

## Install instructions for Open AI gym and PyTorch

In this lab we will use the web-based google colab so no install is needed. If you install locally it is good if you have access to a Nvidia-gpu-card in your computer so please study how to install Cuda (version 10.1 recommended) at <https://docs.nvidia.com/cuda/cuda-quick-start-guide/index.html>

There are many IDE-environments like Microsoft , PyCharm and Jupyter notebook as the teacher will use during lessons, the advantage is that Open AI gym rendering can be made if you run locally.

### Python

We assume you already have Python installed, preferable version 3.7 or 3.8+

Otherwise it can be installed from <https://www.python.org/>

### Virtual environment

It is recommended to have virtual environments separating different installs; otherwise you might run into version collisions if you .i.e run/install Tensorflow and PyTorch in the same (virtual) environment

<https://docs.python.org/3/library/venv.html>

### Jupyter notebook

A very popular way of programming Python in a browser and combining with instructions etc, run each code block by clicking in the upper left and you can also make some changes and rerun a block (often no need to restart from beginning)

<https://jupyter.org/install>

### Pytorch

Our selected Deep Learning library. Select your HW and SW situation to get an install line.

<https://pytorch.org/>

a quick intro is available at (we won't use advanced pytorch)

[https://pytorch.org/tutorials/beginner/deep\\_learning\\_60min\\_blitz.html](https://pytorch.org/tutorials/beginner/deep_learning_60min_blitz.html)

### Open AI

The library with a lot of environments to play and practice (Q)learning from.

<http://gym.openai.com/>

<https://github.com/openai/spinningup>

<https://towardsdatascience.com/how-to-install-openai-gym-in-a-windows-environment-338969e24d30>

### Xming

A freeware program to emulate X-windows; it makes it possible so see the rendering from gym in a separate window even if running MS-Windows (it is natural in Linux and Mac OS X).

<https://sourceforge.net/projects/xming/>

Example for Windows 10 running Nvidia Cuda 10.1, pip and jupyter notebook:

```
pip install torch===1.4.0 torchvision===0.5.0 -f https://download.pytorch.org/whl/torch_stable.html
pip install jupyterlab
pip install numpy
pip install scipy
pip install gym
```

Kalles jt.bat-file (in directory C:\Users\kalle):

```
call .\venvs\jt\Scripts\Activate.bat
```

```
cd jupnot < Directory where the .pynb-files are >
```

```
jupyter notebook
```

Example of session:

Write cmd in screen lower left to start command window:

Microsoft Windows [Version 10.0.18362.778]

(c) 2019 Microsoft Corporation. Med ensamrätt.

< Start Xming via Windows Start-menu (nothing is seen then) >

```
C:\Users\kalle>set DISPLAY=:0 (set X-windows display environment variable before starting python IDE/jupyter)
```

```
C:\Users\kalle>jt <start batch-file as mentioned above with the following outputs:>
```

```
C:\Users\kalle>call .\venvs\jt\Scripts\Activate.bat
```

```
[I 11:42:45.416 NotebookApp] JupyterLab extension loaded from c:\users\kalle\venvs\jt\lib\site-packages\jupyterlab
```

```
[I 11:42:45.416 NotebookApp] JupyterLab application directory is c:\users\kalle\venvs\jt\share\jupyter\lab
```

```
[I 11:42:45.418 NotebookApp] Serving notebooks from local directory: C:\Users\kalle\jupnot
```

< browser starts up with a Jupyter notebook ready to use)

..

```
[I 11:42:45.418 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation). < You can close the browser and press Ctrl-C twice and the exit .bat-commands with a Y>
```