

Instructions

- 1) You first need to install the VPN of Télécom (or you need to be at Télécom connected to the Télécom Wifi).
Please follow instructions here for installing it (you have to wait 5 seconds before seeing the web page) <https://eole.telecom-paris.fr/vos-services/services-numeriques/connexions-aux-reseaux#exterieur>
If you can't install softwares on your computer, please open a Terminal and type:

ssh login@ssh.enst.fr

Here, login is the Télécom login, usually your surname.

- 2) Once you are connected to the network of Télécom, you can login to several computational clusters. Probably the biggest and easy to access servers are the ones of INFRES. You can find more information here: <https://services.enst.fr/> and <https://lames.enst.fr/>

To sum up:

ssh login@gpuX.enst.fr X= 1, 2, 3, 4, 5, 6
use the command `pwd` to know the location of your folder (no quota here)
use the command "`scp`" to copy/paste your data
install (locally) `anaconda`
create your environment
launch your command "`python main.py`"

Please check carefully that no one is using the same gpu

Please note that if your experiments lasts more than 10h you need to use the command "`kinit -R`" as explained here <https://services.enst.fr/>

- 3) We also have some "small" clusters for the student projects that you can connect to using:

ssh login@tp-5d02-XX

where XX can go from 00 to 20

(you have to type this command in a terminal. On linux there is plenty of possible terminals, on macOS there is the application Terminal.app available with the system. On windows: you may need to install Cygwin (<https://www.cygwin.com/>))

- 4) Then, instead of installing a new Anaconda, you can use the one already installed in `/tsi/data_education/`. Please open a terminal and type:

`export PATH="/tsi/data_education/anaconda3/bin:$PATH"`

Please note that you will need to do that each time you open a new terminal or you can copy/paste it in your .basrch or .zshrc

Also note that you will not be able to write in the anaconda3 folder (you don't have the permission) and therefore anaconda will automatically save the environments and packages in your home folder (see next point to see how to change that)

- 5) Now, you need to create an environment. First thing to do is to set a place where you store all your environments and packages. Since you have a low quota space at Télécom, I strongly suggest that you store all packages and environments in your project folder in /tsi/data_education/ProjectFolder. If you don't have a project folder please ask your referent professor to create one. Then type the following commands in your terminal (same terminal as before):

```
conda config --add pkgs_dirs /tsi/data_education/ProjectFolder/pkgs
```

```
conda config --add envs_dirs /tsi/data_education/ProjectFolder/envs
```

```
conda create --name myenv
```

Please look here for more information:

<https://conda.io/projects/conda/en/latest/user-guide/tasks/manage-environments.html>

<https://docs.conda.io/projects/conda/en/latest/user-guide/configuration/use-condarc.html#specify-package-directories-pkgs-dirs>

- 6) Now we can activate the environment by doing

```
conda activate myenv
```

- 7) And install all packages and libraries you need by doing

```
conda install matplotlib numpy etc.
```

- 8) Remember that if you want to install pytorch and use it with GPU (strongly recommended) you need to first check that CUDA is well installed in the computer you want to use and check its version. In order to do that, log in the machine you want to use and then type nvidia-smi in the terminal

```
ssh pgori@tp-5d02-20
```

```
nvidia-smi
```

```
+-----+
| NVIDIA-SMI 418.181.07  Driver Version: 418.181.07  CUDA Version: 10.1  |
+-----+-----+-----+-----+
| GPU Name      Persistence-M| Bus-Id      Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
```

```

|
=====+=====+=====
=====|
| 0 GeForce GTX 108... Off | 00000000:9E:00.0 On |      N/A |
| 23% 27C P8 9W / 250W | 29MiB / 11170MiB | 0% Default |
+-----+-----+-----+

+-----+
| Processes:                      GPU Memory |
| GPU   PID  Type  Process name      Usage   |
|
=====
=====|
| 0    11846   G   /usr/lib/xorg/Xorg      26MiB |
+-----+

```

If you see something, it means that CUDA is installed. You can check the CUDA version on the top right. Here, you can see that the current version of CUDA is the 10.1. Thus, we first need to check in the Pytorch website which is the maximum pytorch version we can install: <https://pytorch.org/get-started/previous-versions/>

Once you have found the maximum version, simply copy paste the command on the previously opened terminal (here we don't need torchaudio...)
 remark; anaconda usually downloads the needed cuda version, so if an old code requires an older version of cuda than 10.1. If it requires a newer version, then you have to check if the driver (418.181.07 in the example) is able to handel such a new version

```
conda install pytorch==1.7.1 torchvision==0.8.2 cudatoolkit=10.1 -c pytorch
```

DONE ! ENJOY !

How to run a jupyter-notebook on the Télécom computers from your own laptop

<https://docs.anaconda.com/anaconda/user-guide/tasks/remote-jupyter-notebook/>

<https://lvmiranda921.github.io/notebook/2018/01/31/running-a-jupyter-notebook/>

How to run computations on the Télécom computers from your own laptop using PyCharm

<https://www.jetbrains.com/help/pycharm/configuring-jupyter-notebook.html#configure-server>

<https://medium.com/@erikhallstrm/work-remotely-with-pycharm-tensorflow-and-ssh-c60564be862d>

<https://www.jetbrains.com/help/pycharm/creating-a-remote-server-configuration.html>

<https://www.jetbrains.com/help/pycharm/configuring-remote-interpreters-via-ssh.html>

<https://blog.jetbrains.com/pycharm/2018/04/running-flask-with-an-ssh-remote-python-interpreter/>

Additionally You can also have a look at: <https://calculadistance.wp.imt.fr> (by S. Ladjal) especially if you do not want to use the VPN.