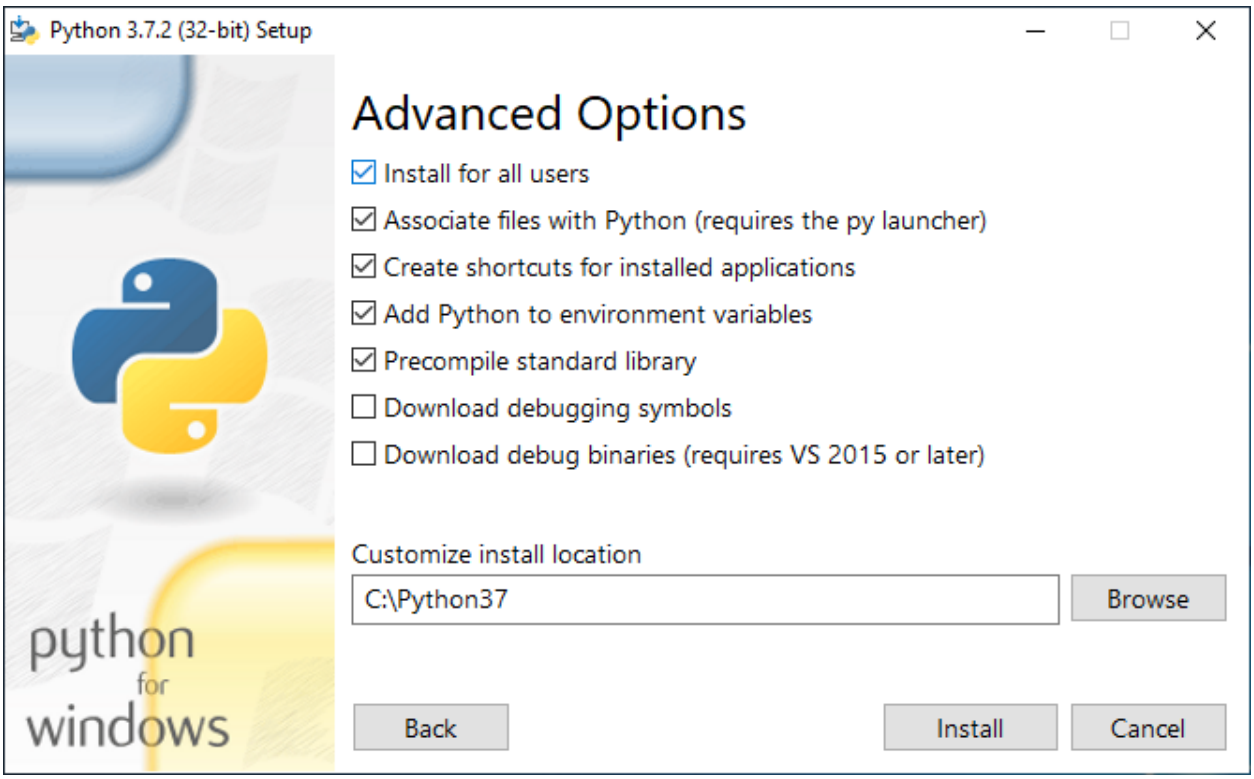
Install OpenCV 4 with Python 3 on Windows

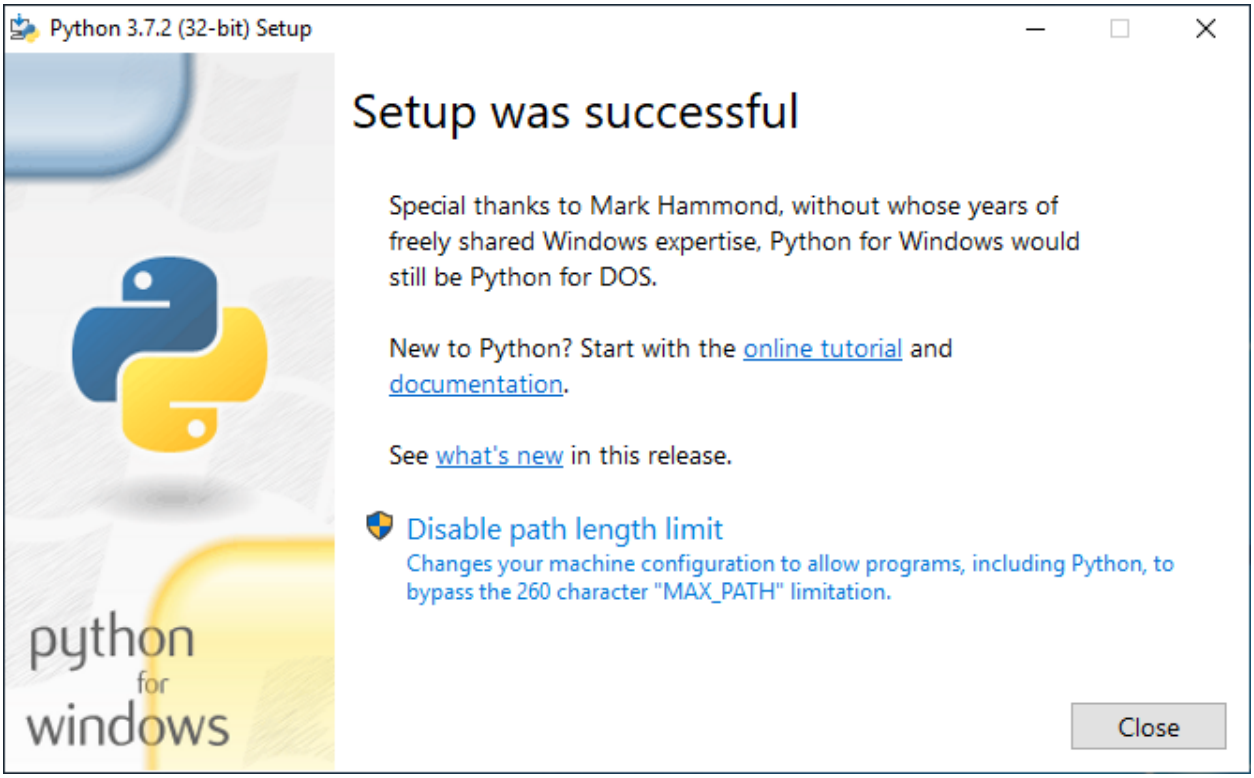
Short tutorial about how to get started with OpenCV 4 programming in Python 3 on Windows.

We'll start by installing the latest stable version of Python 3, which at the time of this writing is 3.9.2. Head over to https://www.python.org/downloads/ and download the installer. The default Python Windows installer is 64 bits and this is what I will use in this article. If you need the 32 bits version of Python, check the *Looking for a specific release?* section from the above page.

Start the installer and select *Customize installation*. On the next screen leave all the optional features checked. Finally, on the *Advanced Options* screen make sure to check *Install for all users*, *Add Python to environment variables* and *Precompile standard library*. Optionally, you can customize the install location. I've used *C:\Python39*. You should see something like this:

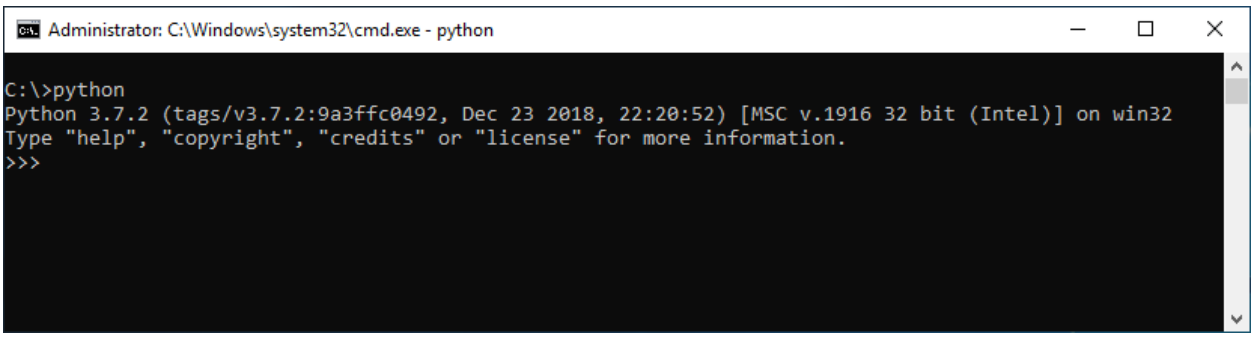


Press the *Install* button and in a few minutes, depending on the speed of your computer, you should be ready. On the last page of the installer, you should also press the *Disable path length limit*:



Now, to check if Python was correctly installed, open a Command Prompt (or a PowerShell) window. Press and hold the *SHIFT* key and right click with your mouse somewhere on your desktop, select *Open command window here*. Alternatively, on Windows 10, use the bottom left search box to search for *cmd*.

Write *python* in the command window and press *Enter*, you should see something like this:



Exit from the Python interpreter by writing *quit()* and pressing the Enter key.

Open a *cmd* window like before. Use the next set of commands to install *NumPy* and *OpenCV*:

```
1     pip install numpy
2     pip install opencv-python
```

After each of the above commands you should see *Successfully installed …*. You can safely ignore the upgrade pip suggestion.

At this point, you should be able to play with *OpenCV* and *Python*. Let's try a small test first. Start the *Python* interpreter and write:

```
1 import cv2
2
3 print(cv2.__version__)
```

If everything was correctly installed, you should see the version number of your *OpenCV*install, in my case this was *4.5.1*.

Let's try a final test, in which I'll show you how to load an image from a file, convert it to gray, and check the results. Start by downloading the next image:

Save it as *clouds.jpg*. In the same folder where you've saved the above image, create a new file *demo.py* and write this small code:

```
1 import cv2
2
3 image = cv2.imread("clouds.jpg")
4 gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
5 cv2.imshow("Over the Clouds", image)
6 cv2.imshow("Over the Clouds - gray", gray_image)
7 cv2.waitKey(0)
8 cv2.destroyAllWindows()
```

Open a *cmd* window in this folder and write:

```
python demo.py
```

You should see something like this (by default the last image will be over the first one, you need to move the image window in order to see the first image):