# Using HPC
Exercise 2.1
Introduction to
Deep Learning in Computer Vision 02516

October 2024

In this exercise you will test your skills on working on a remote cluster (HPC). The goal of this exercise is to follow the steps of Lecture 2.2 and run a simple python script and a simple notebook that you will create on HPC. If you manage to follow all the steps of this exercise, it means that you are ready for all the other exercises and the assignments of this course.

https://lvwerra.github.io/dslectures/images/gpu_meme.jpg
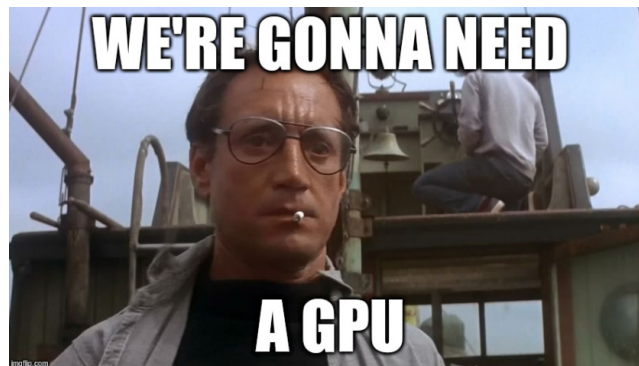
Objectives

1. **Access HPC and an interactive node**
   (HINT:ssh)

2. **Copy a file to HPC**
   (HINT:scp)

3. **Create your first virtual environment**
   (HINT:venv, pip)

4. **Create a simple script that can do simple task (i.e. read the image that you have transferred, transform it into a tensor and move it into the GPU. Finally, try to save the tensor in disk)**
   (https://pytorch.org/tutorials/recipes/recipes/save_load_across_devices.html)

5. **Run your script in an interactive node using a GPU**

6. **Submit a batch job to run your script using the scheduler**

Questions

- Are you sure you used a GPU properly? How did you check it?

- Did you use the graphical mode (thinlinc) or the command line?

- How much GPU memory your script needed to run?

- Did you save the tensor to GPU or to CPU?

- Do you understand the difference between different devices (GPU, CPU) and how their interaction works?

References

1. Lecture 02516, 02/10/2024, Dimitrios Papadopoulos/Aasa Feragen: Introduction to HPC

2. https://www.hpc.dtu.dk/ https://www.unixtutorial.org/basic-unix-commands

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

4. https://jupyter.org/

5. https://pytorch.org/

6. tmux basic tutorial: https://www.hamvocke.com/blog/a-quick-and-easy-guide-to-tmux/