

Python tips on Ubuntu and Windows

Unsure of which python version is in use

Although a python executable might be in the PATH, other versions might be installed and used by default by some applications, e.g. double-check which one is called when using an IDE such as Visual Studio, PyCharm, Spyder, etc. To install packages specifically for that version, open a terminal and call python with its full path e.g.

```
C:\Python310\python.exe -m pip install opencv-contrib-python
/usr/local/bin/python3 -m pip install opencv-contrib-python
```

For Ubuntu, Python executable might be in the PATH usually as a link inside `/usr/bin`, check where with **which python3** and then **ls -l /the/path/that/was/returned**. For Windows it can vary quite a lot, check with **where python**. Same for pip executable.

sudo apt install python3-xxx vs sudo pip install xxx vs pip install xxx

pip with sudo: installed in `/usr/lib`. Warning: some recent OS or Python version might not allow any more to use directly pip with sudo, as suggested by the error message you might need to add **--break-system-packages** parameter.

pip without sudo: installed in `~/.local/lib` (for current user)

With apt: version officially supported for the specific Ubuntu version (if any)

With pip: latest version is installed with **pip install --upgrade xxx** or with just **pip install xxx** in the case where the package is not already installed (if already installed, it might not be changed unless there are specific version requirements from dependent packages) or specific version with **pip install xxx==1.0.0.0**

On Windows there is no real equivalent of apt. The equivalent of sudo is when a program (e.g. the Command Prompt) that runs python.exe or pip.exe is explicitly run as Administrator (a User Account Control prompt should have appeared at some point), in that case the packages will be installed in the folder where Python is supposedly installed for all users (e.g. **C:\Python310**, **C:\Program Files\Python310**), otherwise it should be in **%USERPROFILE%\AppData\Roaming\Python\Python310\site-packages**. The behavior might be more complicated if some dependencies were already installed as a standard user...

Error when installing some packages with pip

Some packages might need a C/C++ compiler available during installation to be fully installed successfully, use **sudo apt install build-essential** to install default gcc/g++ for Ubuntu, for Windows you might want to install Visual Studio (see e.g. https://www.ensta-bretagne.fr/lebars/Share/setup_vs_opencv.pdf) or other compiler, check the package website...

PyCharm

If using Matplotlib, you might need to toggle **Settings > Tools > Python Plot > Show plots in tool window** (previously **Settings > Tools > Python Scientific > Show plots in tool window**) option...

Note that right-clicking and choosing **Run file in Python console** shows the variables view, and commands can be entered in the Python console...

Spyder

If using Matplotlib, you might need to change **Tools > Preferences > IPython console > Graphics > Graphics backend** to **Automatic** option and relaunch Spyder...

Visual Studio 2022

It is not as easy as in previous versions to quickly run a Python file outside a project, see the issue <https://developercommunity.visualstudio.com/t/Start-without-Debugging-right-click/10390676> for possible workarounds and their drawbacks.

Might not work with Python versions more recent than 3.11...

Should probably use **Visual Studio Code** instead, with **ms-python.python extension**...