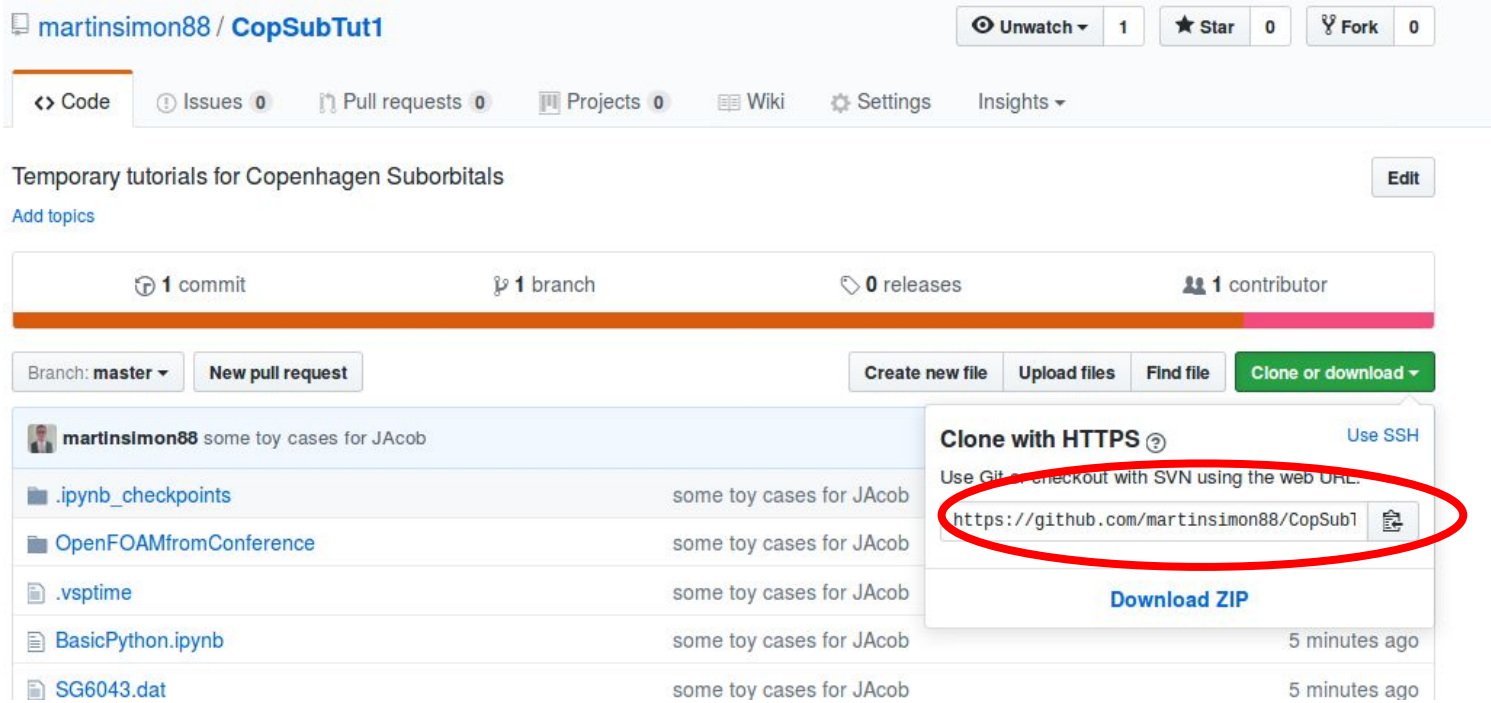


1. Install the following Python packages (they will be necessary in the following tutorials):

```
simonx@simonx:~$ sudo pip install numpy string matplotlib
```

2. Go to: <https://github.com/martinsimon88/CopSubTut1>

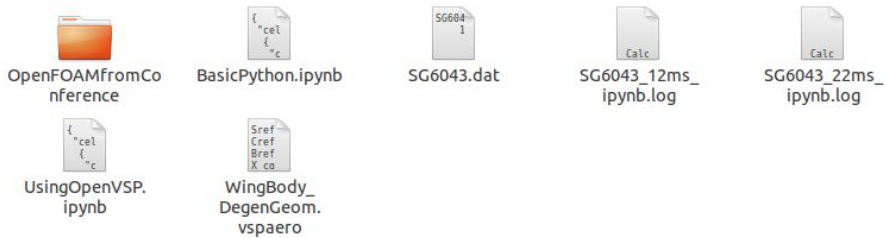
3. Copy the git link:



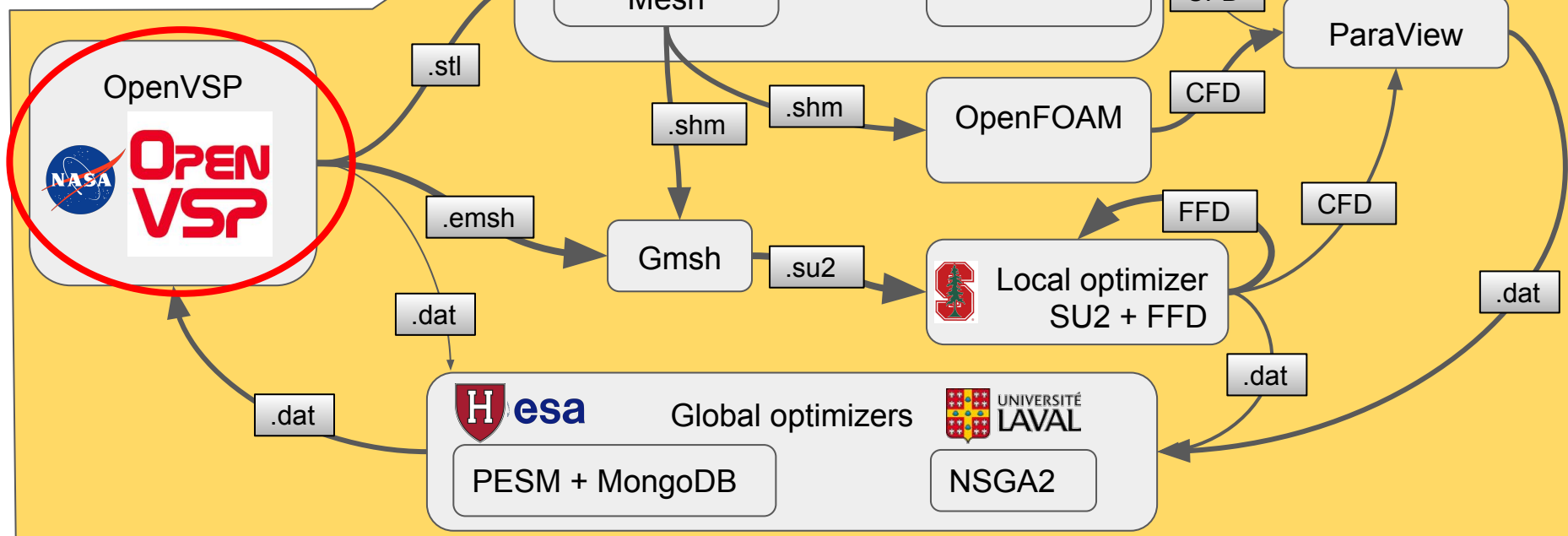
4. Download the whole repository to your home directory using git (to paste in Terminal: ctrl+shift+V):

```
simonx@simonx:~$ git clone https://github.com/martinsimon88/CopSubTut1.git
Cloning into 'CopSubTut1'...
remote: Counting objects: 48, done.
remote: Compressing objects: 100% (36/36), done.
remote: Total 48 (delta 8), reused 48 (delta 8), pack-reused 0
Unpacking objects: 100% (48/48), done.
Checking connectivity... done.
simonx@simonx:~$
```

5. Now you should have a folder called CopSubTut1 containing that looks like this:



**All of this can be connected and automated with background .py files and executed in an IPython notebook**



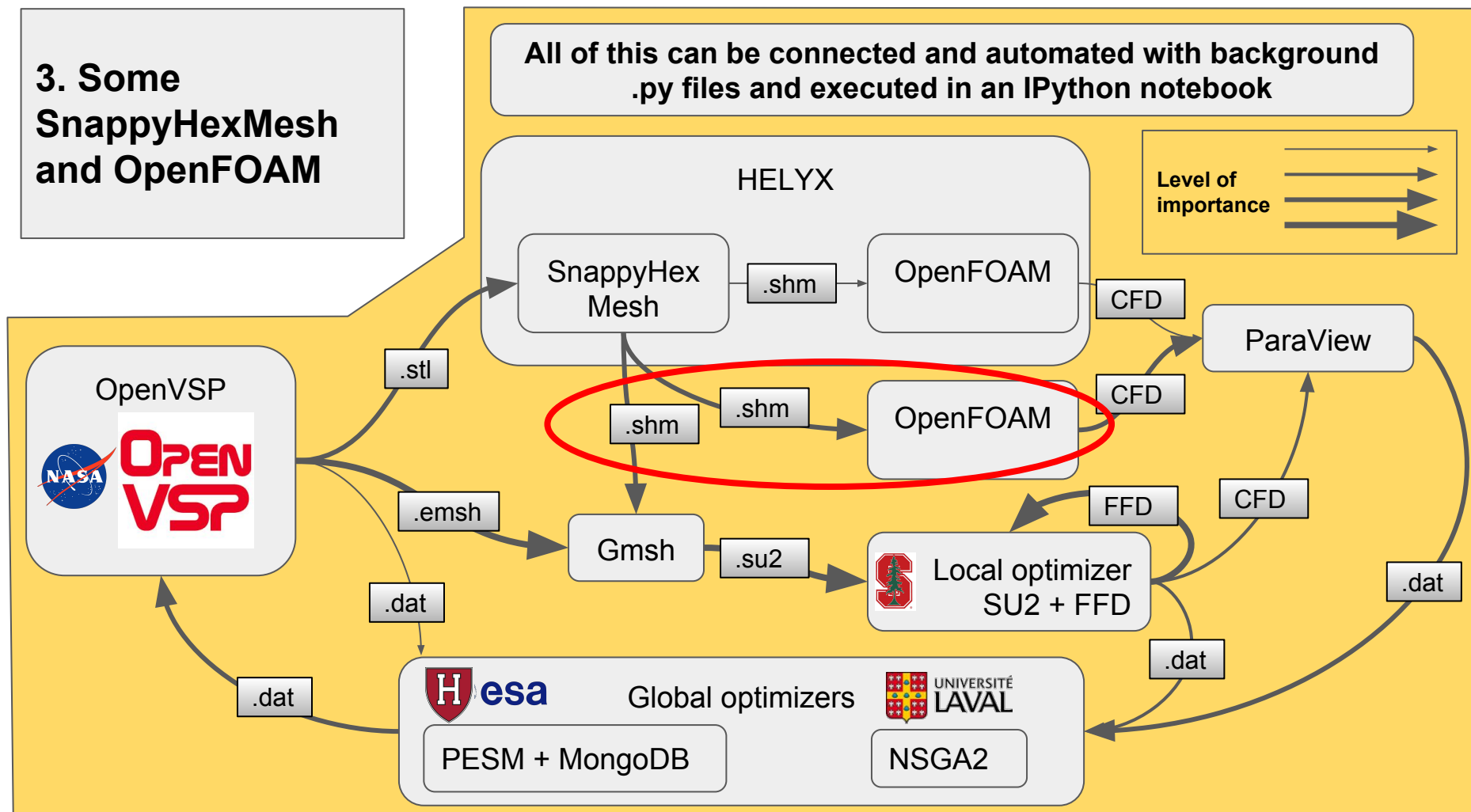
- ```
simonx@simonx:~$ cd CopSubTut1/
simonx@simonx:~/CopSubTut1$ jupyter notebook
```

- ☐  BasicPython.ipynb
- ☐  UsingOpenVSP.ipynb

- ```
In [22]: #Here we import some libraries
#To make sure you have all of them ins
import numpy as np
import string
import matplotlib.pyplot as plt
%matplotlib inline
```

4. Now try out UsingOpenVSP.ipynb. Again, descriptions in the code. Analysis part should take ca 5-20 minutes. Maybe more... I can't remember. Definitely less than CFD.

### 3. Some SnappyHexMesh and OpenFOAM



1. Move to `cd CopSubTut1/OpenFOAMfromConference/bwb/` in Terminal:

```
simonx@simonx:~/CopSubTut1/OpenFOAMfromConference/bwb$
```

2. Open the instruction notes and copy+paste commands to Terminal:

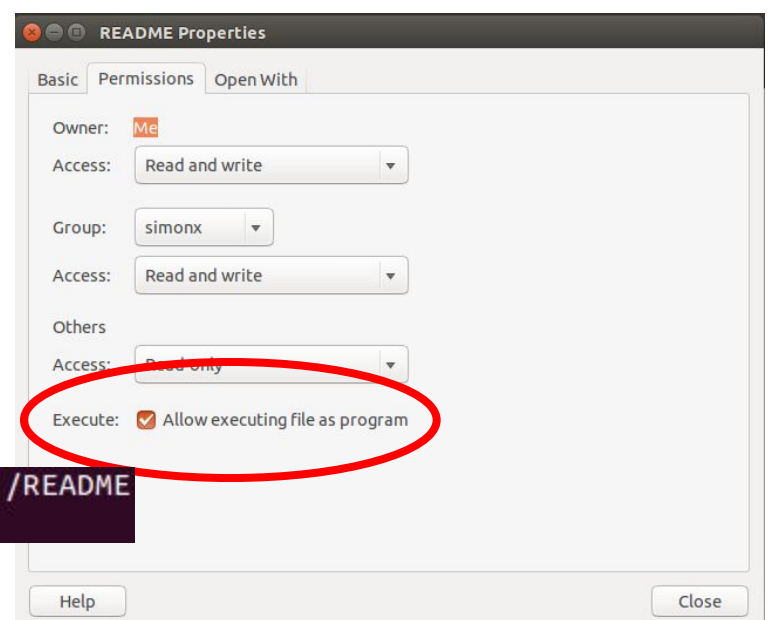


3. Or move to `cd CopSubTut1/OpenFOAMfromConference/Onera/` in Terminal.

- a. You can either copy+paste commands from instruction notes to Terminal



- b. Or you can execute it:
  - i. Right-click on README
  - ii. Choose Properties
  - iii. Choose Permissions tab
  - iv. Tick Allow Executing file as a program
  - v. Now you can run all the commands at once From the Terminal: `./README`



```
simonx@simonx:~/CopSubTut1/OpenFOAMfromConference/Onera$ ./README
```

4. Try exchanging the Onera case with wingbody case in the README document