

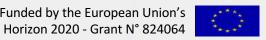
ESCAPE data science summer School 2022 – 20 June 2022

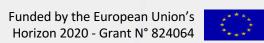




Who am I?

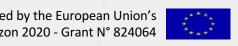
- **Enrique Garcia**
 - Computer Scientist / Software developer at LAPP/CNRS since June 2019.
 - Working for
 - ESCAPE + EOSC Future
 - WP3: Technical implementation of the OSSR
 - VRE: Collaborative open source platform that connects all the ESCAPE WPs outputs
 - CTA/LST consortiums
 - Helping in the development and deployment of different data chain analyses
 - IstMCpipe: LST-1 MC data processing pipeline
 - SAG-RECO: Real time analysis data reconstruction packages
 - 2008 2014 : Physics degree and Master on Astrophysics.
 - 2014 2017: PhD candidate on sub-mm astronomy at IPAG (Grenoble).
 - 2018 2019: Data Scientist at ALTRAN (consulting company).







Set up the ESCAPE data science school environment from scratch





Install Conda

Conda

- Open source package management system.
- Anaconda is the user friendly but 'heavy' version of conda (aprox 3Gb)
 - GUI, IDE, lot of packages, R utils...

Miniconda installation

- https://docs.conda.io/en/latest/miniconda.html
- Choose and download your OS installer.
- Open a terminal and run
- \$ bash Miniconda3-latest-Linux-x86_64.sh
- Follow the instructions

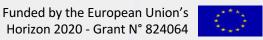
Windows installers

| Python version | Name | Size | SHA256 hash | |
|----------------|---------------------------|--|--------------------------------|--------------------------------|
| • | | | | |
| Python 3.9 | Miniconda3 Windows 64-bir | Open Link in New Tab | | 45d875df602b31ae71b9e0c3fec2b8 |
| | Miniconda3 Windows 32-bi | dows 32-bi Open Link in New Window Open Link in Incognito Window | 1a8739c1a56038ccb0258f233ad646 | |
| Python 3.8 | Miniconda3 Windows 64-bi | Save Link As | a99f5331c8120099ae1d803f627c61 | |
| | Miniconda3 Windows 32-bi | Copy Link A | ddress | b8a4b3f90a2a511fea681ce7ebc661 |
| Python 2.7 | Miniconda2 Windows 64-bi | Copy Search Google for "Miniconda3 Windows 64-bit" Print | | 80eeed4707bb51baa8fbdba4bf326c |
| | Miniconda2 Windows 32-bi | | | a13f4a6b218e64e641504437b2617b |
| | | Inspect | | |
| lacOSX in | stallers | Speech Services | > | |

| Python version | Name | Size | SHA256 hash |
|----------------|-------------------------------|----------|--|
| Python 3.9 | Miniconda3 MacOSX 64-bit bash | 42.2 MiB | b3bf77cbb81ee235ec6858146a2a84d20f8ecdeb614678030c39baacb5acbed1 |
| | Miniconda3 MacOSX 64-bit pkg | 49.7 MiB | 298ff80803817921a98e21d81d60f93b44afce67aec8ae492d289b13741bcffe |
| Python 3.8 | Miniconda3 MacOSX 64-bit bash | 54.5 MiB | a9ea0afba55b5d872e01323d495b649eac8ff4ce2ea098fb4c357b6139fe6478 |
| | Miniconda3 MacOSX 64-bit pkg | 62.0 MiB | b06f3bf3cffa9b53695c9c3b8da05bf583bc7047d45b0d74492f154d85e317fa |
| Python 2.7 | Miniconda2 MacOSX 64-bit bash | 40.3 MiB | 0e2961e20a2239c140766456388beba6630f0c869020d2bd1870c3d040980b45 |
| | Miniconda2 MacOSX 64-bit pkg | 48.4 MiB | 9ca4313e8162a939c7a5a4f48d657722594f8db9a98472803d63c3a7f66fa1da |

Linux installers

| Python version | Name | Size | SHA256 hash |
|----------------|---------------------------------|----------|--|
| Python 3.9 | Miniconda3 Linux 64-bit | 58.6 MiB | 536817d1b14cb1ada88900f5be51ce0a5e042bae178b5550e62f61e223deae7c |
| | Miniconda3 Linux-aarch64 64-bit | 76.2 MiB | 45c5246f3e60dfce4d5ab0cd00c5d01cf39c8e59cefa1f053397f37fb13f4410 |
| | Miniconda3 Linux-ppc64le 64-bit | 60.3 MiB | 64616e57a8d86dbd5bbd14c1e5c60e2dc83c33e9b11a2815a1811394484534ab |
| | Minicondo2 Linux c200v 44 hit | 47 0 MID | DEM 4774-04-4-4-08-4-0-75754 640554 -040675407-00454 -0505570046 |







Install Git

- Git version control system
 - See Max talk!
- How do I install it ?
 - Ubuntu (Debian based distribution)
 - \$ sudo apt install git-all
 - Fedora, CentOS (RPM based distribution)
 - \$ sudo dnf install git-all
 - MacOS
 - Various ways. Suggestion: visit https://git-scm.com/download/mac
 - Windows
 - Visit https://git-scm.com/download/win

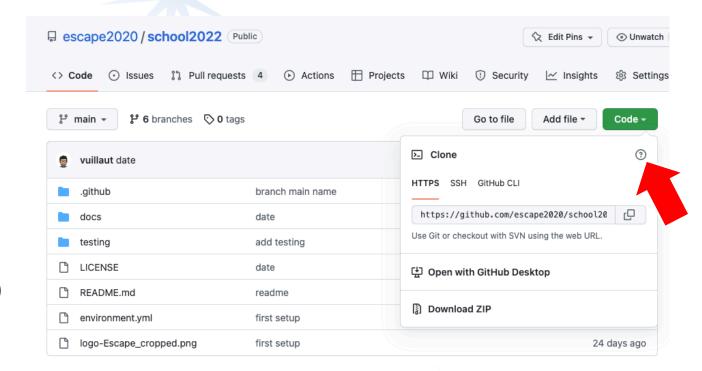






Clone the school repository

- Go to the GitHub school project
 - https://github.com/escape2020/school2022
 - Click on Code HTTPS and copy the link
 - Same procedure with the SSH link if you know how to create a SSH key pair and add it to your GitHub account
 - Otherwise:
 - See Max talk
 - Follow this tutorial (link on last slide)



- Open a terminal
 - Go to the directory where you want to save the project
 - \$ git clone --recursive https://github.com/escape2020/school2022.git







Setup the conda environment

Create a new environment

- \$ cd school2022
- Option 1
- \$ conda install mamba -n base -c conda-forge
- \$ mamba env create -f environment.yml
- Option 2 It will take a longer, though
- \$ conda env create -f environment.yml
- \$ conda activate eschool2022
- If you have already created an eschool2022 env
 - \$ conda activate eschool2022
 - mamba env update -f environment.yml





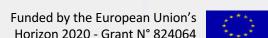
conda useful commands

- Cheat sheet: (link on last slide)
- Create a new environment with a fixed python version \$ conda create -n env name python=3.9
- Install or update a package
 - \$ conda install PACKAGE
 - \$ conda update PACKAGE
- List all the installed packages in the environment \$ conda list
- Clone an environment.
 - \$ conda clone --clone my env --name new env
- Update an env with an environment.yml file \$ conda env update --file environment.yml

- pip can be used to install packages in the environment too.
 - Conflicts might appear, use carefully.
 - \$ conda list numpy

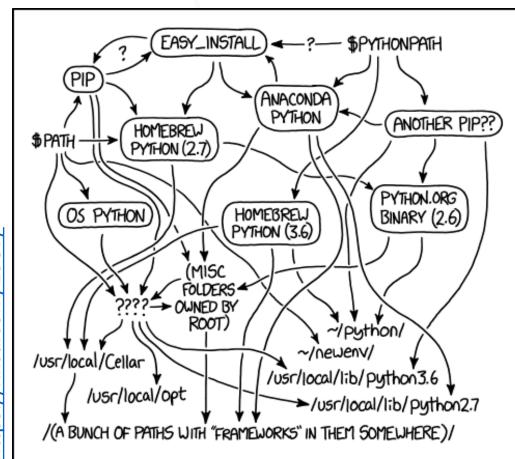
```
Version
                Build
                        Channel
1.18.1 py36hdc5ca10 1
                          conda-forge
```

- \$ conda remove numpy
- \$ pip install numpy==1.20.1
- \$ pip list | grep numpy





Thanks for your attention



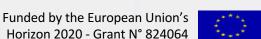
MY PYTHON ENVIRONMENT HAS BECOME SO DEGRADED THAT MY LAPTOP HAS BEEN DECLARED A SUPERFUND SITE.

- Do not hesitate to contact me (or any tutor) in case of problems during the environment installation
 - I would suggest having a look to the GitHub Issues (also the closed one) before any question https://github.com/escape2020/school2022/issues
- If after the env installation, in a terminal;
 - \$ conda activate eschool2022
 - \$ which python

.../miniconda3/envs/eschool2022

your env seems to be correctly installed. Congrats!







Links:

(Slide 7) Generate a new SSH key and add it to your git profile: https://docs.github.com/en/authentication/connecting-to-github-withssh/generating-a-new-ssh-key-and-adding-it-to-the-ssh-agent

Coding environment - E. Garcia

(slide 9) conda cheat sheet: https://docs.conda.io/projects/conda/en/4.6.0/ downloads/52a95608c49671267e40c689e0 bc00ca/conda-cheatsheet.pdf

