

Neural networks - Lab setup

This document contains instructions for setting your laptop for the labs of the Neural Network course. These assume you're working under Ubuntu 22.04, but it should work up to some adjustments if you're under other Ubuntu versions / Linux architectures / Mac OS (if you work on Windows, check section 6). If you run into some problems, you can ask the assistant to help you during the Install Party.

If you don't want to install things by yourself, then you can just come at the Install Party and you will be provided with help to use a provided Docker container, which is already configured for your needs.

1 Prerequisites

Make sure that python 3 is installed (with Ubuntu 22 you should have python 3.10). Install the pip3 package manager:

```
sudo apt install python3-pip
```

and the virtual environment manager:

```
sudo apt install python3-venv
```

Create a project folder somewhere called e.g., "Neural networks labs". This is where you will put all the lab material.

2 Virtual environment

The first step is to create a *virtual environment*.¹ Go to your project folder, right click and "Open in Terminal".

- Create a virtual environment:

```
python3 -m venv env
```

- Activate it:

```
source env/bin/activate
```

- When you're done, you can close it with:

```
deactivate
```

¹Virtual environments allow you to manage separate package installations for different projects. When you switch projects, you can simply create a new virtual environment and not have to worry about breaking the packages installed in the other environments. More info at <https://packaging.python.org/en/latest/guides/installing-using-pip-and-virtual-environments/>

3 Jupyter notebook

Notebooks are a convenient way to work with Python scripts directly in your web browser (although you can use an IDE like VS Code if that suits you better). Activate your virtual environment and install Jupyter with:

```
pip3 install notebook
```

Then you can simply launch the notebook browser (with your environment still activated) as follows:

```
jupyter notebook
```

4 Packages

We now install all the necessary packages, which are assembled in a file called “requirements.txt”. Activate your virtual environment and run the following command:

```
pip3 install -r requirements.txt
```

Note that SC students can remove / comment the last lines in the requirements file as indicated therein (these correspond to packages used only by NLP students).

5 Crash test

You can check if everything went well as follows.

1. Go to your project repository, open a terminal and activate your virtual environment.
2. Start a jupyter notebook.
3. Open the provided test file “test_setup.ipynb”.
4. Execute the cell(s).

If there are no error message, then you’re good to go.

6 Notes for Windows users

The procedure above might cause issues if trying to install on Windows (10 or 11), so you can try it at your own risk. Instead we suggest to rely on one of the two following (more simple) methods.

6.1 Docker

Docker allows you to develop your code within a container that contains all the dependencies (packages) you need. Instructions on how to install Docker and how to download/use the provided container can be found here: <https://gitlab.inria.fr/tbiasutt/installparty>

6.2 WSL

Alternatively, you can use the *Windows Sysytem for Linux* (WSL). You can find more info online, e.g., [here](#) or [here](#). If you run into some problems, you can also ask the assistant to help you during the Install Party.

If you create a folder “Neural Networks lab” e.g., on the desktop, then the full paths are the following:

- under windows: `C:\Users\<WindowsUserName>\Desktop\Neural Networks lab`
- under Ubuntu subsystem: `/mnt/c/Users/<WindowsUserName>/Desktop/Neural Networks lab`

where `<WindowsUserName>` is your user name on Windows. If you’re working under the Ubuntu subsystem, you can therefore use this path to navigate to your project, handle the virtual environment and execute the scripts.