

Common Debugging Solutions

Breakout

Here is how I manage to install the Breakout environment using python 3.5:

Download VirtualBox Ubuntu 17.10 Artful 64bits disk image from osboxes:

<http://www.osboxes.org/ubuntu/#ubuntu-1710-vbox>

Create the VM with 4GB of memory (2GB should be more than enough)

Run Guest Additions CD (optional)

Download Anaconda (latest version) from:

<https://www.anaconda.com/download/#linux>

Install Anaconda:

```
bash Anaconda3-5.0.1-Linux-x86_64.sh
```

Close terminal and open a new one

Downgrade to Python 3.5

```
conda install python=3.5
```

Install PyTorch

```
conda install pytorch torchvision -c soumith
```

Install OpenAI Gym

```
sudo apt install git
```

```
git clone https://github.com/openai/gym
```

```
cd gym
```

```
pip install -e .
```

```
sudo apt-get install -y python3-numpy python3-dev python-numpy python-dev  
cmake zlib1g-dev libjpeg-dev xvfb libav-tools xorg-dev python-opengl  
libboost-all-dev libsdl2-dev swig pip install -e '[all]'
```

Install FFmpeg

```
conda install -c conda-forge ffmpeg
```

Install OpenCV

```
conda install -c menpo opencv
```

Now open the Breakout source code files using Spyder

Change model.py, line 12 to:

```
out *= std / torch.sqrt(out.pow(2).sum(1, keepdim=True).expand_as(out))  
# thanks to this initialization, we have var(out) = std^2
```

Change test.py, line 37 to:

```
state, reward, done, _ = env.step(action[0]) # done = done or  
episode_length >= params.max_episode_length
```

The training of the agent took around half an hour to achieve the first rewards (so don't panic if you don't see any results during the first minutes), and a few hours to get some good results.

By the way, for those that want to save more videos than the "standard" behaviour, just change envs.py, line 17 to:

```
env = wrappers.Monitor(env, 'test', force=True, video_callable=lambda  
episode_id: True) # save all episodes
```

or

```
env = wrappers.Monitor(env, 'test', force=True, video_callable=lambda  
episode_id: episode_id%10==0) # save every 10th, etc
```

Probably for the Doom environment all we need is to install ppaquette before FFmpeg (didn't test it in this script since I have the Doom environment working on another VM):

```
pip install ppaquette-gym-doom
```

<https://www.udemy.com/artificial-intelligence-az/learn/v4/questions/3153680>