Python, Jupyter Notebook, and Open CV

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1 Introduction

This PDF serves as a general guide for how to install Python, Jupyter Notebook, and the OpenCV library on your machine for CS 585

2 Python

2.1 Windows

If you do not already have Python3+ installed, please navigate to:
https://www.python.org/downloads/ and download the installer for windows.

If you are unsure whether to download the x64 or x86 bit installer, it is likely your machine is a x64 bit machine.

In terms of which version of Python3+ to download, just download the latest version and follow the instructions from the installer.

2.2 Mac

Mac systems come pre-installed with python 2.7, however we will need to upgrade it to python 3 as python 2 is no longer supported by the developers.

Please double check that the python version you have installed on your Mac machine is python 3+. If you only have python 2.7, please use the following guide to upgrade to python 3+ https://docs.python-guide.org/starting/install3/osx/

2.3 Confirmation

You can double check that python has completed installation if you open a command prompt (Windows), type "python", hit enter, and receive a prompt similar to:

2.4 Windows Troubleshooting

If you have a Windows operating system, and typing "python" into the command prompt brings up an error message, there is a bit more you will have to do to make the command prompt recognize that python has been installed.

In essence, you need to add Python to your PATH variable in your settings. Please follow this guide https://datatofish.com/add-python-to-windows-path/ for how to do so.

3 Jupyter Notebook (Python notebook)

Jupyter notebook is a nice GUI you can use to edit and run python code in modules. It is how we will be submitting and writing programming assignments and lab work. Here are the steps needed to install it on your machine using pythons "pip" script:

1. Make sure that your pip is up to date, you can update it using "python -m pip install –upgrade pip" into your terminal window.

2. Type in "pip install notebook", hit enter, and allow the terminal to download and install the package

3. Type and run the command "jupyter notebook" to ensure the package has been installed properly.

If installed correctly, two things will happen.

First, your terminal window should display something like

And a browser window (your default browser) will open with a display like

4 OpenCV and Other Useful Libraries

4.1 Installation

Here are a few other useful python libraries I would recommend installing. They are as follows:

1. opencv-python: computer vision library

2. numpy: fundamental scientific computations

3. matplotlib: useful for plotting figures.

I may recommend the installation of other packages during the semester, but for the time being these should be sufficient.

They are all installed with the same process as jupyter notebook was installed with: "pip install packageName". Package names are found in the list above.

You can double check that the packages are correctly installed by navigating to a terminal, opening the python prompt, as done in section 2.3, and doing the following:

First, if none of the import calls threw any errors, then they are good to go. Second, it should be noted that even though openCV was installed as "opencv-python", **for import, openCV is called cv2**.

4.2   Troubleshooting

If any of the imports above threw an error, please uninstall the packages using "pip uninstall packageName" and double check the following before attempting to install again:

1. Pip is upgraded to its latest version. Old versions of pip will install older versions of packages, that may not be compatible with python3

2. That you are using python3

3. That you are installing the correct package name.

If you are still having trouble after this, please feel free to reach out on Piazza.