Instructions for using python with Anaconda/Visual Studio Code in Windows

1st step: Installing Anaconda in windows

Based on https://docs.anaconda.com/anaconda/install/windows/

1. Download the Anaconda installer from https://www.anaconda.com/products/distribution.

Direct link https://repo.anaconda.com/archive/Anaconda3-2022.05-Windows-x86_64.exe

2. Double click the installer to launch.

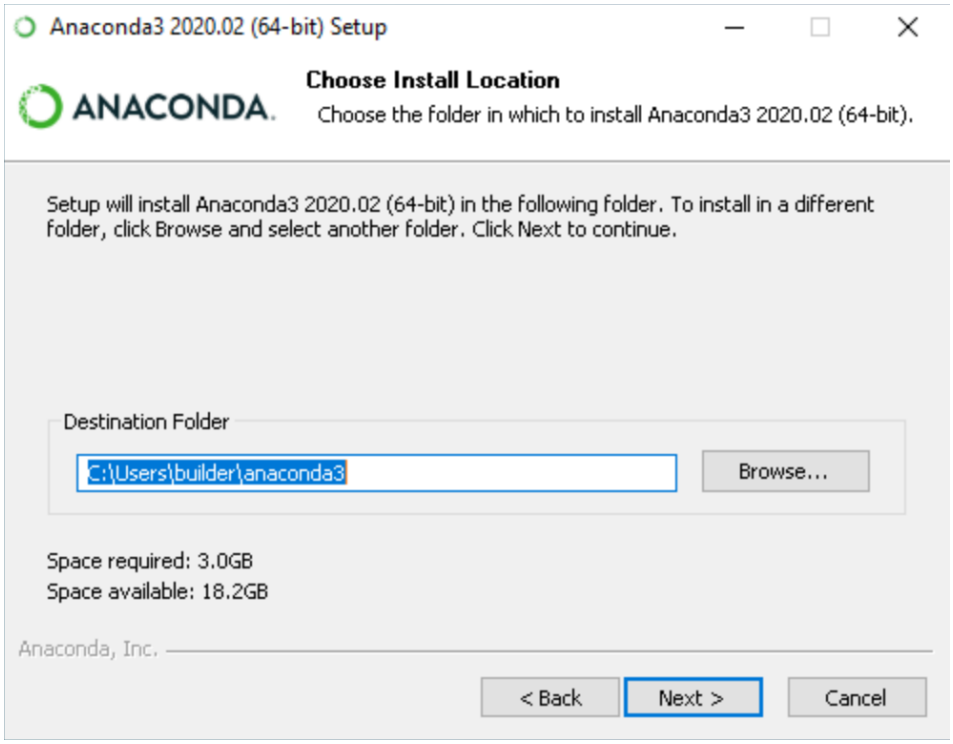
Note: To prevent permission errors, do not launch the installer from the Favorites folder.

Note: If you encounter issues during installation, temporarily disable your anti-virus software during install, then re-enable it after the installation concludes. If you installed for all users, uninstall Anaconda and re-install it for your user only and try again.

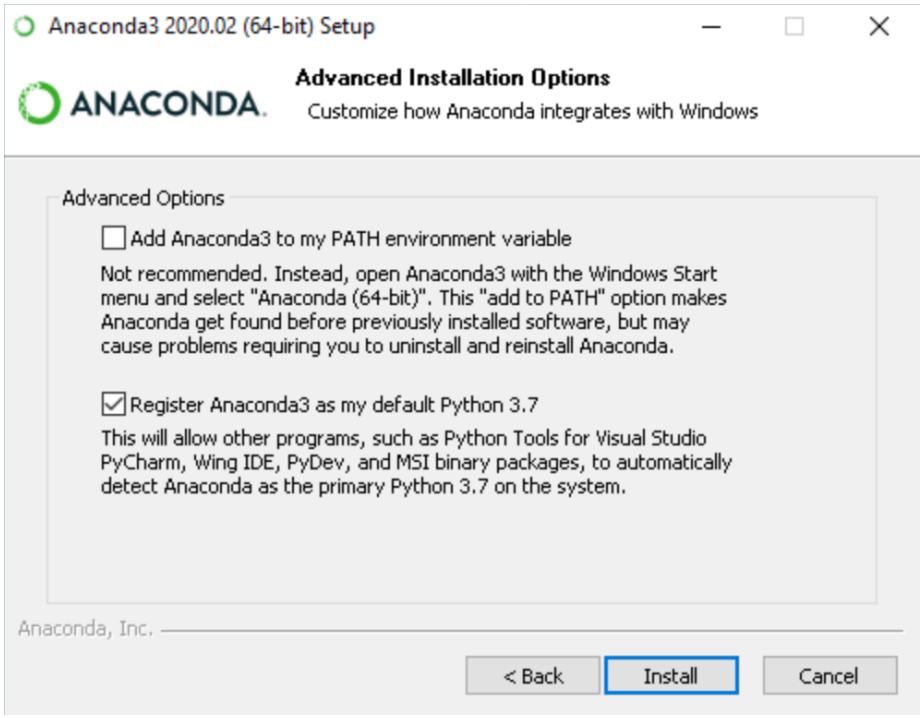
3. Click Next.
4. Read the licensing terms and click “I Agree”.
5. Select an install for “Just Me” unless you’re installing for all users (which requires Windows Administrator privileges) and click Next.
6. Select a destination folder to install Anaconda and click the Next button. See FAQ.

Note: Install Anaconda to a directory path that does not contain spaces or unicode characters.

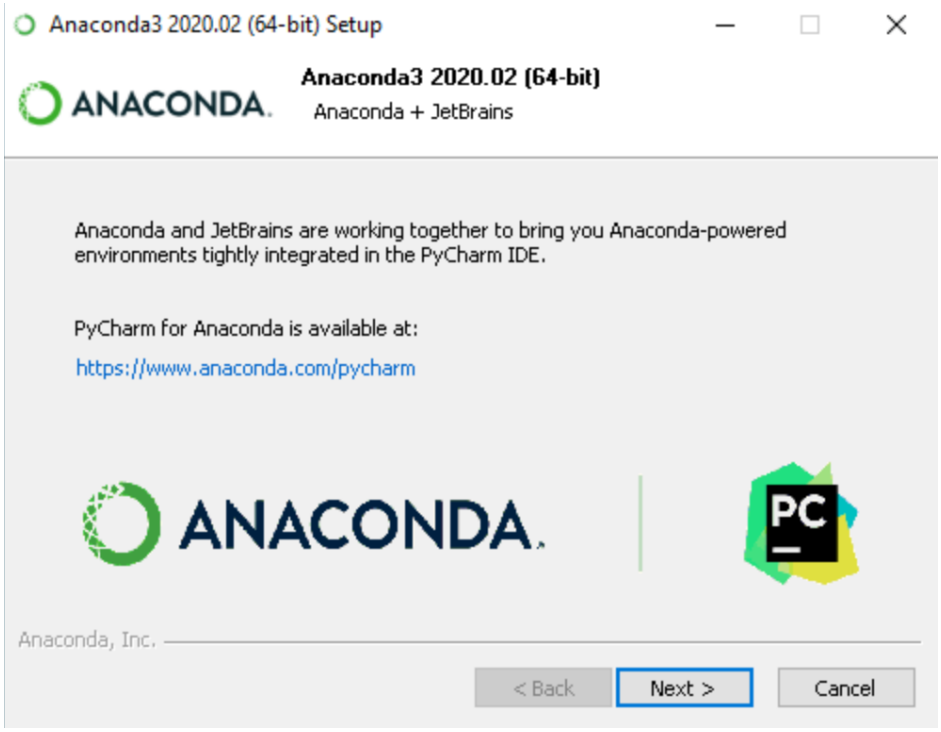
Note: Do not install as Administrator unless admin privileges are required.



7. Choose whether to add Anaconda to your PATH environment variable. **We recommend not adding Anaconda to the PATH environment variable**, since this can interfere with other software. **Instead, use Anaconda software by opening** Anaconda Navigator or the **Anaconda Prompt from the Start Menu**.



8. Choose whether to register Anaconda as your default Python.
9. Click the Install button. If you want to watch the packages Anaconda is installing, click Show Details.
10. Click the Next button.



11. Ignore the message about PyCharm (we will install it after) and click Next.
12. After a successful installation you will see the “Thanks for installing Anaconda” dialog box:
13. Verify your installation.

2nd step: Configure the libraries in python and virtual environments

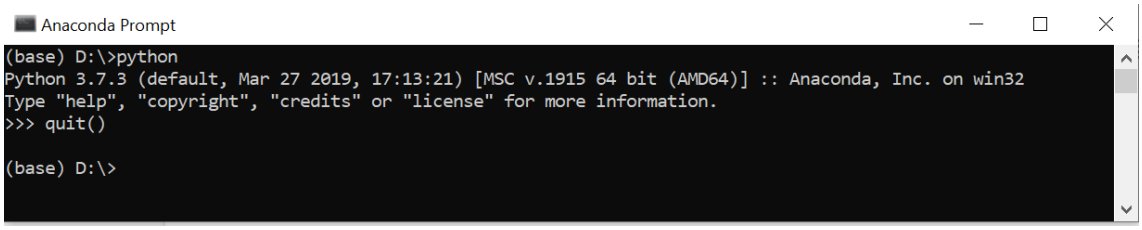
14. Localize and execute the installed Anaconda Prompt with **administrator privileges**.

You should have a console which is already able to execute the commands python, pip and conda for installing libraries and also creating virtual environments.

From here you have two options first: using the base environment and manually install the needed libraries using pip or conda or second (**recommended**): using the virtual environment CVIS whose configuration is included in the file `CVISEnv.yaml`.

2nd Step: Option 1 Using base environment (not recommended)

15. Check that Python is correctly installed by using the command python. Then, get out of the python environment using the instruction quit(). Note: the version may be different from the one in the figure.



16. Install the following libraries

```
pip install numpy
pip install scipy
pip install matplotlib
pip install opencv-contrib-python== 4.6.0.66 --force-reinstall
```

If you need to install the last release of opencv you can use `pip install opencv-python`.

17. Test the provided file `testLibs.py` using the command

```
python testLibs.py
```

2nd Step: Option 2 Using the provided virtual environment config file (recommended)

15. After downloading `CVISEnv.yaml` execute the following command to create the virtual environment.

```
conda env create –f CVISEnv.yaml
```

16. Enter into the virtual environment using conda activate.

```
conda activate CVISEnv
```

17. Test the provided file testLibs.py using the command

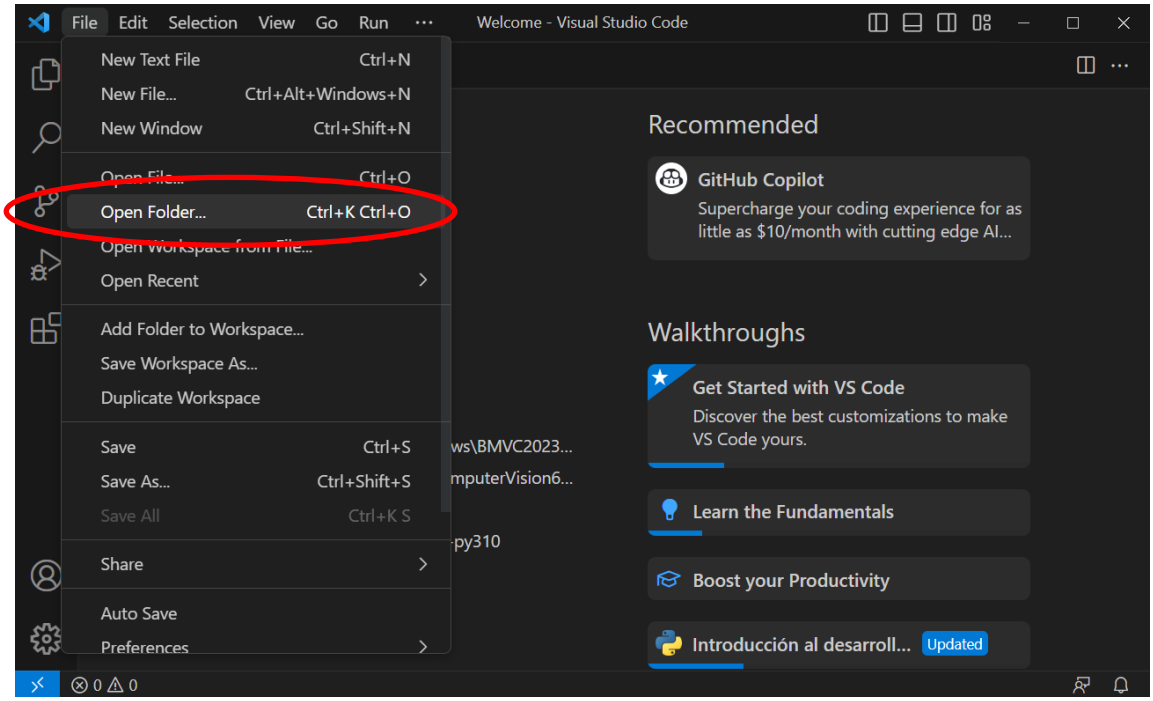
```
python testLibs.py
```

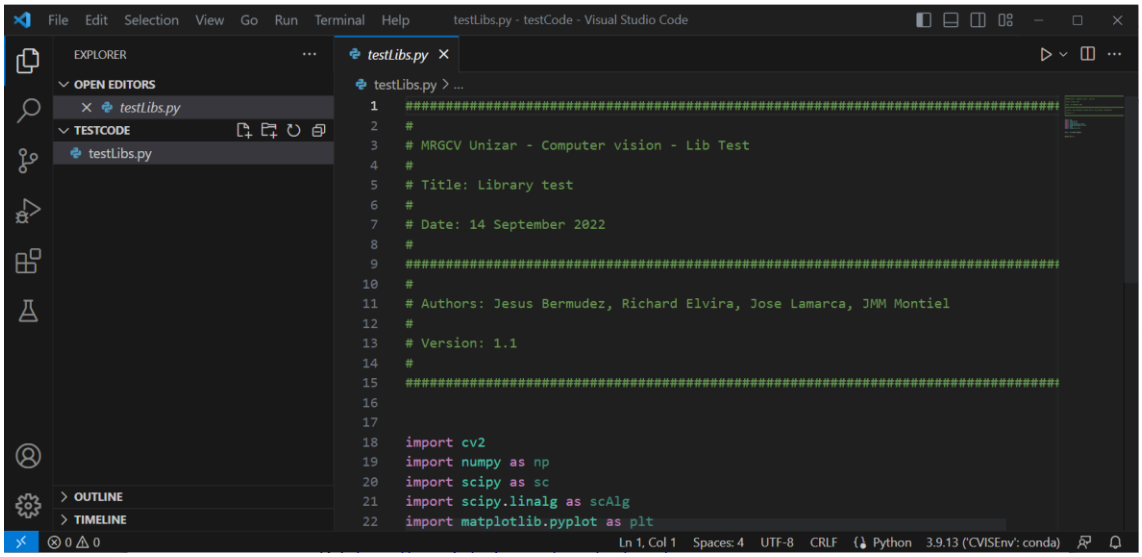
For returning to the base environment use conda deactivate.

```
conda deactivate
```

3rd step: Install and configure Visual Studio Code

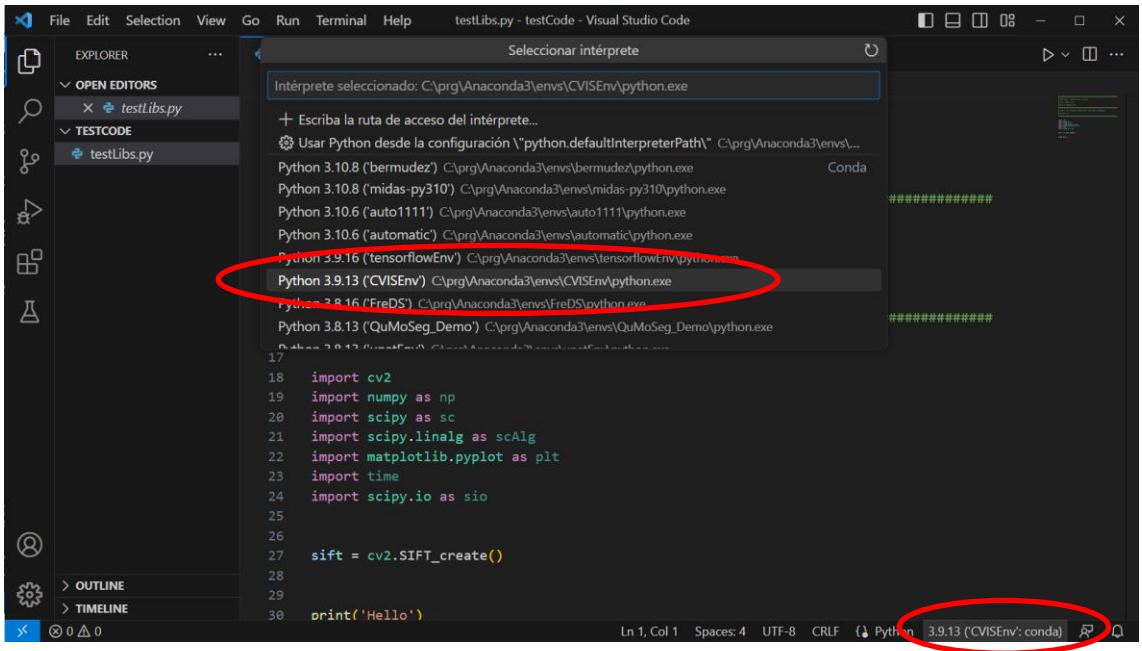
18. Download Visual Studio Code from https://code.visualstudio.com/download and install it.
19. Once you have installed it you can directly open a folder with python code to create a project.





20. To debug in python you need to install some “extensions”. We recommend “Python” and “PyLance”.

21. Once the extensions have been installed you should be able to directly select the virtual environment you have already configured in Anaconda



22. By default Visual Studio Code is configured to debug the code by using Powershell as shell. Since we have configured the Virtual Enviroment CVISEnv to work with the Command Prompt (Anaconda Prompt) we have to configure Visual Studio Code for that. Following the instructions from :

    https://stackoverflow.com/questions/42729130/visual-studio-code-how-to-switch-from-powershell-exe-to-cmd-exe

23. Press Ctrl + Sift + P to show all commands
24. Type profile in the displayed text box to filter the list.
25. Select Terminal: Select Default Profile.
26. Select Command Prompt (cmd.exe)
27. To take effect, requires VS Code to be shut down and relaunched on Windows 10.

28. Once you have chosen as debugging terminal you can debug the code, add breakpoints and use the Debug Console in any breakpoint of the code.