

# Installation Tutorial: Python + NumPy + SciPy + OpenCV

This document details the installation on the three common OS systems in order to obtain the four required packages for the OMSCS Computer Vision course.

If you already have Python (2.7) with numpy, scipy, and OpenCV (2.4.9+, 2.4.8 may have some small function name changes) installed, feel free to skip this tutorial.

## Ubuntu Installation:

Assuming Python 2.7 is pre-installed (if not: `sudo apt-get python`).

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get install python-numpy python-scipy python-opencv
```

## Windows Installation:

*These instructions were initially adapted from [here](#).*

1. [Download](#) and install Python.
2. [Download](#) and install Numpy.
3. [Download](#) and install Scipy.
  - a. [Download and extract this file](#)
  - b. You will be asked to extract the files to a directory, I recommend you choose C:\
  - c. Copy **C:\opencv\build\python\2.7\x86\cv2.pyd** to **C:\Python27\Lib\site-packages\**
4. Open the Windows Powershell. Paste the following:

```
[Environment]::SetEnvironmentVariable("Path",
"$env:Path;C:\Python27\;C:\Python27\Scripts\","User")
```

5. Now, in the Windows Powershell. Type in:

```
python
```

6. This will open a Python interactive console. Type in the following:

```
import numpy as np
import scipy as sp
import cv2
print np.__version__
print sp.__version__
print cv2.__version__
```

If these commands work, you have successfully installed Python + Numpy + Scipy + OpenCV, congratulations!

## Mac OS X Installation:

Adapted from this [blog](#).

1. If you have never done so, Open Applications > XCode. Agree to the license agreement if you haven't done so before. If XCode opens without any prompts, you are fine and may close it. (this will prevent an error when installing Homebrew).
2. Open Applications > Utilities > Terminal
3. Paste the following into your terminal to install Homebrew. You may be asked some confirmation, click enter.

```
ruby -e "$(curl -fsSL  
https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

4. Test this by running the following command to check for errors. You may get warnings, it is fine to ignore them for now. Update, upgrade and install a brewed python (it also installs pip).

```
brew doctor  
brew update && brew upgrade  
brew install python
```

5. We must get extra packages to install the dependencies. (warnings can once again be ignored).

```
brew tap homebrew/science  
brew tap homebrew/python
```

- a. Now we install the libraries. Make sure you do not get any errors.

```
pip install nose  
brew install numpy  
brew install scipy  
brew install opencv
```

6. Now, we must update your path and we should be done. *Go to your home directory and open the following file (press **command + shift + .** to see hidden files - if you don't see it, create it) with your favorite text editor:*

```
.bash_profile
```

7. Add the following to the end of the file (on a new line), and save it.

```
export PYTHONPATH=/usr/local/lib/python2.7/site-packages:$PYTHONPATH
```

8. Now close the terminal. Open a new terminal (to load the new .bash\_profile). Enter this:

```
python
```

**\*\*Small note here: Make sure your IDE is using the brewed python (this matters if you have previously installed other Python versions).**

9. Now type in these commands into the console:

```
import numpy as np
import scipy as sp
import cv2
print np.__version__
print sp.__version__
print cv2.__version__
```

If these commands work, you have successfully installed Python + Numpy + Scipy + OpenCV, congratulations!

### Troubleshooting:

- When I run `import cv2` I get a segmentation fault 11 error, what is wrong?  
You are running an incompatible version of Python, run the following command, and try again:

```
brew reinstall python
```

- If you are having problems importing the module (getting a no module named cv2) you can attempt these instructions (Taken from [here](#)) -- suggested by one of your classmates!

```
cd /Library/Python/2.7/site-packages/
ln -s /usr/local/Cellar/opencv/2.4.9/lib/python2.7/site-packages/cv.py cv.py
ln -s /usr/local/Cellar/opencv/2.4.9/lib/python2.7/site-packages/cv2.so cv2.so
```