Warmup

First I downloaded all the dependencies and libraries. This was not trivial since you need specific versions. Tensorflow also needed some lines of code added in order to run the “old” code in some of these files.

Evidence of loss improving highlighted below in blue.

Console input:

(base) C:\Users\bunce\Documents\Masters\EAI 6080\Option 2>run\_clone.py experts/Hopper-v2.pkl Hopper-v1 --render --num\_rollouts 3

Console output:

2021-02-21 11:04:26.468860: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudart64\_101.dll

2021-02-21 11:04:28.987779: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library nvcuda.dll

2021-02-21 11:04:29.013781: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1716] Found device 0 with properties:

pciBusID: 0000:2d:00.0 name: GeForce GTX 970 computeCapability: 5.2

coreClock: 1.3165GHz coreCount: 13 deviceMemorySize: 4.00GiB deviceMemoryBandwidth: 208.91GiB/s

2021-02-21 11:04:29.013946: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudart64\_101.dll

2021-02-21 11:04:29.019879: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cublas64\_10.dll

2021-02-21 11:04:29.023666: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cufft64\_10.dll

2021-02-21 11:04:29.025589: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library curand64\_10.dll

2021-02-21 11:04:29.030388: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusolver64\_10.dll

2021-02-21 11:04:29.034076: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusparse64\_10.dll

2021-02-21 11:04:29.042534: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudnn64\_7.dll

2021-02-21 11:04:29.042735: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1858] Adding visible gpu devices: 0

2021-02-21 11:04:29.043929: I tensorflow/core/platform/cpu\_feature\_guard.cc:142] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN)to use the following CPU instructions in performance-critical operations: AVX2

To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.

2021-02-21 11:04:29.053398: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x15ba7d59180 initialized for platform Host (this does not guarantee that XLA will be used). Devices:

2021-02-21 11:04:29.053550: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version

2021-02-21 11:04:29.054265: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1716] Found device 0 with properties:

pciBusID: 0000:2d:00.0 name: GeForce GTX 970 computeCapability: 5.2

coreClock: 1.3165GHz coreCount: 13 deviceMemorySize: 4.00GiB deviceMemoryBandwidth: 208.91GiB/s

2021-02-21 11:04:29.054553: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudart64\_101.dll

2021-02-21 11:04:29.054929: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cublas64\_10.dll

2021-02-21 11:04:29.055735: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cufft64\_10.dll

2021-02-21 11:04:29.057401: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library curand64\_10.dll

2021-02-21 11:04:29.057799: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusolver64\_10.dll

2021-02-21 11:04:29.058256: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusparse64\_10.dll

2021-02-21 11:04:29.058669: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudnn64\_7.dll

2021-02-21 11:04:29.059201: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1858] Adding visible gpu devices: 0

2021-02-21 11:04:29.576753: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1257] Device interconnect StreamExecutor with strength 1 edge matrix:

2021-02-21 11:04:29.576916: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1263] 0

2021-02-21 11:04:29.578006: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1276] 0: N

2021-02-21 11:04:29.578626: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1402] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 2985 MB memory) -> physical GPU (device: 0, name: GeForce GTX 970, pci bus id: 0000:2d:00.0, compute capability: 5.2)

2021-02-21 11:04:29.581734: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x15bc9ffdb30 initialized for platform CUDA (this does not guarantee that XLA will be used). Devices:

2021-02-21 11:04:29.581848: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): GeForce GTX 970, Compute Capability 5.2

WARNING:tensorflow:From C:\Users\bunce\Anaconda3\lib\site-packages\tensorflow\python\compat\v2\_compat.py:96: disable\_resource\_variables (from tensorflow.python.ops.variable\_scope) is deprecated and will be removed in a future version.

Instructions for updating:

non-resource variables are not supported in the long term

[2021-02-21 11:04:29,847] From C:\Users\bunce\Anaconda3\lib\site-packages\tensorflow\python\compat\v2\_compat.py:96: disable\_resource\_variables (from tensorflow.python.ops.variable\_scope) is deprecated and will be removed in a future version.

Instructions for updating:

non-resource variables are not supported in the long term

[2021-02-21 11:04:29,890] Making new env: Hopper-v1

C:\Users\bunce\Anaconda3\lib\site-packages\gym\envs\registration.py:17: PkgResourcesDeprecationWarning: Parameters to load are deprecated. Call .resolve and .require separately.

result = entry\_point.load(False)

loading and building expert policy

obs (1, 11) (1, 11)

loaded and built

2021-02-21 11:04:30.204248: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1716] Found device 0 with properties:

pciBusID: 0000:2d:00.0 name: GeForce GTX 970 computeCapability: 5.2

coreClock: 1.3165GHz coreCount: 13 deviceMemorySize: 4.00GiB deviceMemoryBandwidth: 208.91GiB/s

2021-02-21 11:04:30.204379: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudart64\_101.dll

2021-02-21 11:04:30.204766: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cublas64\_10.dll

2021-02-21 11:04:30.205176: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cufft64\_10.dll

2021-02-21 11:04:30.205557: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library curand64\_10.dll

2021-02-21 11:04:30.205969: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusolver64\_10.dll

2021-02-21 11:04:30.206398: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusparse64\_10.dll

2021-02-21 11:04:30.206789: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudnn64\_7.dll

2021-02-21 11:04:30.207235: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1858] Adding visible gpu devices: 0

2021-02-21 11:04:30.207633: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1257] Device interconnect StreamExecutor with strength 1 edge matrix:

2021-02-21 11:04:30.207949: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1263] 0

2021-02-21 11:04:30.208451: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1276] 0: N

2021-02-21 11:04:30.208903: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1402] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 2985 MB memory) -> physical GPU (device: 0, name: GeForce GTX 970, pci bus id: 0000:2d:00.0, compute capability: 5.2)

2021-02-21 11:04:30.223580: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cublas64\_10.dll

returns [3773.4872495025525, 3773.1241188431222, 3776.4599542854835]

mean return 3774.3571075437194

std of return 1.4943090451142667

Behavior Cloning....

Train on 3000 samples

Epoch 1/300

2021-02-21 11:04:32.581350: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1716] Found device 0 with properties:

pciBusID: 0000:2d:00.0 name: GeForce GTX 970 computeCapability: 5.2

coreClock: 1.3165GHz coreCount: 13 deviceMemorySize: 4.00GiB deviceMemoryBandwidth: 208.91GiB/s

2021-02-21 11:04:32.581485: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudart64\_101.dll

2021-02-21 11:04:32.581913: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cublas64\_10.dll

2021-02-21 11:04:32.582319: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cufft64\_10.dll

2021-02-21 11:04:32.582706: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library curand64\_10.dll

2021-02-21 11:04:32.583091: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusolver64\_10.dll

2021-02-21 11:04:32.583511: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cusparse64\_10.dll

2021-02-21 11:04:32.583896: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:48] Successfully opened dynamic library cudnn64\_7.dll

2021-02-21 11:04:32.584406: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1858] Adding visible gpu devices: 0

2021-02-21 11:04:32.584793: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1257] Device interconnect StreamExecutor with strength 1 edge matrix:

2021-02-21 11:04:32.585137: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1263] 0

2021-02-21 11:04:32.585519: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1276] 0: N

2021-02-21 11:04:32.585963: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1402] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 2985 MB memory) -> physical GPU (device: 0, name: GeForce GTX 970, pci bus id: 0000:2d:00.0, compute capability: 5.2)

3000/3000 [==============================] - 0s 10us/sample - loss: 1.5522

Epoch 2/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.5295

Epoch 3/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.3668

Epoch 4/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.3113

Epoch 5/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.2787

Epoch 6/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.2566

Epoch 7/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.2409

Epoch 8/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.2256

Epoch 9/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.2131

Epoch 10/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.2015

Epoch 11/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1925

Epoch 12/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1838

Epoch 13/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1762

Epoch 14/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.1693

Epoch 15/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1632

Epoch 16/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.1586

Epoch 17/300

3000/3000 [==============================] - 0s 15us/sample - loss: 0.1526

Epoch 18/300

3000/3000 [==============================] - 0s 14us/sample - loss: 0.1482

Epoch 19/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.1434

Epoch 20/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.1403

Epoch 21/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1352

Epoch 22/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.1322

Epoch 23/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1290

Epoch 24/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1254

Epoch 25/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1228

Epoch 26/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1199

Epoch 27/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1171

Epoch 28/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1143

Epoch 29/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1118

Epoch 30/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1096

Epoch 31/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1074

Epoch 32/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.1053

Epoch 33/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.1033

Epoch 34/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.1015

Epoch 35/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0996

Epoch 36/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0981

Epoch 37/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0962

Epoch 38/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0948

Epoch 39/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0934

Epoch 40/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0917

Epoch 41/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0904

Epoch 42/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0886

Epoch 43/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0880

Epoch 44/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0865

Epoch 45/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0854

Epoch 46/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0839

Epoch 47/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0830

Epoch 48/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0818

Epoch 49/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0808

Epoch 50/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0799

Epoch 51/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0788

Epoch 52/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0777

Epoch 53/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0775

Epoch 54/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0763

Epoch 55/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0757

Epoch 56/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0749

Epoch 57/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0736

Epoch 58/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0733

Epoch 59/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0730

Epoch 60/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0720

Epoch 61/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0713

Epoch 62/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0708

Epoch 63/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0705

Epoch 64/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0695

Epoch 65/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0690

Epoch 66/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0684

Epoch 67/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0678

Epoch 68/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0672

Epoch 69/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0668

Epoch 70/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0665

Epoch 71/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0658

Epoch 72/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0653

Epoch 73/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0649

Epoch 74/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0644

Epoch 75/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0637

Epoch 76/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0632

Epoch 77/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0630

Epoch 78/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0626

Epoch 79/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0622

Epoch 80/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0618

Epoch 81/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0616

Epoch 82/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0612

Epoch 83/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0606

Epoch 84/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0603

Epoch 85/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0599

Epoch 86/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0597

Epoch 87/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0596

Epoch 88/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0592

Epoch 89/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0588

Epoch 90/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0584

Epoch 91/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0580

Epoch 92/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0576

Epoch 93/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0576

Epoch 94/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0572

Epoch 95/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0569

Epoch 96/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0565

Epoch 97/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0562

Epoch 98/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0560

Epoch 99/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0558

Epoch 100/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0552

Epoch 101/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0552

Epoch 102/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0546

Epoch 103/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0547

Epoch 104/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0543

Epoch 105/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0540

Epoch 106/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0540

Epoch 107/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0534

Epoch 108/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0534

Epoch 109/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0532

Epoch 110/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0528

Epoch 111/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0527

Epoch 112/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0525

Epoch 113/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0522

Epoch 114/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0520

Epoch 115/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0517

Epoch 116/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0516

Epoch 117/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0515

Epoch 118/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0513

Epoch 119/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0510

Epoch 120/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0507

Epoch 121/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0505

Epoch 122/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0506

Epoch 123/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0502

Epoch 124/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0499

Epoch 125/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0497

Epoch 126/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0495

Epoch 127/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0495

Epoch 128/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0494

Epoch 129/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0491

Epoch 130/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0491

Epoch 131/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0485

Epoch 132/300

3000/3000 [==============================] - 0s 9us/sample - loss: 0.0485

Epoch 133/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0484

Epoch 134/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0482

Epoch 135/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0479

Epoch 136/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0476

Epoch 137/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0477

Epoch 138/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0474

Epoch 139/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0473

Epoch 140/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0471

Epoch 141/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0469

Epoch 142/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0465

Epoch 143/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0466

Epoch 144/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0464

Epoch 145/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0463

Epoch 146/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0462

Epoch 147/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0462

Epoch 148/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0460

Epoch 149/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0457

Epoch 150/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0457

Epoch 151/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0453

Epoch 152/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0453

Epoch 153/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0450

Epoch 154/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0452

Epoch 155/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0447

Epoch 156/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0448

Epoch 157/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0444

Epoch 158/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0443

Epoch 159/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0442

Epoch 160/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0440

Epoch 161/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0439

Epoch 162/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0437

Epoch 163/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0434

Epoch 164/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0433

Epoch 165/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0431

Epoch 166/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0430

Epoch 167/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0431

Epoch 168/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0428

Epoch 169/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0428

Epoch 170/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0425

Epoch 171/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0423

Epoch 172/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0421

Epoch 173/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0422

Epoch 174/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0419

Epoch 175/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0416

Epoch 176/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0415

Epoch 177/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0415

Epoch 178/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0416

Epoch 179/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0414

Epoch 180/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0411

Epoch 181/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0411

Epoch 182/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0412

Epoch 183/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0407

Epoch 184/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0408

Epoch 185/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0406

Epoch 186/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0405

Epoch 187/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0405

Epoch 188/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0402

Epoch 189/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0403

Epoch 190/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0400

Epoch 191/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0401

Epoch 192/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0399

Epoch 193/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0397

Epoch 194/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0397

Epoch 195/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0396

Epoch 196/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0394

Epoch 197/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0393

Epoch 198/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0391

Epoch 199/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0393

Epoch 200/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0391

Epoch 201/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0391

Epoch 202/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0388

Epoch 203/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0389

Epoch 204/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0388

Epoch 205/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0387

Epoch 206/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0384

Epoch 207/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0385

Epoch 208/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0386

Epoch 209/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0381

Epoch 210/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0383

Epoch 211/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0381

Epoch 212/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0380

Epoch 213/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0378

Epoch 214/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0379

Epoch 215/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0377

Epoch 216/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0377

Epoch 217/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0377

Epoch 218/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0375

Epoch 219/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0375

Epoch 220/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0373

Epoch 221/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0373

Epoch 222/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0371

Epoch 223/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0372

Epoch 224/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0369

Epoch 225/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0369

Epoch 226/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0369

Epoch 227/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0369

Epoch 228/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0367

Epoch 229/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0367

Epoch 230/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0368

Epoch 231/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0365

Epoch 232/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0364

Epoch 233/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0364

Epoch 234/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0363

Epoch 235/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0362

Epoch 236/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0361

Epoch 237/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0359

Epoch 238/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0360

Epoch 239/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0359

Epoch 240/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0358

Epoch 241/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0357

Epoch 242/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0358

Epoch 243/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0356

Epoch 244/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0355

Epoch 245/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0355

Epoch 246/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0353

Epoch 247/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0353

Epoch 248/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0354

Epoch 249/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0354

Epoch 250/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0352

Epoch 251/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0351

Epoch 252/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0351

Epoch 253/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0349

Epoch 254/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0350

Epoch 255/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0347

Epoch 256/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0347

Epoch 257/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0351

Epoch 258/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0346

Epoch 259/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0348

Epoch 260/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0345

Epoch 261/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0344

Epoch 262/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0343

Epoch 263/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0344

Epoch 264/300

3000/3000 [==============================] - 0s 14us/sample - loss: 0.0343

Epoch 265/300

3000/3000 [==============================] - 0s 14us/sample - loss: 0.0342

Epoch 266/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.0342

Epoch 267/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.0341

Epoch 268/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0341

Epoch 269/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0343

Epoch 270/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0338

Epoch 271/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0339

Epoch 272/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0338

Epoch 273/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0337

Epoch 274/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0337

Epoch 275/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0337

Epoch 276/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0335

Epoch 277/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0337

Epoch 278/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0337

Epoch 279/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0335

Epoch 280/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0333

Epoch 281/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0332

Epoch 282/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0332

Epoch 283/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0332

Epoch 284/300

3000/3000 [==============================] - 0s 13us/sample - loss: 0.0332

Epoch 285/300

3000/3000 [==============================] - 0s 15us/sample - loss: 0.0331

Epoch 286/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.0330

Epoch 287/300

3000/3000 [==============================] - 0s 12us/sample - loss: 0.0330

Epoch 288/300

3000/3000 [==============================] - 0s 11us/sample - loss: 0.0330

Epoch 289/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0328

Epoch 290/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0328

Epoch 291/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0328

Epoch 292/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0326

Epoch 293/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0326

Epoch 294/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0326

Epoch 295/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0323

Epoch 296/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0324

Epoch 297/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0323

Epoch 298/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0324

Epoch 299/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0322

Epoch 300/300

3000/3000 [==============================] - 0s 10us/sample - loss: 0.0325

Generating rollouts from new model..

WARNING:tensorflow:From C:\Users\bunce\Anaconda3\lib\site-packages\tensorflow\python\keras\engine\training\_v1.py:2070: Model.state\_updates (from tensorflow.python.keras.engine.training) is deprecated and will be removed in a future version.

Instructions for updating:

This property should not be used in TensorFlow 2.0, as updates are applied automatically.

[2021-02-21 11:04:42,739] From C:\Users\bunce\Anaconda3\lib\site-packages\tensorflow\python\keras\engine\training\_v1.py:2070: Model.state\_updates (from tensorflow.python.keras.engine.training) is deprecated and will be removed in a future version.

Instructions for updating:

This property should not be used in TensorFlow 2.0, as updates are applied automatically.

100/1000

200/1000

100/1000

100/1000

Return summary: mean=458.131208, std=73.178184

Exception ignored in: <function Env.\_\_del\_\_ at 0x0000015BA8D7DF70>

Traceback (most recent call last):

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 202, in \_\_del\_\_

self.close()

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 169, in close

self.\_close()

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 288, in \_close

return self.env.close()

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 167, in close

self.render(close=True)

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 153, in render

return self.\_render(mode=mode, close=close)

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\envs\mujoco\mujoco\_env.py", line 105, in \_render

self.\_get\_viewer().finish()

File "C:\Users\bunce\Anaconda3\lib\site-packages\mujoco\_py\mjviewer.py", line 327, in finish

if gl.glIsFramebuffer(self.\_fbo):

File "C:\Users\bunce\Anaconda3\lib\site-packages\OpenGL\platform\baseplatform.py", line 423, in \_\_call\_\_

raise error.NullFunctionError(

OpenGL.error.NullFunctionError: Attempt to call an undefined function glIsFramebuffer, check for bool(glIsFramebuffer) before calling

Exception ignored in: <function Env.\_\_del\_\_ at 0x0000015BA8D7DF70>

Traceback (most recent call last):

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 202, in \_\_del\_\_

self.close()

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 167, in close

self.render(close=True)

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\core.py", line 153, in render

return self.\_render(mode=mode, close=close)

File "C:\Users\bunce\Anaconda3\lib\site-packages\gym\envs\mujoco\mujoco\_env.py", line 105, in \_render

self.\_get\_viewer().finish()

File "C:\Users\bunce\Anaconda3\lib\site-packages\mujoco\_py\mjviewer.py", line 325, in finish

glfw.destroy\_window(self.window)