

How to use JupyterHub for the labs

Olivier Canévet

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Introduction

The practical sessions will be made on the JupyterHub platform hosted at Idiap.

The platform provides:

- ▶ an account for each of you,
- ▶ a Python environment with all the required libraries (NumPy, scikit-learn, scipy, OpenCV, PyTorch, etc.),
- ▶ a nice tool (nbgrader) to provide feedback to you.

Accessing JupyterHub

The authentication on the platform is done through GitHub OAuth. The access is provided with your GitHub username and password.

If you don't have a GitHub account, please create one at

<https://github.com/join>

To register you on the JupyterHub platform, please send your GitHub username (not the password) to

christine.marcel@idiap.ch
olivier.canevet@idiap.ch

with the following email object:

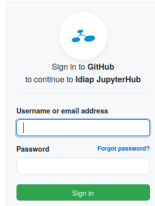
[mlfe] JupyterHub

Going on JupyterHub

Go to `https://lab.idiap.ch/devel/hub/jhub`



and log in if not already:


The image shows the GitHub login form on the Idiap JupyterHub page. At the top is the GitHub logo. Below it is a circular profile picture placeholder with the Idiap logo. The text "Sign in to GitHub" is followed by "to continue to Idiap JupyterHub". There are two input fields: "Username or email address" and "Password". Below the password field is a link "Forgot password?". At the bottom is a green "Sign in" button.

Sign in to GitHub
to continue to Idiap JupyterHub

Username or email address

Password [Forgot password?](#)

[Sign in](#)

Accessing your space

Select image “EPFL, MLFE”:

- ☐ EPFL, FSPR

EPFL, EE-612 - Fundamentals in statistical pattern recognition

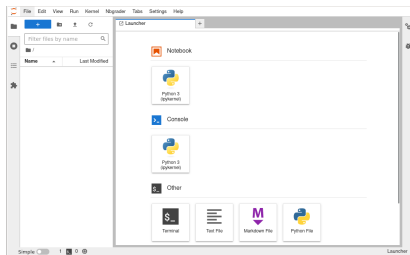
- ☐ EPFL, MLFE

EPFL, EE-613 - Machine learning for engineers

Start

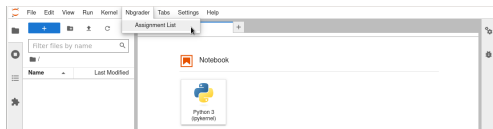
Your home directory

Once logged in your space, the JupyterLab interface is displayed:



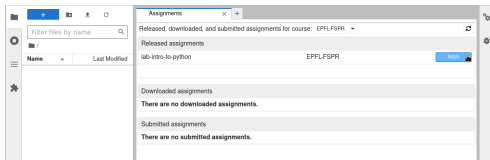
The first time, your home directory is empty.

Click on “Assignments” to see the list of available assignments you have to do:

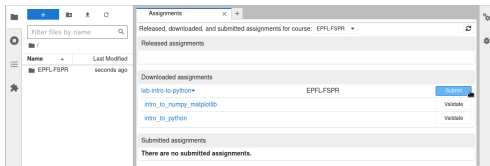


Fetching your assignments

Fetch the available assignments by clicking on the corresponding “Fetch” button.



The assignment is now visible in section “Downloaded assignments”. It is also available in your home directory in folder “EPFL, MLFE”, which will contain all your labs.



Doing the lab

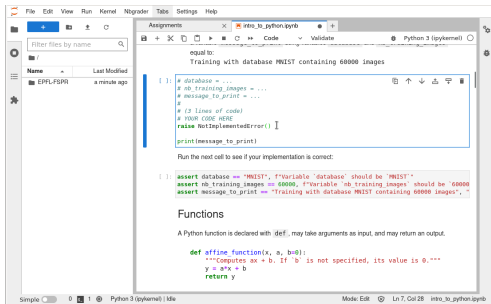
The code you have to implement is indicated by

```
# YOUR CODE HERE
```

```
raise NotImplementedError()
```

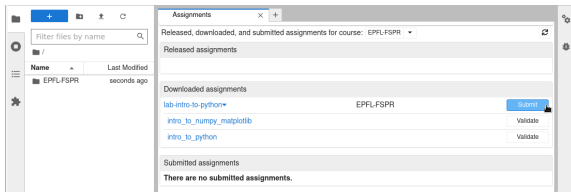
A test cell follows what you need to implement, to give you an indication whether you did right.

Don't forget to save your lab before closing. The last auto-saved checkpoint may be older than your last execution.



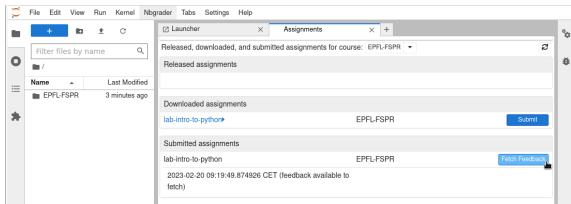
Submitting your work and fetching feedback

When your work is done and saved, go back to the “Assignments” pane and submit your lab (no need to click on “Validate”):



Once we have graded your lab and notify you, you may fetch our feedback containing comments on your work. The feedback is a .html page in folder:

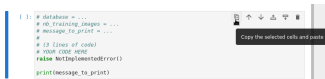
EPFL-MLFE/<lab-name>/feedback/<timestamp>/notebook.html



Tips for JupyterHub

Don't copy-paste cells

- ▶ Please, don't copy-paste cells via Edit > Copy cells or via the cell shortcut



- ▶ This causes the copied cell to have the same ID as the original.
- ▶ Rather, create a new empty cell and copy paste its content.

For efficiency

- ▶ PyTorch and NumPy use by default as many threads as there are cores which on JupyterHub cause context switching inefficiency
- ▶ You will sometimes see the following fix. Please don't change it on JupyterHub.

```
if getpass.getuser() == "jovyan":  
    jhub_num_threads = 2  
    torch.set_num_threads(jhub_num_threads)  
    os.environ["OMP_NUM_THREADS"] = str(jhub_num_threads)
```

In case of problem

Don't hesitate to ask question on the forum.

In case you cannot find a bug in your code:

- ▶ submit your lab, and
- ▶ write to the teaching assistant (or post a message on the Moodle forum)

Good luck!