual path to your 'data.txt' file
string_list, number_list = f.read_data_file(file_path)
score_list = np.array(number_list)/100
angles_list = np.array([f.string_to_numbers(string) for string in string_list])
```

```
[5]: X, Y, X_validation, Y_validation = f.create_validating_set(angles_list,
    ↳ score_list, percentage=0.1)
```

```
[6]: # Define the dataset
input_data = torch.tensor(X, dtype=torch.float32)
target_data = torch.tensor(Y, dtype=torch.float32).view(-1, 1)

# Define the validation set
input_validation = torch.tensor(X_validation, dtype=torch.float32)
target_validation = torch.tensor(Y_validation, dtype=torch.float32).view(-1, 1)
```

```
[ ]:
```

2 Classical model

```
[7]: input_dim = input_data.size(1)

layers = [nn.Linear(input_dim*1, input_dim*2), nn.ReLU()]
layers += [nn.Linear(input_dim*2, input_dim*3), nn.ReLU()]
layers += [nn.Linear(input_dim*3, input_dim*3), nn.ReLU()]
layers += [nn.Linear(input_dim*3, input_dim*2), nn.ReLU()]
layers += [nn.Linear(input_dim*2, input_dim*1)]
layers += [nn.Linear(input_dim*1, input_dim*1), nn.ReLU()] * 2
layers += [nn.Linear(input_dim*1, 1)]
Net = nn.Sequential(*layers)
```

```
[8]: # Create an instance of the network
model = Net
```

```
[9]: import time
```

```
[10]: # time
start_time = time.time()

# Define the loss function and optimizer
criterion = nn.MSELoss() # Mean Squared Error loss
optimizer = optim.Adam(model.parameters(), lr=0.001) # Adam optimizer with
↳ learning rate 0.001

# Training loop
num_epochs = 100
batch_size = 32

losses = []
losses_epochs = []
losses_epochs_validation = []

for epoch in range(num_epochs):
    # Shuffle the dataset
    indices = torch.randperm(input_data.size(0))
    input_data = input_data[indices]
    target_data = target_data[indices]

    losses_epochs.append(0)

    # Mini-batch training
    for i in range(0, input_data.size(0), batch_size):
        inputs = input_data[i:i+batch_size]
        targets = target_data[i:i+batch_size]
```

```

# Forward pass
outputs = model(inputs)

# Compute the loss
loss = criterion(outputs, targets)

# Backward pass and optimization
optimizer.zero_grad()
loss.backward()
optimizer.step()

# Store the loss
losses.append(loss.item())

print('- Epoch [{}/{}], i: [{}/{}], Loss: {:.4f}'.format(epoch+1,
↪num_epochs, i, input_data.size(0), loss.item()), end='\r')

# add to the epoch loss
losses_epochs[-1] += loss.item() / (input_data.size(0) / batch_size)

# Compute the validation loss
outputs_validation = model(input_validation)
loss_validation = criterion(outputs_validation, target_validation)
losses_epochs_validation.append(loss_validation.item())

# time
# Compute elapsed time and remaining time
elapsed_time = time.time() - start_time
avg_time_per_epoch = elapsed_time / (epoch + 1)
remaining_epochs = num_epochs - (epoch + 1)
estimated_remaining_time = avg_time_per_epoch * remaining_epochs

# Convert remaining time to hours, minutes, and seconds for better
↪readability
hours, remainder = divmod(estimated_remaining_time, 3600)
minutes, seconds = divmod(remainder, 60)

# Print the loss and remaining time for this epoch
print('Epoch [{}/{}], Loss: {:.4f}, Time remaining: ~{}h {}m {:.0f}s'.
↪format(
    epoch+1, num_epochs, losses_epochs[-1], hours, minutes, seconds))

```

```

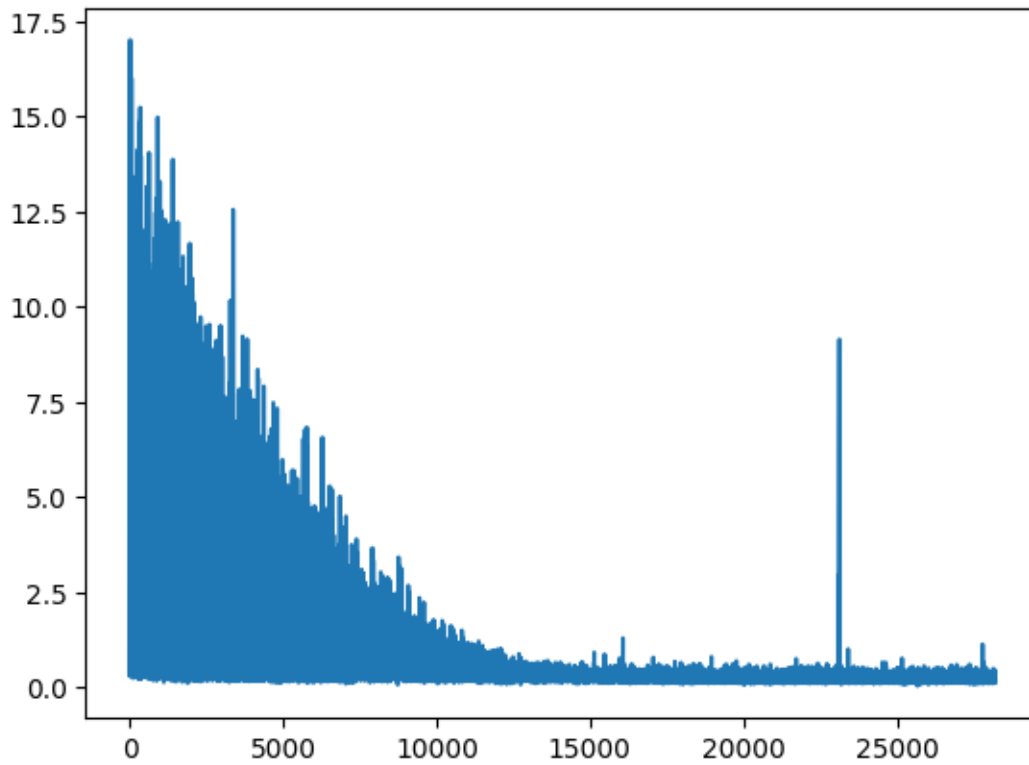
Epoch [1/100], Loss: 5.2838, Time remaining: ~0.0h 2.0m 6s
Epoch [2/100], Loss: 4.8602, Time remaining: ~0.0h 2.0m 1s
Epoch [3/100], Loss: 4.5635, Time remaining: ~0.0h 1.0m 55s
Epoch [4/100], Loss: 4.3040, Time remaining: ~0.0h 1.0m 53s
Epoch [5/100], Loss: 4.0750, Time remaining: ~0.0h 1.0m 50s

```

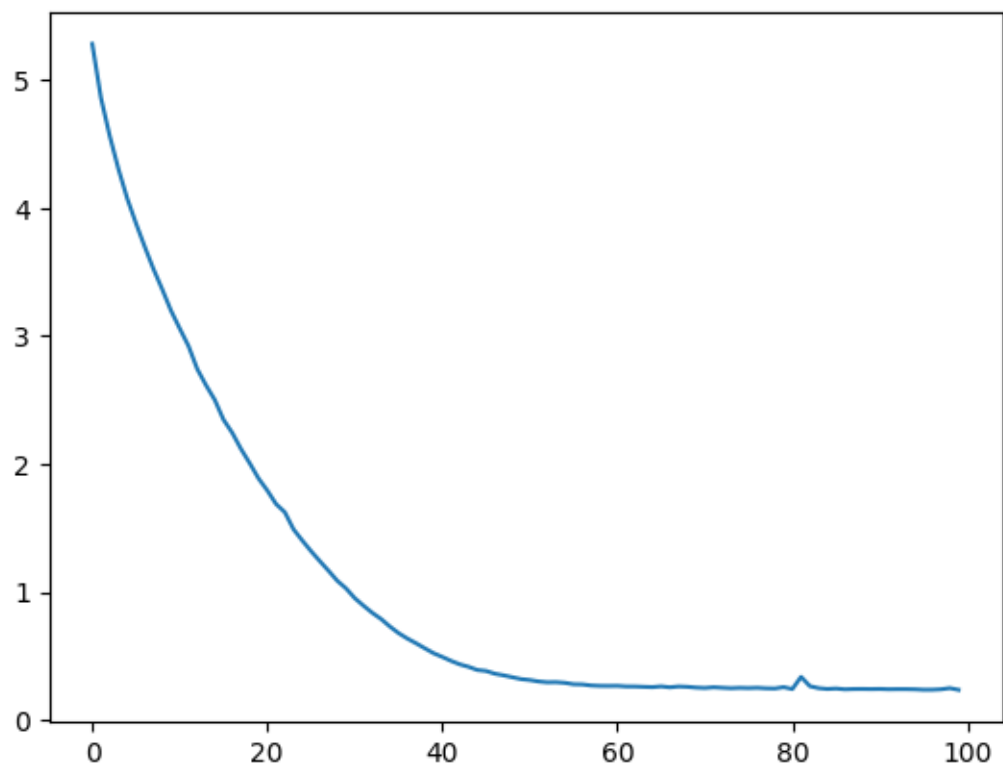
Epoch [6/100], Loss: 3.8805, Time remaining: ~0.0h 1.0m 48s
Epoch [7/100], Loss: 3.6979, Time remaining: ~0.0h 1.0m 47s
Epoch [8/100], Loss: 3.5230, Time remaining: ~0.0h 1.0m 45s
Epoch [9/100], Loss: 3.3648, Time remaining: ~0.0h 1.0m 41s
Epoch [10/100], Loss: 3.1985, Time remaining: ~0.0h 1.0m 41s
Epoch [11/100], Loss: 3.0583, Time remaining: ~0.0h 1.0m 40s
Epoch [12/100], Loss: 2.9219, Time remaining: ~0.0h 1.0m 38s
Epoch [13/100], Loss: 2.7422, Time remaining: ~0.0h 1.0m 36s
Epoch [14/100], Loss: 2.6156, Time remaining: ~0.0h 1.0m 34s
Epoch [15/100], Loss: 2.5010, Time remaining: ~0.0h 1.0m 32s
Epoch [16/100], Loss: 2.3461, Time remaining: ~0.0h 1.0m 31s
Epoch [17/100], Loss: 2.2432, Time remaining: ~0.0h 1.0m 29s
Epoch [18/100], Loss: 2.1170, Time remaining: ~0.0h 1.0m 28s
Epoch [19/100], Loss: 2.0051, Time remaining: ~0.0h 1.0m 27s
Epoch [20/100], Loss: 1.8871, Time remaining: ~0.0h 1.0m 25s
Epoch [21/100], Loss: 1.7934, Time remaining: ~0.0h 1.0m 24s
Epoch [22/100], Loss: 1.6873, Time remaining: ~0.0h 1.0m 22s
Epoch [23/100], Loss: 1.6233, Time remaining: ~0.0h 1.0m 21s
Epoch [24/100], Loss: 1.4893, Time remaining: ~0.0h 1.0m 20s
Epoch [25/100], Loss: 1.4017, Time remaining: ~0.0h 1.0m 19s
Epoch [26/100], Loss: 1.3187, Time remaining: ~0.0h 1.0m 18s
Epoch [27/100], Loss: 1.2410, Time remaining: ~0.0h 1.0m 17s
Epoch [28/100], Loss: 1.1652, Time remaining: ~0.0h 1.0m 17s
Epoch [29/100], Loss: 1.0871, Time remaining: ~0.0h 1.0m 16s
Epoch [30/100], Loss: 1.0274, Time remaining: ~0.0h 1.0m 15s
Epoch [31/100], Loss: 0.9509, Time remaining: ~0.0h 1.0m 13s
Epoch [32/100], Loss: 0.8920, Time remaining: ~0.0h 1.0m 12s
Epoch [33/100], Loss: 0.8362, Time remaining: ~0.0h 1.0m 11s
Epoch [34/100], Loss: 0.7883, Time remaining: ~0.0h 1.0m 10s
Epoch [35/100], Loss: 0.7300, Time remaining: ~0.0h 1.0m 9s
Epoch [36/100], Loss: 0.6779, Time remaining: ~0.0h 1.0m 8s
Epoch [37/100], Loss: 0.6355, Time remaining: ~0.0h 1.0m 6s
Epoch [38/100], Loss: 0.5985, Time remaining: ~0.0h 1.0m 5s
Epoch [39/100], Loss: 0.5591, Time remaining: ~0.0h 1.0m 4s
Epoch [40/100], Loss: 0.5208, Time remaining: ~0.0h 1.0m 3s
Epoch [41/100], Loss: 0.4917, Time remaining: ~0.0h 1.0m 2s
Epoch [42/100], Loss: 0.4606, Time remaining: ~0.0h 1.0m 1s
Epoch [43/100], Loss: 0.4336, Time remaining: ~0.0h 0.0m 60s
Epoch [44/100], Loss: 0.4143, Time remaining: ~0.0h 0.0m 58s
Epoch [45/100], Loss: 0.3895, Time remaining: ~0.0h 0.0m 57s
Epoch [46/100], Loss: 0.3819, Time remaining: ~0.0h 0.0m 56s
Epoch [47/100], Loss: 0.3604, Time remaining: ~0.0h 0.0m 55s
Epoch [48/100], Loss: 0.3477, Time remaining: ~0.0h 0.0m 54s
Epoch [49/100], Loss: 0.3329, Time remaining: ~0.0h 0.0m 53s
Epoch [50/100], Loss: 0.3183, Time remaining: ~0.0h 0.0m 52s
Epoch [51/100], Loss: 0.3110, Time remaining: ~0.0h 0.0m 50s
Epoch [52/100], Loss: 0.2997, Time remaining: ~0.0h 0.0m 49s
Epoch [53/100], Loss: 0.2934, Time remaining: ~0.0h 0.0m 48s

Epoch [54/100], Loss: 0.2943, Time remaining: ~0.0h 0.0m 47s
Epoch [55/100], Loss: 0.2891, Time remaining: ~0.0h 0.0m 46s
Epoch [56/100], Loss: 0.2782, Time remaining: ~0.0h 0.0m 45s
Epoch [57/100], Loss: 0.2767, Time remaining: ~0.0h 0.0m 44s
Epoch [58/100], Loss: 0.2684, Time remaining: ~0.0h 0.0m 43s
Epoch [59/100], Loss: 0.2654, Time remaining: ~0.0h 0.0m 42s
Epoch [60/100], Loss: 0.2648, Time remaining: ~0.0h 0.0m 41s
Epoch [61/100], Loss: 0.2655, Time remaining: ~0.0h 0.0m 40s
Epoch [62/100], Loss: 0.2608, Time remaining: ~0.0h 0.0m 39s
Epoch [63/100], Loss: 0.2605, Time remaining: ~0.0h 0.0m 37s
Epoch [64/100], Loss: 0.2580, Time remaining: ~0.0h 0.0m 36s
Epoch [65/100], Loss: 0.2558, Time remaining: ~0.0h 0.0m 35s
Epoch [66/100], Loss: 0.2614, Time remaining: ~0.0h 0.0m 34s
Epoch [67/100], Loss: 0.2542, Time remaining: ~0.0h 0.0m 33s
Epoch [68/100], Loss: 0.2607, Time remaining: ~0.0h 0.0m 32s
Epoch [69/100], Loss: 0.2579, Time remaining: ~0.0h 0.0m 31s
Epoch [70/100], Loss: 0.2520, Time remaining: ~0.0h 0.0m 30s
Epoch [71/100], Loss: 0.2489, Time remaining: ~0.0h 0.0m 29s
Epoch [72/100], Loss: 0.2544, Time remaining: ~0.0h 0.0m 28s
Epoch [73/100], Loss: 0.2504, Time remaining: ~0.0h 0.0m 27s
Epoch [74/100], Loss: 0.2471, Time remaining: ~0.0h 0.0m 26s
Epoch [75/100], Loss: 0.2498, Time remaining: ~0.0h 0.0m 25s
Epoch [76/100], Loss: 0.2481, Time remaining: ~0.0h 0.0m 24s
Epoch [77/100], Loss: 0.2502, Time remaining: ~0.0h 0.0m 23s
Epoch [78/100], Loss: 0.2462, Time remaining: ~0.0h 0.0m 22s
Epoch [79/100], Loss: 0.2448, Time remaining: ~0.0h 0.0m 21s
Epoch [80/100], Loss: 0.2555, Time remaining: ~0.0h 0.0m 20s
Epoch [81/100], Loss: 0.2407, Time remaining: ~0.0h 0.0m 19s
Epoch [82/100], Loss: 0.3361, Time remaining: ~0.0h 0.0m 18s
Epoch [83/100], Loss: 0.2631, Time remaining: ~0.0h 0.0m 17s
Epoch [84/100], Loss: 0.2474, Time remaining: ~0.0h 0.0m 16s
Epoch [85/100], Loss: 0.2410, Time remaining: ~0.0h 0.0m 15s
Epoch [86/100], Loss: 0.2445, Time remaining: ~0.0h 0.0m 14s
Epoch [87/100], Loss: 0.2384, Time remaining: ~0.0h 0.0m 13s
Epoch [88/100], Loss: 0.2407, Time remaining: ~0.0h 0.0m 12s
Epoch [89/100], Loss: 0.2411, Time remaining: ~0.0h 0.0m 11s
Epoch [90/100], Loss: 0.2401, Time remaining: ~0.0h 0.0m 10s
Epoch [91/100], Loss: 0.2412, Time remaining: ~0.0h 0.0m 9s
Epoch [92/100], Loss: 0.2389, Time remaining: ~0.0h 0.0m 8s
Epoch [93/100], Loss: 0.2398, Time remaining: ~0.0h 0.0m 7s
Epoch [94/100], Loss: 0.2397, Time remaining: ~0.0h 0.0m 6s
Epoch [95/100], Loss: 0.2384, Time remaining: ~0.0h 0.0m 5s
Epoch [96/100], Loss: 0.2350, Time remaining: ~0.0h 0.0m 4s
Epoch [97/100], Loss: 0.2353, Time remaining: ~0.0h 0.0m 3s
Epoch [98/100], Loss: 0.2385, Time remaining: ~0.0h 0.0m 2s
Epoch [99/100], Loss: 0.2477, Time remaining: ~0.0h 0.0m 1s
Epoch [100/100], Loss: 0.2341, Time remaining: ~0.0h 0.0m 0s

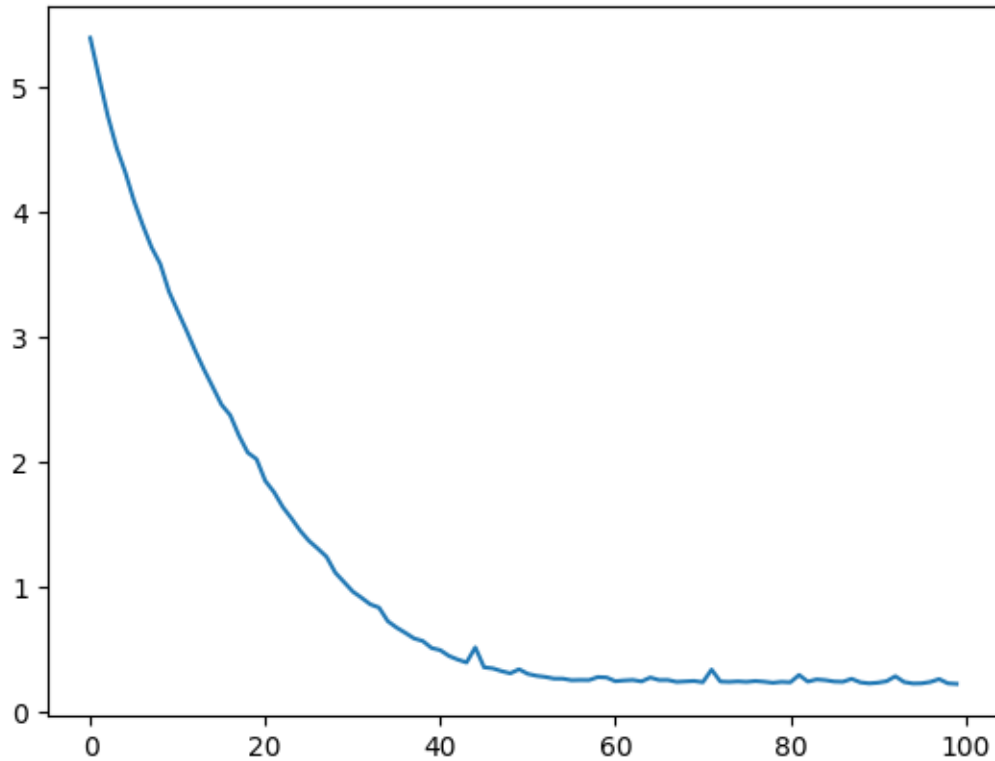
```
[11]: #plot the loss
import matplotlib.pyplot as plt
plt.plot(losses)
plt.show()
```



```
[12]: #plot the loss
import matplotlib.pyplot as plt
plt.plot(losses_epochs)
plt.show()
```



```
[13]: import matplotlib.pyplot as plt
plt.plot(losses_epochs_validation)
plt.show()
```



```
[14]: avg_loss = 0
for x, (i, t) in enumerate(zip((input_validation), target_validation)):
    loss = criterion(model(i), t)
    avg_loss += loss/len(target_validation)
    print('i: {}, target: {:.3f}, output: {:.3f}, loss: {:.3f}'.format(x, t.
    ↪item(), model(i).item(), loss))
    print('')

print('Average loss: {:.3f}'.format(avg_loss))
```

```
i: 0, target: 9.722, output: 9.244, loss: 0.228

i: 1, target: -1.301, output: -1.178, loss: 0.015

i: 2, target: -0.605, output: -1.132, loss: 0.278

i: 3, target: -0.726, output: -1.278, loss: 0.304

i: 4, target: -1.680, output: -1.195, loss: 0.235

i: 5, target: 8.929, output: 9.244, loss: 0.100
```


i: 6, target: 9.564, output: 9.244, loss: 0.102
i: 7, target: -0.778, output: -1.022, loss: 0.059
i: 8, target: -0.439, output: -0.874, loss: 0.189
i: 9, target: -1.503, output: -1.244, loss: 0.067
i: 10, target: -1.598, output: -1.280, loss: 0.101
i: 11, target: -0.714, output: -1.062, loss: 0.121
i: 12, target: -0.880, output: -1.246, loss: 0.134
i: 13, target: -0.732, output: -0.570, loss: 0.026
i: 14, target: -0.487, output: -0.825, loss: 0.114
i: 15, target: -2.039, output: -1.406, loss: 0.400
i: 16, target: -1.594, output: -0.918, loss: 0.457
i: 17, target: -0.923, output: -0.630, loss: 0.086
i: 18, target: -0.368, output: -1.138, loss: 0.593
i: 19, target: 0.597, output: 0.154, loss: 0.196
i: 20, target: -1.002, output: -0.596, loss: 0.164
i: 21, target: -0.227, output: -1.045, loss: 0.669
i: 22, target: -1.211, output: -0.603, loss: 0.369
i: 23, target: -0.669, output: -0.779, loss: 0.012
i: 24, target: -1.446, output: -0.932, loss: 0.264
i: 25, target: -0.646, output: -1.138, loss: 0.242
i: 26, target: -1.648, output: -1.507, loss: 0.020
i: 27, target: -0.769, output: -1.014, loss: 0.060
i: 28, target: -0.974, output: -1.408, loss: 0.188
i: 29, target: -0.400, output: -0.871, loss: 0.222

i: 30, target: -1.000, output: -1.327, loss: 0.107
i: 31, target: -1.810, output: -1.360, loss: 0.202
i: 32, target: -0.437, output: -1.063, loss: 0.392
i: 33, target: -0.792, output: -1.267, loss: 0.226
i: 34, target: -0.864, output: -0.905, loss: 0.002
i: 35, target: -1.860, output: -1.188, loss: 0.452
i: 36, target: 8.637, output: 9.244, loss: 0.369
i: 37, target: -0.330, output: -0.963, loss: 0.401
i: 38, target: -1.623, output: -1.030, loss: 0.352
i: 39, target: -0.509, output: -1.156, loss: 0.418
i: 40, target: -0.595, output: -0.836, loss: 0.058
i: 41, target: -0.212, output: -1.303, loss: 1.190
i: 42, target: -0.741, output: -1.306, loss: 0.319
i: 43, target: -0.461, output: -0.858, loss: 0.158
i: 44, target: -2.066, output: -1.577, loss: 0.238
i: 45, target: -0.442, output: -0.882, loss: 0.194
i: 46, target: 0.628, output: 0.181, loss: 0.199
i: 47, target: -1.146, output: -0.901, loss: 0.060
i: 48, target: -0.381, output: -0.588, loss: 0.043
i: 49, target: 0.505, output: 0.418, loss: 0.008
i: 50, target: 0.589, output: 0.182, loss: 0.166
i: 51, target: -1.412, output: -1.002, loss: 0.168
i: 52, target: 9.480, output: 9.244, loss: 0.055
i: 53, target: -1.547, output: -0.945, loss: 0.363

i: 54, target: -0.429, output: -1.067, loss: 0.407
i: 55, target: -0.480, output: -1.196, loss: 0.514
i: 56, target: -0.753, output: -0.248, loss: 0.255
i: 57, target: -0.759, output: -1.014, loss: 0.065
i: 58, target: -1.217, output: -1.295, loss: 0.006
i: 59, target: -1.241, output: -1.092, loss: 0.022
i: 60, target: -0.772, output: -0.765, loss: 0.000
i: 61, target: -0.932, output: -1.418, loss: 0.236
i: 62, target: -0.559, output: -1.310, loss: 0.565
i: 63, target: -1.229, output: -1.218, loss: 0.000
i: 64, target: -0.515, output: -0.688, loss: 0.030
i: 65, target: -1.523, output: -1.058, loss: 0.216
i: 66, target: -0.742, output: -0.726, loss: 0.000
i: 67, target: -0.718, output: -0.720, loss: 0.000
i: 68, target: 0.286, output: 0.112, loss: 0.030
i: 69, target: -1.762, output: -1.267, loss: 0.245
i: 70, target: -0.950, output: -0.788, loss: 0.026
i: 71, target: -1.217, output: -1.274, loss: 0.003
i: 72, target: 8.240, output: 9.244, loss: 1.008
i: 73, target: -1.381, output: -1.330, loss: 0.003
i: 74, target: -1.598, output: -1.208, loss: 0.152
i: 75, target: 9.205, output: 9.244, loss: 0.002
i: 76, target: 0.525, output: 0.619, loss: 0.009
i: 77, target: -0.772, output: -0.939, loss: 0.028

i: 78, target: -1.726, output: -0.942, loss: 0.615
i: 79, target: -0.509, output: -0.997, loss: 0.238
i: 80, target: -0.965, output: -1.153, loss: 0.035
i: 81, target: -0.168, output: -1.074, loss: 0.821
i: 82, target: -0.775, output: -0.973, loss: 0.039
i: 83, target: -0.515, output: -1.102, loss: 0.345
i: 84, target: -0.687, output: -1.114, loss: 0.182
i: 85, target: 9.109, output: 9.244, loss: 0.018
i: 86, target: -1.433, output: -0.736, loss: 0.486
i: 87, target: -0.555, output: -1.110, loss: 0.309
i: 88, target: -0.722, output: -0.748, loss: 0.001
i: 89, target: -1.900, output: -1.385, loss: 0.265
i: 90, target: -1.749, output: -1.317, loss: 0.187
i: 91, target: -1.133, output: -1.268, loss: 0.018
i: 92, target: 0.406, output: 0.156, loss: 0.063
i: 93, target: 0.208, output: 0.204, loss: 0.000
i: 94, target: -0.718, output: -0.880, loss: 0.026
i: 95, target: -0.728, output: -1.040, loss: 0.098
i: 96, target: -0.647, output: -1.149, loss: 0.253
i: 97, target: -1.544, output: -0.938, loss: 0.367
i: 98, target: -0.683, output: -0.844, loss: 0.026
i: 99, target: -1.254, output: -1.014, loss: 0.058
i: 100, target: -0.528, output: -0.693, loss: 0.027
i: 101, target: -1.401, output: -1.155, loss: 0.061

i: 102, target: -0.743, output: -0.908, loss: 0.027
i: 103, target: -0.692, output: -1.009, loss: 0.100
i: 104, target: -1.203, output: -0.968, loss: 0.055
i: 105, target: -0.344, output: -0.890, loss: 0.298
i: 106, target: -0.933, output: -0.795, loss: 0.019
i: 107, target: -1.329, output: -1.000, loss: 0.108
i: 108, target: 1.334, output: -1.089, loss: 5.871
i: 109, target: -0.906, output: -0.674, loss: 0.054
i: 110, target: -0.704, output: -0.807, loss: 0.011
i: 111, target: -2.192, output: -0.932, loss: 1.586
i: 112, target: -0.698, output: -1.002, loss: 0.093
i: 113, target: -1.178, output: -1.441, loss: 0.069
i: 114, target: -0.404, output: -1.145, loss: 0.549
i: 115, target: -1.193, output: -1.011, loss: 0.033
i: 116, target: -0.412, output: -0.825, loss: 0.171
i: 117, target: -0.984, output: -1.040, loss: 0.003
i: 118, target: -1.302, output: -1.147, loss: 0.024
i: 119, target: -0.479, output: -0.977, loss: 0.248
i: 120, target: -2.068, output: -1.209, loss: 0.738
i: 121, target: -0.161, output: 0.241, loss: 0.161
i: 122, target: -0.366, output: -1.011, loss: 0.416
i: 123, target: -1.196, output: -1.143, loss: 0.003
i: 124, target: -0.560, output: -0.576, loss: 0.000
i: 125, target: -0.808, output: -1.126, loss: 0.101

i: 126, target: -0.386, output: 0.304, loss: 0.477
i: 127, target: -1.276, output: -0.952, loss: 0.105
i: 128, target: -0.503, output: -1.329, loss: 0.682
i: 129, target: -1.596, output: -1.605, loss: 0.000
i: 130, target: -1.352, output: -1.120, loss: 0.054
i: 131, target: -1.515, output: -1.143, loss: 0.138
i: 132, target: -0.756, output: -0.853, loss: 0.009
i: 133, target: -0.338, output: -1.024, loss: 0.471
i: 134, target: -1.947, output: -1.039, loss: 0.825
i: 135, target: -0.800, output: -1.352, loss: 0.304
i: 136, target: -1.224, output: -0.819, loss: 0.164
i: 137, target: -0.641, output: -1.396, loss: 0.570
i: 138, target: 0.475, output: 0.350, loss: 0.016
i: 139, target: -1.294, output: -0.653, loss: 0.411
i: 140, target: -1.551, output: -0.734, loss: 0.668
i: 141, target: -0.605, output: -0.847, loss: 0.059
i: 142, target: 0.793, output: 0.176, loss: 0.381
i: 143, target: -0.797, output: -1.079, loss: 0.079
i: 144, target: -0.491, output: -0.995, loss: 0.255
i: 145, target: -0.629, output: -1.021, loss: 0.154
i: 146, target: 9.093, output: 9.244, loss: 0.023
i: 147, target: -1.931, output: -1.463, loss: 0.219
i: 148, target: -2.466, output: -1.270, loss: 1.429
i: 149, target: -1.169, output: -0.957, loss: 0.045

i: 150, target: -0.552, output: -0.975, loss: 0.178
i: 151, target: -1.384, output: -1.045, loss: 0.115
i: 152, target: -1.407, output: -0.991, loss: 0.174
i: 153, target: -0.479, output: -1.113, loss: 0.402
i: 154, target: -1.013, output: -1.213, loss: 0.040
i: 155, target: -0.492, output: -1.084, loss: 0.350
i: 156, target: -2.645, output: -1.489, loss: 1.335
i: 157, target: -0.936, output: -1.092, loss: 0.024
i: 158, target: -0.701, output: -1.039, loss: 0.114
i: 159, target: 9.791, output: 9.244, loss: 0.299
i: 160, target: -1.248, output: -1.186, loss: 0.004
i: 161, target: -0.288, output: -0.909, loss: 0.386
i: 162, target: -1.358, output: -0.803, loss: 0.307
i: 163, target: -1.127, output: -1.164, loss: 0.001
i: 164, target: -1.199, output: -0.883, loss: 0.100
i: 165, target: -0.646, output: -1.405, loss: 0.576
i: 166, target: -0.865, output: -0.979, loss: 0.013
i: 167, target: -1.186, output: -0.801, loss: 0.148
i: 168, target: -1.833, output: -1.429, loss: 0.163
i: 169, target: -1.033, output: -1.113, loss: 0.006
i: 170, target: -0.541, output: -1.312, loss: 0.594
i: 171, target: -1.110, output: -0.647, loss: 0.214
i: 172, target: -0.531, output: -0.795, loss: 0.070
i: 173, target: -1.007, output: -1.278, loss: 0.073

i: 174, target: -3.055, output: -1.573, loss: 2.196
i: 175, target: -0.258, output: -0.941, loss: 0.467
i: 176, target: -1.432, output: -0.819, loss: 0.376
i: 177, target: -0.539, output: -0.848, loss: 0.095
i: 178, target: 8.873, output: 9.244, loss: 0.138
i: 179, target: -1.058, output: -1.118, loss: 0.004
i: 180, target: -0.615, output: -1.193, loss: 0.334
i: 181, target: -1.435, output: -1.266, loss: 0.029
i: 182, target: -0.769, output: -1.139, loss: 0.137
i: 183, target: -1.306, output: -0.975, loss: 0.109
i: 184, target: -0.390, output: -0.598, loss: 0.043
i: 185, target: -1.311, output: -1.506, loss: 0.038
i: 186, target: -1.623, output: -1.203, loss: 0.177
i: 187, target: -0.598, output: -0.624, loss: 0.001
i: 188, target: -0.511, output: -1.033, loss: 0.272
i: 189, target: -1.348, output: -1.091, loss: 0.066
i: 190, target: -1.433, output: -1.308, loss: 0.015
i: 191, target: 0.474, output: 0.296, loss: 0.032
i: 192, target: -0.475, output: -0.919, loss: 0.197
i: 193, target: -1.393, output: -1.384, loss: 0.000
i: 194, target: -0.365, output: -0.727, loss: 0.131
i: 195, target: -0.762, output: -1.221, loss: 0.211
i: 196, target: -0.848, output: -1.068, loss: 0.048
i: 197, target: -1.282, output: -1.220, loss: 0.004

i: 198, target: -2.249, output: -1.248, loss: 1.002
i: 199, target: -0.432, output: -1.081, loss: 0.421
i: 200, target: -1.318, output: -1.527, loss: 0.044
i: 201, target: -1.720, output: -1.441, loss: 0.078
i: 202, target: -1.453, output: -1.417, loss: 0.001
i: 203, target: -0.865, output: -1.148, loss: 0.080
i: 204, target: -1.439, output: -1.108, loss: 0.110
i: 205, target: -0.312, output: -1.254, loss: 0.887
i: 206, target: -1.544, output: -1.197, loss: 0.120
i: 207, target: -0.279, output: -1.018, loss: 0.546
i: 208, target: -0.737, output: -0.806, loss: 0.005
i: 209, target: -0.647, output: -0.566, loss: 0.007
i: 210, target: -1.026, output: -0.830, loss: 0.038
i: 211, target: -1.162, output: -1.480, loss: 0.101
i: 212, target: -1.599, output: -0.774, loss: 0.680
i: 213, target: -1.709, output: -1.416, loss: 0.086
i: 214, target: -1.753, output: -1.454, loss: 0.089
i: 215, target: -1.410, output: -1.131, loss: 0.078
i: 216, target: -1.286, output: -1.292, loss: 0.000
i: 217, target: -1.147, output: -1.133, loss: 0.000
i: 218, target: -0.753, output: -0.666, loss: 0.007
i: 219, target: 8.631, output: 9.244, loss: 0.376
i: 220, target: -0.617, output: -0.723, loss: 0.011
i: 221, target: -0.718, output: -1.188, loss: 0.222

i: 222, target: -0.536, output: -0.574, loss: 0.001
i: 223, target: -0.594, output: -0.667, loss: 0.005
i: 224, target: -1.250, output: -1.267, loss: 0.000
i: 225, target: 0.175, output: 0.146, loss: 0.001
i: 226, target: -0.673, output: -1.192, loss: 0.269
i: 227, target: -1.357, output: -0.879, loss: 0.228
i: 228, target: -0.441, output: -0.839, loss: 0.158
i: 229, target: -0.830, output: -1.084, loss: 0.064
i: 230, target: -1.118, output: -0.616, loss: 0.252
i: 231, target: -1.118, output: -1.172, loss: 0.003
i: 232, target: 0.658, output: 0.474, loss: 0.034
i: 233, target: -2.161, output: -1.126, loss: 1.073
i: 234, target: -0.810, output: -0.718, loss: 0.008
i: 235, target: -1.124, output: -0.769, loss: 0.126
i: 236, target: 0.696, output: 0.192, loss: 0.255
i: 237, target: -1.294, output: -0.950, loss: 0.118
i: 238, target: -1.610, output: -0.837, loss: 0.596
i: 239, target: -1.613, output: -1.583, loss: 0.001
i: 240, target: -1.325, output: -1.080, loss: 0.060
i: 241, target: -1.037, output: -1.439, loss: 0.161
i: 242, target: -1.111, output: -0.978, loss: 0.018
i: 243, target: -1.907, output: -1.520, loss: 0.149
i: 244, target: -1.488, output: -0.990, loss: 0.248
i: 245, target: -2.016, output: -1.595, loss: 0.178

i: 246, target: -1.028, output: -0.619, loss: 0.167
i: 247, target: -0.473, output: -0.985, loss: 0.263
i: 248, target: -0.179, output: -1.021, loss: 0.709
i: 249, target: -0.440, output: -0.545, loss: 0.011
i: 250, target: -1.289, output: -1.412, loss: 0.015
i: 251, target: 0.497, output: 0.442, loss: 0.003
i: 252, target: -1.113, output: -1.032, loss: 0.007
i: 253, target: -1.533, output: -1.576, loss: 0.002
i: 254, target: -1.609, output: -1.190, loss: 0.176
i: 255, target: -0.803, output: -0.826, loss: 0.001
i: 256, target: 9.218, output: 9.244, loss: 0.001
i: 257, target: -1.531, output: -0.987, loss: 0.295
i: 258, target: -2.396, output: -1.231, loss: 1.356
i: 259, target: -1.406, output: -0.885, loss: 0.272
i: 260, target: -0.670, output: -0.535, loss: 0.018
i: 261, target: -0.929, output: -1.114, loss: 0.034
i: 262, target: -0.968, output: -1.299, loss: 0.110
i: 263, target: -1.573, output: -1.172, loss: 0.160
i: 264, target: -1.935, output: -0.947, loss: 0.977
i: 265, target: -1.281, output: -0.894, loss: 0.150
i: 266, target: -3.325, output: -1.626, loss: 2.885
i: 267, target: -1.541, output: -1.064, loss: 0.228
i: 268, target: -1.200, output: -1.258, loss: 0.003
i: 269, target: -1.925, output: -1.169, loss: 0.572

i: 270, target: -0.975, output: -1.304, loss: 0.108
i: 271, target: -1.216, output: -1.311, loss: 0.009
i: 272, target: -1.010, output: -0.807, loss: 0.041
i: 273, target: -0.875, output: -0.876, loss: 0.000
i: 274, target: -0.872, output: -1.046, loss: 0.031
i: 275, target: -1.373, output: -1.163, loss: 0.044
i: 276, target: -0.806, output: -0.706, loss: 0.010
i: 277, target: -0.855, output: -0.812, loss: 0.002
i: 278, target: -0.313, output: -0.730, loss: 0.174
i: 279, target: -2.410, output: -1.584, loss: 0.682
i: 280, target: -1.304, output: -1.245, loss: 0.003
i: 281, target: -0.370, output: -0.235, loss: 0.018
i: 282, target: -0.450, output: -1.157, loss: 0.500
i: 283, target: -0.653, output: -0.770, loss: 0.014
i: 284, target: 0.750, output: 0.213, loss: 0.288
i: 285, target: -1.008, output: -1.122, loss: 0.013
i: 286, target: -0.651, output: -1.008, loss: 0.127
i: 287, target: -0.403, output: -0.731, loss: 0.108
i: 288, target: -0.544, output: -1.092, loss: 0.300
i: 289, target: -0.247, output: -1.206, loss: 0.919
i: 290, target: -1.039, output: -0.974, loss: 0.004
i: 291, target: 0.248, output: 0.163, loss: 0.007
i: 292, target: -1.471, output: -0.947, loss: 0.275
i: 293, target: -1.294, output: -1.004, loss: 0.084

i: 294, target: -0.502, output: -0.885, loss: 0.147
i: 295, target: -1.632, output: -0.879, loss: 0.568
i: 296, target: -1.172, output: -0.775, loss: 0.157
i: 297, target: 0.680, output: 0.208, loss: 0.222
i: 298, target: -1.394, output: -0.846, loss: 0.301
i: 299, target: -0.540, output: -1.381, loss: 0.708
i: 300, target: -0.529, output: -0.888, loss: 0.129
i: 301, target: 0.578, output: 0.141, loss: 0.191
i: 302, target: 0.402, output: 0.166, loss: 0.056
i: 303, target: -1.369, output: -1.417, loss: 0.002
i: 304, target: -0.643, output: -1.014, loss: 0.138
i: 305, target: -0.621, output: -1.079, loss: 0.209
i: 306, target: -0.627, output: -1.201, loss: 0.329
i: 307, target: 0.449, output: 0.210, loss: 0.057
i: 308, target: 0.401, output: 0.220, loss: 0.033
i: 309, target: -0.614, output: -0.909, loss: 0.087
i: 310, target: -1.459, output: -1.593, loss: 0.018
i: 311, target: -1.335, output: -0.855, loss: 0.231
i: 312, target: -0.507, output: -0.847, loss: 0.116
i: 313, target: 8.930, output: 9.244, loss: 0.099
i: 314, target: -0.664, output: -0.631, loss: 0.001
i: 315, target: 9.611, output: 9.244, loss: 0.134
i: 316, target: -0.693, output: -0.585, loss: 0.012
i: 317, target: -0.622, output: -0.808, loss: 0.035

i: 318, target: -0.819, output: -0.964, loss: 0.021
i: 319, target: -1.231, output: -1.028, loss: 0.041
i: 320, target: -0.832, output: -0.926, loss: 0.009
i: 321, target: 0.867, output: 0.180, loss: 0.471
i: 322, target: -1.011, output: -0.763, loss: 0.062
i: 323, target: -1.398, output: -0.905, loss: 0.243
i: 324, target: -2.106, output: -1.312, loss: 0.630
i: 325, target: -1.065, output: -1.110, loss: 0.002
i: 326, target: -0.451, output: -1.146, loss: 0.482
i: 327, target: -0.544, output: -1.086, loss: 0.293
i: 328, target: -0.653, output: -1.030, loss: 0.142
i: 329, target: 0.365, output: 0.136, loss: 0.052
i: 330, target: -0.633, output: -1.002, loss: 0.137
i: 331, target: -0.540, output: -0.912, loss: 0.138
i: 332, target: -1.541, output: 0.124, loss: 2.771
i: 333, target: -0.403, output: -0.848, loss: 0.198
i: 334, target: -0.129, output: -0.914, loss: 0.616
i: 335, target: -1.283, output: -1.204, loss: 0.006
i: 336, target: -0.878, output: -1.176, loss: 0.089
i: 337, target: -0.512, output: -0.930, loss: 0.175
i: 338, target: -0.992, output: -1.248, loss: 0.065
i: 339, target: -0.752, output: -0.612, loss: 0.020
i: 340, target: -1.489, output: -1.474, loss: 0.000
i: 341, target: -1.428, output: -0.904, loss: 0.275

i: 342, target: -1.163, output: -0.819, loss: 0.119
i: 343, target: -0.005, output: -1.243, loss: 1.533
i: 344, target: -1.065, output: -1.161, loss: 0.009
i: 345, target: -0.584, output: -0.885, loss: 0.091
i: 346, target: -0.835, output: -0.907, loss: 0.005
i: 347, target: -1.220, output: -1.053, loss: 0.028
i: 348, target: -0.520, output: -0.957, loss: 0.191
i: 349, target: -0.885, output: -1.035, loss: 0.023
i: 350, target: -0.486, output: -1.338, loss: 0.726
i: 351, target: -1.232, output: -1.430, loss: 0.039
i: 352, target: -0.852, output: -1.107, loss: 0.065
i: 353, target: -0.253, output: 0.292, loss: 0.298
i: 354, target: -1.476, output: -1.408, loss: 0.005
i: 355, target: -1.461, output: -1.376, loss: 0.007
i: 356, target: 0.501, output: 0.231, loss: 0.073
i: 357, target: 0.347, output: 0.105, loss: 0.058
i: 358, target: -0.508, output: -1.008, loss: 0.249
i: 359, target: -1.185, output: -1.296, loss: 0.012
i: 360, target: -0.812, output: 0.117, loss: 0.863
i: 361, target: -1.560, output: -1.186, loss: 0.140
i: 362, target: 8.694, output: 9.244, loss: 0.303
i: 363, target: -1.902, output: -1.264, loss: 0.407
i: 364, target: -1.853, output: -1.152, loss: 0.491
i: 365, target: -1.717, output: -1.299, loss: 0.175

i: 366, target: -0.568, output: -0.902, loss: 0.112
i: 367, target: -0.998, output: -0.722, loss: 0.076
i: 368, target: -0.912, output: -1.155, loss: 0.059
i: 369, target: -1.057, output: -0.993, loss: 0.004
i: 370, target: -0.710, output: -0.894, loss: 0.034
i: 371, target: -0.227, output: 0.138, loss: 0.133
i: 372, target: -0.426, output: -1.195, loss: 0.593
i: 373, target: 1.265, output: -0.915, loss: 4.751
i: 374, target: -0.449, output: -0.601, loss: 0.023
i: 375, target: -2.111, output: -1.535, loss: 0.333
i: 376, target: -1.770, output: -1.115, loss: 0.429
i: 377, target: -2.010, output: -1.389, loss: 0.385
i: 378, target: -1.620, output: -0.985, loss: 0.404
i: 379, target: -0.774, output: -0.923, loss: 0.022
i: 380, target: -0.616, output: -0.600, loss: 0.000
i: 381, target: -0.541, output: -0.595, loss: 0.003
i: 382, target: 9.816, output: 9.244, loss: 0.327
i: 383, target: -1.375, output: -1.298, loss: 0.006
i: 384, target: -1.092, output: -0.887, loss: 0.042
i: 385, target: -0.931, output: -0.739, loss: 0.037
i: 386, target: -0.436, output: -1.125, loss: 0.476
i: 387, target: -1.793, output: -1.242, loss: 0.304
i: 388, target: -1.240, output: -1.193, loss: 0.002
i: 389, target: -0.549, output: -1.189, loss: 0.409

i: 390, target: -1.766, output: -0.895, loss: 0.758
i: 391, target: 0.020, output: 0.280, loss: 0.067
i: 392, target: 9.327, output: 9.244, loss: 0.007
i: 393, target: -1.401, output: -0.762, loss: 0.408
i: 394, target: -0.567, output: -0.928, loss: 0.130
i: 395, target: -0.424, output: -0.950, loss: 0.276
i: 396, target: -1.278, output: -1.282, loss: 0.000
i: 397, target: -1.367, output: -1.171, loss: 0.038
i: 398, target: -1.008, output: -0.930, loss: 0.006
i: 399, target: -1.239, output: -1.230, loss: 0.000
i: 400, target: -0.415, output: -0.892, loss: 0.228
i: 401, target: -1.253, output: -1.085, loss: 0.028
i: 402, target: -1.367, output: -1.144, loss: 0.050
i: 403, target: -0.740, output: -1.198, loss: 0.210
i: 404, target: 0.312, output: 0.326, loss: 0.000
i: 405, target: -1.125, output: -1.495, loss: 0.137
i: 406, target: -1.873, output: -1.529, loss: 0.118
i: 407, target: -0.884, output: -1.081, loss: 0.039
i: 408, target: 8.983, output: 9.244, loss: 0.068
i: 409, target: -0.525, output: -0.987, loss: 0.214
i: 410, target: -1.383, output: -0.901, loss: 0.232
i: 411, target: -0.808, output: -0.563, loss: 0.060
i: 412, target: -0.349, output: -0.821, loss: 0.223
i: 413, target: 0.552, output: 0.201, loss: 0.123

i: 414, target: -0.521, output: -0.989, loss: 0.219
i: 415, target: -0.435, output: -0.679, loss: 0.060
i: 416, target: -1.535, output: -0.918, loss: 0.381
i: 417, target: -0.531, output: -0.708, loss: 0.031
i: 418, target: 8.700, output: 9.244, loss: 0.296
i: 419, target: -1.369, output: -1.146, loss: 0.050
i: 420, target: -1.332, output: -1.334, loss: 0.000
i: 421, target: -0.644, output: -0.949, loss: 0.093
i: 422, target: -1.189, output: -0.781, loss: 0.166
i: 423, target: -0.754, output: -1.047, loss: 0.085
i: 424, target: -0.432, output: -0.815, loss: 0.147
i: 425, target: -1.238, output: -1.285, loss: 0.002
i: 426, target: -0.868, output: -1.046, loss: 0.032
i: 427, target: -0.202, output: 0.133, loss: 0.112
i: 428, target: -1.517, output: -1.140, loss: 0.142
i: 429, target: -0.487, output: -0.695, loss: 0.043
i: 430, target: -1.057, output: -0.844, loss: 0.045
i: 431, target: -1.915, output: -1.303, loss: 0.375
i: 432, target: -0.964, output: -0.815, loss: 0.022
i: 433, target: -0.478, output: -1.037, loss: 0.313
i: 434, target: -1.417, output: -1.454, loss: 0.001
i: 435, target: -2.060, output: -1.190, loss: 0.757
i: 436, target: -0.697, output: -1.206, loss: 0.259
i: 437, target: -0.966, output: -1.410, loss: 0.197

i: 438, target: -1.378, output: -0.842, loss: 0.287
i: 439, target: -1.062, output: -0.959, loss: 0.011
i: 440, target: -0.862, output: -0.747, loss: 0.013
i: 441, target: -1.469, output: -0.634, loss: 0.697
i: 442, target: -0.962, output: -1.302, loss: 0.115
i: 443, target: -0.789, output: -0.757, loss: 0.001
i: 444, target: -1.467, output: -1.020, loss: 0.200
i: 445, target: -1.972, output: -1.204, loss: 0.590
i: 446, target: -0.557, output: -1.363, loss: 0.649
i: 447, target: -1.766, output: -1.274, loss: 0.242
i: 448, target: 9.597, output: 9.244, loss: 0.124
i: 449, target: -0.478, output: -0.678, loss: 0.040
i: 450, target: -0.375, output: -0.948, loss: 0.328
i: 451, target: -0.742, output: -1.423, loss: 0.464
i: 452, target: -2.092, output: -1.615, loss: 0.227
i: 453, target: -0.437, output: 0.142, loss: 0.336
i: 454, target: -0.060, output: 0.134, loss: 0.037
i: 455, target: 0.600, output: 0.190, loss: 0.168
i: 456, target: -0.555, output: -0.956, loss: 0.161
i: 457, target: -0.754, output: -0.718, loss: 0.001
i: 458, target: -0.981, output: -1.024, loss: 0.002
i: 459, target: -0.688, output: -0.976, loss: 0.083
i: 460, target: -1.227, output: -1.468, loss: 0.059
i: 461, target: -0.684, output: -1.104, loss: 0.176

i: 462, target: -0.579, output: -0.887, loss: 0.095
i: 463, target: -1.362, output: -1.162, loss: 0.040
i: 464, target: -0.451, output: -0.988, loss: 0.288
i: 465, target: -1.041, output: -0.694, loss: 0.120
i: 466, target: -0.359, output: -0.807, loss: 0.201
i: 467, target: -1.139, output: -0.734, loss: 0.164
i: 468, target: -0.734, output: -0.784, loss: 0.003
i: 469, target: -1.426, output: -1.072, loss: 0.125
i: 470, target: -0.285, output: -1.246, loss: 0.923
i: 471, target: -0.301, output: -0.981, loss: 0.463
i: 472, target: -0.701, output: -1.155, loss: 0.206
i: 473, target: -0.896, output: -0.960, loss: 0.004
i: 474, target: -0.946, output: -1.305, loss: 0.129
i: 475, target: -0.854, output: -1.056, loss: 0.041
i: 476, target: -0.676, output: -0.939, loss: 0.069
i: 477, target: -1.056, output: -0.892, loss: 0.027
i: 478, target: -1.458, output: -1.155, loss: 0.092
i: 479, target: -0.272, output: -0.861, loss: 0.347
i: 480, target: -0.290, output: -0.874, loss: 0.340
i: 481, target: -0.912, output: -1.396, loss: 0.235
i: 482, target: -1.161, output: -1.127, loss: 0.001
i: 483, target: -0.589, output: -1.351, loss: 0.581
i: 484, target: -1.103, output: -0.781, loss: 0.103
i: 485, target: -0.594, output: -0.812, loss: 0.047

i: 486, target: -2.208, output: -1.577, loss: 0.398
i: 487, target: -0.657, output: -0.947, loss: 0.084
i: 488, target: -0.653, output: -1.053, loss: 0.160
i: 489, target: 0.159, output: 0.167, loss: 0.000
i: 490, target: -0.654, output: -0.947, loss: 0.086
i: 491, target: 0.702, output: 0.243, loss: 0.210
i: 492, target: -0.519, output: -0.717, loss: 0.039
i: 493, target: -1.637, output: -1.423, loss: 0.046
i: 494, target: -0.473, output: -1.387, loss: 0.835
i: 495, target: 9.727, output: 9.244, loss: 0.233
i: 496, target: -0.462, output: -0.822, loss: 0.130
i: 497, target: 0.172, output: 0.121, loss: 0.003
i: 498, target: -0.598, output: -0.685, loss: 0.008
i: 499, target: -0.657, output: -0.760, loss: 0.011
i: 500, target: -1.487, output: -0.945, loss: 0.294
i: 501, target: -0.806, output: -0.752, loss: 0.003
i: 502, target: 9.513, output: 9.244, loss: 0.072
i: 503, target: 9.225, output: 9.244, loss: 0.000
i: 504, target: -0.249, output: 0.081, loss: 0.109
i: 505, target: -1.542, output: -1.201, loss: 0.117
i: 506, target: -1.671, output: -1.167, loss: 0.254
i: 507, target: -0.484, output: -1.126, loss: 0.412
i: 508, target: -0.599, output: -1.090, loss: 0.241
i: 509, target: -1.454, output: -1.505, loss: 0.003

i: 510, target: 8.951, output: 9.244, loss: 0.086
i: 511, target: -1.753, output: -1.398, loss: 0.126
i: 512, target: -0.339, output: -0.834, loss: 0.245
i: 513, target: -1.492, output: -1.271, loss: 0.049
i: 514, target: -2.105, output: -1.407, loss: 0.487
i: 515, target: 9.764, output: 9.244, loss: 0.270
i: 516, target: 0.024, output: 0.139, loss: 0.013
i: 517, target: -1.112, output: -1.085, loss: 0.001
i: 518, target: -0.915, output: -1.152, loss: 0.056
i: 519, target: -0.027, output: 0.161, loss: 0.035
i: 520, target: -0.964, output: -0.946, loss: 0.000
i: 521, target: 9.557, output: 9.244, loss: 0.098
i: 522, target: -0.489, output: -1.316, loss: 0.685
i: 523, target: -0.765, output: -0.723, loss: 0.002
i: 524, target: -0.725, output: -1.378, loss: 0.427
i: 525, target: -1.005, output: -0.902, loss: 0.011
i: 526, target: -0.616, output: -1.049, loss: 0.188
i: 527, target: -0.177, output: -1.075, loss: 0.806
i: 528, target: -0.648, output: -1.276, loss: 0.394
i: 529, target: -1.025, output: -0.879, loss: 0.021
i: 530, target: -0.481, output: -0.624, loss: 0.020
i: 531, target: -1.234, output: -1.218, loss: 0.000
i: 532, target: -1.050, output: -1.094, loss: 0.002
i: 533, target: -2.232, output: -1.126, loss: 1.223

i: 534, target: -1.490, output: -1.410, loss: 0.006
i: 535, target: -1.283, output: -1.195, loss: 0.008
i: 536, target: 8.857, output: 9.244, loss: 0.150
i: 537, target: 9.718, output: 9.244, loss: 0.224
i: 538, target: -1.407, output: -1.400, loss: 0.000
i: 539, target: -0.808, output: -1.028, loss: 0.048
i: 540, target: -1.808, output: -1.575, loss: 0.054
i: 541, target: -0.394, output: -1.062, loss: 0.446
i: 542, target: -0.580, output: -1.009, loss: 0.184
i: 543, target: -1.197, output: -0.883, loss: 0.099
i: 544, target: -0.538, output: -0.808, loss: 0.073
i: 545, target: -1.276, output: -1.115, loss: 0.026
i: 546, target: -0.734, output: -1.167, loss: 0.187
i: 547, target: -1.022, output: -0.803, loss: 0.048
i: 548, target: -0.758, output: -0.969, loss: 0.045
i: 549, target: 8.965, output: 9.244, loss: 0.078
i: 550, target: -1.131, output: -1.126, loss: 0.000
i: 551, target: -1.464, output: -1.384, loss: 0.006
i: 552, target: -0.684, output: -1.159, loss: 0.226
i: 553, target: -0.305, output: -0.972, loss: 0.445
i: 554, target: -2.621, output: -1.355, loss: 1.602
i: 555, target: -0.749, output: -0.861, loss: 0.013
i: 556, target: 0.133, output: 0.165, loss: 0.001
i: 557, target: 0.421, output: 0.334, loss: 0.008

i: 558, target: -0.785, output: -0.910, loss: 0.016
i: 559, target: -0.195, output: -1.239, loss: 1.090
i: 560, target: -1.843, output: -1.194, loss: 0.422
i: 561, target: -0.571, output: -0.630, loss: 0.003
i: 562, target: -1.526, output: -0.978, loss: 0.300
i: 563, target: -0.647, output: -0.668, loss: 0.000
i: 564, target: -0.952, output: -1.389, loss: 0.191
i: 565, target: -1.622, output: -1.458, loss: 0.027
i: 566, target: -1.286, output: -1.199, loss: 0.007
i: 567, target: -1.820, output: -1.188, loss: 0.398
i: 568, target: -0.808, output: -0.831, loss: 0.001
i: 569, target: -0.270, output: -0.856, loss: 0.343
i: 570, target: -1.819, output: -1.241, loss: 0.335
i: 571, target: -1.811, output: -1.214, loss: 0.356
i: 572, target: -0.587, output: -1.181, loss: 0.353
i: 573, target: -1.266, output: -1.255, loss: 0.000
i: 574, target: -1.749, output: -1.008, loss: 0.548
i: 575, target: -0.637, output: -0.989, loss: 0.124
i: 576, target: -0.543, output: -0.703, loss: 0.026
i: 577, target: 9.768, output: 9.244, loss: 0.274
i: 578, target: 9.817, output: 9.244, loss: 0.328
i: 579, target: -0.487, output: -1.056, loss: 0.324
i: 580, target: -1.159, output: -0.646, loss: 0.263
i: 581, target: -0.652, output: -0.995, loss: 0.117

i: 582, target: -0.734, output: -1.032, loss: 0.088
i: 583, target: -1.380, output: -1.324, loss: 0.003
i: 584, target: -0.943, output: -1.192, loss: 0.062
i: 585, target: -1.709, output: -1.204, loss: 0.255
i: 586, target: -0.020, output: -1.155, loss: 1.290
i: 587, target: -1.754, output: -1.007, loss: 0.557
i: 588, target: -0.396, output: -0.824, loss: 0.183
i: 589, target: -0.362, output: -1.053, loss: 0.478
i: 590, target: 8.871, output: 9.244, loss: 0.140
i: 591, target: 9.642, output: 9.244, loss: 0.158
i: 592, target: -1.729, output: -1.392, loss: 0.113
i: 593, target: -1.160, output: -1.405, loss: 0.060
i: 594, target: -0.575, output: -1.075, loss: 0.250
i: 595, target: -0.580, output: -0.965, loss: 0.148
i: 596, target: -1.630, output: -1.107, loss: 0.274
i: 597, target: -0.487, output: -1.334, loss: 0.718
i: 598, target: 0.197, output: -1.118, loss: 1.728
i: 599, target: 9.072, output: 9.244, loss: 0.030
i: 600, target: -0.573, output: -0.971, loss: 0.159
i: 601, target: -0.405, output: -0.894, loss: 0.240
i: 602, target: -1.345, output: -1.250, loss: 0.009
i: 603, target: -1.110, output: -1.075, loss: 0.001
i: 604, target: -0.868, output: -1.212, loss: 0.118
i: 605, target: -0.413, output: -0.695, loss: 0.080

i: 606, target: -0.652, output: -0.902, loss: 0.063
i: 607, target: -1.530, output: -1.117, loss: 0.171
i: 608, target: -0.591, output: -0.856, loss: 0.070
i: 609, target: 9.551, output: 9.244, loss: 0.094
i: 610, target: -0.658, output: -0.589, loss: 0.005
i: 611, target: -0.134, output: -0.939, loss: 0.648
i: 612, target: -1.733, output: -1.142, loss: 0.349
i: 613, target: -2.009, output: -1.187, loss: 0.675
i: 614, target: -0.666, output: -1.202, loss: 0.287
i: 615, target: -1.434, output: -0.866, loss: 0.322
i: 616, target: -1.307, output: -1.228, loss: 0.006
i: 617, target: -0.389, output: -1.220, loss: 0.691
i: 618, target: 9.004, output: 9.244, loss: 0.058
i: 619, target: -0.976, output: -1.381, loss: 0.164
i: 620, target: -0.529, output: -1.011, loss: 0.233
i: 621, target: -0.997, output: -1.264, loss: 0.071
i: 622, target: -0.342, output: -1.017, loss: 0.456
i: 623, target: -2.367, output: -1.305, loss: 1.128
i: 624, target: -0.623, output: -0.693, loss: 0.005
i: 625, target: -1.999, output: -1.249, loss: 0.563
i: 626, target: -0.802, output: -1.113, loss: 0.097
i: 627, target: -0.722, output: -0.677, loss: 0.002
i: 628, target: -0.273, output: -0.626, loss: 0.124
i: 629, target: -1.367, output: -1.008, loss: 0.129

i: 630, target: -1.674, output: -1.382, loss: 0.086
i: 631, target: -0.525, output: -0.920, loss: 0.155
i: 632, target: 9.618, output: 9.244, loss: 0.139
i: 633, target: -0.669, output: -0.956, loss: 0.082
i: 634, target: -1.844, output: -1.530, loss: 0.099
i: 635, target: 9.311, output: 9.244, loss: 0.004
i: 636, target: -1.487, output: -1.362, loss: 0.016
i: 637, target: -0.520, output: -1.061, loss: 0.293
i: 638, target: -0.422, output: -0.814, loss: 0.154
i: 639, target: -1.696, output: -1.131, loss: 0.319
i: 640, target: 9.277, output: 9.244, loss: 0.001
i: 641, target: -1.448, output: -0.932, loss: 0.267
i: 642, target: -1.413, output: -0.802, loss: 0.374
i: 643, target: -0.990, output: -1.094, loss: 0.011
i: 644, target: -0.107, output: -1.069, loss: 0.927
i: 645, target: -1.133, output: -0.990, loss: 0.020
i: 646, target: -1.011, output: -1.074, loss: 0.004
i: 647, target: -0.527, output: -1.205, loss: 0.459
i: 648, target: -1.542, output: -1.138, loss: 0.164
i: 649, target: -0.734, output: -0.741, loss: 0.000
i: 650, target: -0.617, output: -0.717, loss: 0.010
i: 651, target: -0.666, output: -0.886, loss: 0.048
i: 652, target: -0.545, output: -1.140, loss: 0.354
i: 653, target: -0.343, output: -0.722, loss: 0.144

i: 654, target: -1.178, output: -1.197, loss: 0.000
i: 655, target: -1.287, output: -0.995, loss: 0.085
i: 656, target: -0.712, output: -0.851, loss: 0.019
i: 657, target: -1.450, output: -1.068, loss: 0.146
i: 658, target: -0.970, output: -0.861, loss: 0.012
i: 659, target: -1.103, output: -0.951, loss: 0.023
i: 660, target: -0.567, output: -1.393, loss: 0.681
i: 661, target: -0.559, output: -0.965, loss: 0.165
i: 662, target: -0.504, output: -0.738, loss: 0.055
i: 663, target: -2.064, output: -1.284, loss: 0.609
i: 664, target: -1.046, output: -1.182, loss: 0.018
i: 665, target: -2.071, output: -1.207, loss: 0.748
i: 666, target: -2.458, output: -1.398, loss: 1.125
i: 667, target: -1.335, output: -1.081, loss: 0.064
i: 668, target: -1.487, output: -1.243, loss: 0.059
i: 669, target: -0.869, output: -1.029, loss: 0.026
i: 670, target: 0.264, output: 0.190, loss: 0.005
i: 671, target: -0.428, output: -0.794, loss: 0.134
i: 672, target: -0.218, output: 0.149, loss: 0.134
i: 673, target: -0.690, output: -0.880, loss: 0.036
i: 674, target: -1.029, output: -0.724, loss: 0.093
i: 675, target: -1.525, output: -1.129, loss: 0.157
i: 676, target: -0.809, output: -1.009, loss: 0.040
i: 677, target: -0.484, output: -1.013, loss: 0.280

i: 678, target: 9.492, output: 9.244, loss: 0.061
i: 679, target: -1.599, output: -1.134, loss: 0.216
i: 680, target: -0.849, output: -1.447, loss: 0.357
i: 681, target: -0.818, output: -1.390, loss: 0.327
i: 682, target: -1.052, output: -0.977, loss: 0.006
i: 683, target: -1.152, output: -1.009, loss: 0.021
i: 684, target: -0.255, output: 0.177, loss: 0.187
i: 685, target: -0.890, output: -0.721, loss: 0.028
i: 686, target: -1.505, output: -1.300, loss: 0.042
i: 687, target: -0.273, output: -1.031, loss: 0.575
i: 688, target: -0.381, output: -1.213, loss: 0.693
i: 689, target: -1.405, output: -1.231, loss: 0.030
i: 690, target: -2.128, output: -1.499, loss: 0.397
i: 691, target: -1.712, output: -0.727, loss: 0.970
i: 692, target: -1.481, output: -1.221, loss: 0.067
i: 693, target: -1.333, output: -0.811, loss: 0.273
i: 694, target: -1.776, output: -1.248, loss: 0.279
i: 695, target: -1.415, output: -1.526, loss: 0.012
i: 696, target: -2.296, output: -1.314, loss: 0.965
i: 697, target: -1.119, output: -1.112, loss: 0.000
i: 698, target: -0.110, output: -1.117, loss: 1.015
i: 699, target: -1.198, output: -1.351, loss: 0.023
i: 700, target: -1.433, output: -1.432, loss: 0.000
i: 701, target: -1.429, output: -0.927, loss: 0.253

i: 702, target: -0.292, output: -0.351, loss: 0.004
i: 703, target: -1.924, output: -1.502, loss: 0.179
i: 704, target: -0.592, output: -0.734, loss: 0.020
i: 705, target: -0.718, output: -0.763, loss: 0.002
i: 706, target: -1.232, output: -1.019, loss: 0.045
i: 707, target: -1.000, output: -1.223, loss: 0.050
i: 708, target: -0.652, output: -0.679, loss: 0.001
i: 709, target: -0.947, output: -1.099, loss: 0.023
i: 710, target: -1.000, output: -1.026, loss: 0.001
i: 711, target: -1.633, output: -1.044, loss: 0.346
i: 712, target: 0.291, output: 0.199, loss: 0.008
i: 713, target: -1.229, output: -1.192, loss: 0.001
i: 714, target: -0.706, output: -0.648, loss: 0.003
i: 715, target: -2.014, output: -1.460, loss: 0.307
i: 716, target: -1.571, output: -1.123, loss: 0.201
i: 717, target: -0.542, output: -0.925, loss: 0.147
i: 718, target: -0.893, output: -0.779, loss: 0.013
i: 719, target: -0.462, output: -0.550, loss: 0.008
i: 720, target: -1.462, output: -1.115, loss: 0.121
i: 721, target: -0.653, output: -1.279, loss: 0.392
i: 722, target: -1.235, output: -0.719, loss: 0.266
i: 723, target: -1.303, output: -1.105, loss: 0.039
i: 724, target: -1.574, output: -1.463, loss: 0.012
i: 725, target: 0.431, output: 0.148, loss: 0.080

i: 726, target: -1.595, output: -0.974, loss: 0.385
i: 727, target: -0.788, output: -0.965, loss: 0.031
i: 728, target: -0.899, output: -0.848, loss: 0.003
i: 729, target: -1.404, output: -1.028, loss: 0.141
i: 730, target: -0.729, output: -1.300, loss: 0.325
i: 731, target: 0.060, output: 0.139, loss: 0.006
i: 732, target: -0.813, output: -1.013, loss: 0.040
i: 733, target: -0.697, output: -1.084, loss: 0.150
i: 734, target: -0.381, output: 0.264, loss: 0.416
i: 735, target: -1.064, output: -1.276, loss: 0.045
i: 736, target: -2.189, output: -1.484, loss: 0.497
i: 737, target: -0.744, output: -0.921, loss: 0.031
i: 738, target: -1.238, output: -0.991, loss: 0.061
i: 739, target: -1.569, output: -1.335, loss: 0.055
i: 740, target: -1.393, output: -0.783, loss: 0.373
i: 741, target: -0.465, output: -0.801, loss: 0.113
i: 742, target: -1.131, output: -0.882, loss: 0.062
i: 743, target: -1.546, output: -1.133, loss: 0.170
i: 744, target: -0.830, output: -0.649, loss: 0.033
i: 745, target: -0.272, output: -1.170, loss: 0.806
i: 746, target: -0.999, output: -1.178, loss: 0.032
i: 747, target: -1.359, output: -0.850, loss: 0.258
i: 748, target: -0.889, output: -0.804, loss: 0.007
i: 749, target: -0.821, output: -0.878, loss: 0.003

i: 750, target: -0.923, output: -1.062, loss: 0.020
i: 751, target: -0.604, output: -1.010, loss: 0.165
i: 752, target: -0.778, output: -0.901, loss: 0.015
i: 753, target: -0.645, output: -0.744, loss: 0.010
i: 754, target: -0.495, output: -1.162, loss: 0.445
i: 755, target: -1.245, output: -1.243, loss: 0.000
i: 756, target: -1.453, output: -1.392, loss: 0.004
i: 757, target: -0.598, output: -0.850, loss: 0.064
i: 758, target: -1.988, output: -0.834, loss: 1.331
i: 759, target: -2.087, output: -1.209, loss: 0.770
i: 760, target: -1.434, output: -1.267, loss: 0.028
i: 761, target: -1.223, output: 0.134, loss: 1.841
i: 762, target: -0.801, output: -0.693, loss: 0.011
i: 763, target: -1.397, output: -1.272, loss: 0.016
i: 764, target: -1.511, output: -1.304, loss: 0.043
i: 765, target: -0.621, output: -1.031, loss: 0.168
i: 766, target: -0.514, output: -1.106, loss: 0.351
i: 767, target: -1.188, output: -1.142, loss: 0.002
i: 768, target: -1.168, output: -1.269, loss: 0.010
i: 769, target: -0.581, output: -0.759, loss: 0.032
i: 770, target: -0.378, output: -1.050, loss: 0.451
i: 771, target: -1.830, output: -1.083, loss: 0.557
i: 772, target: -1.280, output: -0.958, loss: 0.103
i: 773, target: 9.595, output: 9.244, loss: 0.123

i: 774, target: -0.534, output: -1.223, loss: 0.475
i: 775, target: -0.289, output: -0.935, loss: 0.417
i: 776, target: -1.264, output: -0.839, loss: 0.180
i: 777, target: -0.774, output: -0.797, loss: 0.001
i: 778, target: -0.619, output: -1.043, loss: 0.180
i: 779, target: -0.480, output: -1.059, loss: 0.336
i: 780, target: -0.286, output: -0.906, loss: 0.385
i: 781, target: -0.732, output: 0.137, loss: 0.756
i: 782, target: -0.614, output: -0.858, loss: 0.060
i: 783, target: -1.129, output: -1.238, loss: 0.012
i: 784, target: -2.080, output: -1.541, loss: 0.291
i: 785, target: -1.683, output: -1.517, loss: 0.027
i: 786, target: -1.288, output: -1.037, loss: 0.063
i: 787, target: -0.590, output: -1.014, loss: 0.180
i: 788, target: -1.907, output: -1.426, loss: 0.231
i: 789, target: -1.054, output: -0.675, loss: 0.143
i: 790, target: 0.676, output: 0.329, loss: 0.121
i: 791, target: -0.762, output: -1.245, loss: 0.233
i: 792, target: -1.387, output: -1.243, loss: 0.021
i: 793, target: -0.646, output: -1.247, loss: 0.361
i: 794, target: -1.637, output: -1.412, loss: 0.051
i: 795, target: 9.508, output: 9.244, loss: 0.070
i: 796, target: 0.778, output: 0.437, loss: 0.116
i: 797, target: -0.675, output: -1.162, loss: 0.236

i: 798, target: -0.604, output: -0.864, loss: 0.067
i: 799, target: -0.158, output: -1.121, loss: 0.926
i: 800, target: -1.178, output: -0.891, loss: 0.082
i: 801, target: -0.551, output: -0.690, loss: 0.019
i: 802, target: -0.518, output: -1.169, loss: 0.424
i: 803, target: -1.392, output: -1.440, loss: 0.002
i: 804, target: -1.571, output: -0.794, loss: 0.603
i: 805, target: 7.843, output: 9.244, loss: 1.963
i: 806, target: -1.398, output: -1.227, loss: 0.029
i: 807, target: -1.156, output: -1.159, loss: 0.000
i: 808, target: -0.426, output: -0.662, loss: 0.056
i: 809, target: -0.783, output: -0.622, loss: 0.026
i: 810, target: 9.624, output: 9.244, loss: 0.144
i: 811, target: -0.677, output: -0.774, loss: 0.009
i: 812, target: -0.637, output: -0.964, loss: 0.107
i: 813, target: -1.512, output: -1.167, loss: 0.119
i: 814, target: -0.612, output: -1.015, loss: 0.162
i: 815, target: -3.055, output: -1.511, loss: 2.385
i: 816, target: -1.361, output: -1.035, loss: 0.106
i: 817, target: -1.399, output: -1.193, loss: 0.042
i: 818, target: -1.020, output: -0.978, loss: 0.002
i: 819, target: -1.099, output: -1.119, loss: 0.000
i: 820, target: -1.007, output: -0.835, loss: 0.029
i: 821, target: -0.153, output: -1.047, loss: 0.799

i: 822, target: -0.307, output: -1.225, loss: 0.842
i: 823, target: 8.834, output: 9.244, loss: 0.168
i: 824, target: -0.581, output: -0.839, loss: 0.066
i: 825, target: 0.337, output: 0.342, loss: 0.000
i: 826, target: -0.960, output: -1.188, loss: 0.052
i: 827, target: -0.792, output: -1.049, loss: 0.066
i: 828, target: -1.532, output: -0.812, loss: 0.517
i: 829, target: -0.290, output: -0.912, loss: 0.387
i: 830, target: -0.817, output: -0.908, loss: 0.008
i: 831, target: -0.092, output: 0.111, loss: 0.041
i: 832, target: -0.688, output: -0.872, loss: 0.034
i: 833, target: -0.816, output: -0.851, loss: 0.001
i: 834, target: -0.799, output: -1.203, loss: 0.163
i: 835, target: 0.379, output: 0.291, loss: 0.008
i: 836, target: -0.943, output: -1.027, loss: 0.007
i: 837, target: -1.239, output: -1.350, loss: 0.012
i: 838, target: -1.395, output: -1.488, loss: 0.009
i: 839, target: -1.776, output: -0.963, loss: 0.661
i: 840, target: 8.936, output: 9.244, loss: 0.095
i: 841, target: -0.849, output: -0.883, loss: 0.001
i: 842, target: -0.598, output: 0.135, loss: 0.538
i: 843, target: -1.373, output: -1.270, loss: 0.011
i: 844, target: -0.635, output: -1.085, loss: 0.203
i: 845, target: -1.409, output: -1.448, loss: 0.002

i: 846, target: -0.504, output: -0.976, loss: 0.223
i: 847, target: -0.375, output: -1.047, loss: 0.453
i: 848, target: -1.452, output: -1.208, loss: 0.059
i: 849, target: -0.853, output: -1.415, loss: 0.316
i: 850, target: -0.772, output: -0.928, loss: 0.024
i: 851, target: -0.984, output: -1.296, loss: 0.097
i: 852, target: -1.899, output: -1.253, loss: 0.417
i: 853, target: -1.617, output: -1.175, loss: 0.195
i: 854, target: -1.885, output: -1.395, loss: 0.241
i: 855, target: -1.029, output: -1.080, loss: 0.003
i: 856, target: -1.487, output: -1.048, loss: 0.193
i: 857, target: -1.425, output: -1.178, loss: 0.061
i: 858, target: 9.467, output: 9.244, loss: 0.049
i: 859, target: -1.134, output: -1.397, loss: 0.070
i: 860, target: -1.217, output: -0.828, loss: 0.151
i: 861, target: -1.037, output: -1.165, loss: 0.016
i: 862, target: 0.730, output: 0.412, loss: 0.101
i: 863, target: -1.211, output: -0.827, loss: 0.147
i: 864, target: -1.147, output: -1.341, loss: 0.038
i: 865, target: -0.548, output: -0.758, loss: 0.044
i: 866, target: -2.364, output: -1.343, loss: 1.042
i: 867, target: -2.014, output: -1.240, loss: 0.600
i: 868, target: -0.939, output: -1.135, loss: 0.038
i: 869, target: -0.443, output: -1.235, loss: 0.627

i: 870, target: -0.781, output: -0.894, loss: 0.013
i: 871, target: -0.749, output: -0.861, loss: 0.013
i: 872, target: 9.038, output: 9.244, loss: 0.043
i: 873, target: 0.448, output: 0.339, loss: 0.012
i: 874, target: -0.540, output: -1.357, loss: 0.668
i: 875, target: -0.769, output: -0.932, loss: 0.026
i: 876, target: -1.624, output: -1.402, loss: 0.049
i: 877, target: -1.865, output: -1.124, loss: 0.549
i: 878, target: -0.647, output: -0.919, loss: 0.074
i: 879, target: -0.228, output: 0.110, loss: 0.114
i: 880, target: -0.757, output: -0.835, loss: 0.006
i: 881, target: -0.948, output: -0.720, loss: 0.052
i: 882, target: -1.464, output: -1.406, loss: 0.003
i: 883, target: -1.208, output: -0.922, loss: 0.082
i: 884, target: -1.360, output: -1.554, loss: 0.038
i: 885, target: -1.124, output: -1.222, loss: 0.010
i: 886, target: -0.882, output: -1.250, loss: 0.135
i: 887, target: -1.756, output: -1.280, loss: 0.227
i: 888, target: 0.056, output: 0.174, loss: 0.014
i: 889, target: 9.513, output: 9.244, loss: 0.072
i: 890, target: -0.494, output: -0.636, loss: 0.020
i: 891, target: 9.355, output: 9.244, loss: 0.012
i: 892, target: -0.327, output: -1.188, loss: 0.741
i: 893, target: -0.661, output: -1.106, loss: 0.198

i: 894, target: -0.650, output: -0.821, loss: 0.029
i: 895, target: -0.961, output: -1.241, loss: 0.078
i: 896, target: -1.790, output: -1.051, loss: 0.545
i: 897, target: -2.483, output: -1.402, loss: 1.167
i: 898, target: -0.857, output: -0.975, loss: 0.014
i: 899, target: 9.988, output: 9.244, loss: 0.553
i: 900, target: -0.230, output: -1.117, loss: 0.788
i: 901, target: -0.780, output: -0.768, loss: 0.000
i: 902, target: -0.240, output: 0.103, loss: 0.118
i: 903, target: -0.667, output: -1.265, loss: 0.358
i: 904, target: -0.447, output: -0.939, loss: 0.242
i: 905, target: -0.407, output: -0.743, loss: 0.113
i: 906, target: -0.475, output: -1.135, loss: 0.436
i: 907, target: -0.819, output: -1.291, loss: 0.222
i: 908, target: -0.870, output: -1.162, loss: 0.085
i: 909, target: -1.413, output: -1.185, loss: 0.052
i: 910, target: -0.949, output: -1.055, loss: 0.011
i: 911, target: -0.879, output: -0.779, loss: 0.010
i: 912, target: -0.459, output: -1.063, loss: 0.366
i: 913, target: -1.049, output: -1.202, loss: 0.023
i: 914, target: -1.083, output: -1.206, loss: 0.015
i: 915, target: -1.061, output: -1.196, loss: 0.018
i: 916, target: -2.084, output: -1.331, loss: 0.567
i: 917, target: 8.921, output: 9.244, loss: 0.104

i: 918, target: -1.131, output: -1.215, loss: 0.007
i: 919, target: -0.861, output: -0.862, loss: 0.000
i: 920, target: -0.422, output: -1.150, loss: 0.531
i: 921, target: -1.914, output: -1.399, loss: 0.266
i: 922, target: -1.331, output: -0.982, loss: 0.122
i: 923, target: -0.656, output: -0.857, loss: 0.040
i: 924, target: -1.242, output: -1.027, loss: 0.046
i: 925, target: -0.596, output: -0.789, loss: 0.038
i: 926, target: -0.770, output: -1.339, loss: 0.325
i: 927, target: -1.308, output: -0.978, loss: 0.109
i: 928, target: 9.480, output: 9.244, loss: 0.056
i: 929, target: -0.563, output: -0.969, loss: 0.165
i: 930, target: -1.708, output: -1.151, loss: 0.310
i: 931, target: -0.794, output: -0.776, loss: 0.000
i: 932, target: -1.458, output: -0.948, loss: 0.260
i: 933, target: -1.183, output: -1.007, loss: 0.031
i: 934, target: -0.695, output: -1.039, loss: 0.118
i: 935, target: -0.631, output: -1.207, loss: 0.331
i: 936, target: -0.501, output: -1.082, loss: 0.338
i: 937, target: -1.721, output: -1.401, loss: 0.103
i: 938, target: -1.100, output: -1.321, loss: 0.049
i: 939, target: -1.188, output: -1.560, loss: 0.138
i: 940, target: -0.091, output: -0.817, loss: 0.526
i: 941, target: -1.543, output: -1.232, loss: 0.097

i: 942, target: -0.988, output: -0.597, loss: 0.153
i: 943, target: -0.734, output: -1.277, loss: 0.296
i: 944, target: -2.050, output: -0.966, loss: 1.176
i: 945, target: -0.590, output: -1.048, loss: 0.209
i: 946, target: -0.870, output: -0.991, loss: 0.015
i: 947, target: -1.351, output: -1.280, loss: 0.005
i: 948, target: -0.920, output: -1.156, loss: 0.055
i: 949, target: -1.469, output: -1.028, loss: 0.194
i: 950, target: -0.462, output: -0.872, loss: 0.168
i: 951, target: -1.919, output: -1.179, loss: 0.546
i: 952, target: -1.515, output: -1.236, loss: 0.078
i: 953, target: -2.214, output: -1.609, loss: 0.366
i: 954, target: -1.634, output: -1.241, loss: 0.155
i: 955, target: -1.261, output: -0.781, loss: 0.230
i: 956, target: -1.174, output: -1.063, loss: 0.012
i: 957, target: -1.246, output: -0.827, loss: 0.175
i: 958, target: -1.517, output: -0.869, loss: 0.420
i: 959, target: -1.525, output: -0.909, loss: 0.380
i: 960, target: -0.953, output: -1.366, loss: 0.171
i: 961, target: -0.636, output: -1.099, loss: 0.214
i: 962, target: -1.048, output: -1.212, loss: 0.027
i: 963, target: -1.211, output: -0.939, loss: 0.074
i: 964, target: -0.586, output: -0.892, loss: 0.094
i: 965, target: 9.653, output: 9.244, loss: 0.167

i: 966, target: -0.952, output: -1.219, loss: 0.071
i: 967, target: -0.969, output: -1.071, loss: 0.010
i: 968, target: -0.741, output: -0.697, loss: 0.002
i: 969, target: -0.632, output: -1.030, loss: 0.158
i: 970, target: -0.481, output: -1.076, loss: 0.355
i: 971, target: -0.372, output: -0.944, loss: 0.327
i: 972, target: -1.658, output: -1.239, loss: 0.176
i: 973, target: -0.743, output: -0.945, loss: 0.041
i: 974, target: 0.548, output: 0.218, loss: 0.109
i: 975, target: -0.540, output: -0.757, loss: 0.047
i: 976, target: -1.559, output: -1.217, loss: 0.117
i: 977, target: -0.755, output: -1.141, loss: 0.149
i: 978, target: -0.754, output: -0.742, loss: 0.000
i: 979, target: -0.164, output: -0.882, loss: 0.516
i: 980, target: 9.706, output: 9.244, loss: 0.213
i: 981, target: -0.434, output: -0.821, loss: 0.150
i: 982, target: -0.649, output: -1.230, loss: 0.337
i: 983, target: -0.557, output: -0.878, loss: 0.103
i: 984, target: -1.033, output: -1.058, loss: 0.001
i: 985, target: -1.326, output: -1.068, loss: 0.066
i: 986, target: -1.721, output: -1.299, loss: 0.179
i: 987, target: -0.811, output: -1.156, loss: 0.119
i: 988, target: -1.257, output: -0.571, loss: 0.471
i: 989, target: -1.227, output: -0.891, loss: 0.112

```
i: 990, target: -1.247, output: -1.304, loss: 0.003
i: 991, target: -1.501, output: -0.968, loss: 0.284
i: 992, target: -0.503, output: -1.329, loss: 0.682
i: 993, target: -0.429, output: -1.143, loss: 0.510
i: 994, target: -0.193, output: -0.851, loss: 0.432
i: 995, target: -0.715, output: -0.799, loss: 0.007
i: 996, target: -1.356, output: -1.011, loss: 0.119
i: 997, target: -0.601, output: -0.657, loss: 0.003
i: 998, target: -1.784, output: -1.488, loss: 0.088
i: 999, target: -0.429, output: -0.825, loss: 0.157

Average loss: 0.221
```

3 Save the Notebook as a PDF

```
[15]: # SAVE THE NOTEBOOK

from IPython.display import Javascript

# Define the function to save the notebook
def save_notebook():
    display(Javascript('IPython.notebook.save_notebook()'))

# Call the save_notebook function to save the notebook
save_notebook()
```

<IPython.core.display.Javascript object>

```
[16]: # EXPORT THE NOTEBOOK AS PDF

import subprocess
import os

name_notebook = "0724-small_classical_model.ipynb"

output_filename = "results/" + name_notebook[:4] + "/" + name_notebook[:-6] + "_0.
↳pdf"
```

```

#check if the output file already exists
while os.path.exists(output_filename):
    print("The file {} already exists".format(output_filename))
    output_filename = output_filename[:-5] + str(int(output_filename[-5]) + 1) +
    ↪+ ".pdf"
    print("Trying to save the file as {}".format(output_filename))

subprocess.run(["jupyter", "nbconvert", "--to", "pdf", "--output",
    ↪output_filename, name_notebook])

```

The file results/0724/0724-small_classical_model_0.pdf already exists
 Trying to save the file as results/0724/0724-small_classical_model_1.pdf
 The file results/0724/0724-small_classical_model_1.pdf already exists
 Trying to save the file as results/0724/0724-small_classical_model_2.pdf

```

[16]: CompletedProcess(args=['jupyter', 'nbconvert', '--to', 'pdf', '--output',
    'results/0724/0724-small_classical_model_2.pdf',
    '0724-small_classical_model.ipynb'], returncode=0)

```