OpenCV Installation – MacOS

1. Install Xcode from the App Store.

2. Install homebrew (https://brew.sh). Paste the following in a macOS Terminal prompt:

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

Then launch the command to check the installation:

$ brew -v

```
MacBook-Pro-di-Matteo:~ matteo$ brew -v
Homebrew 2.0.2
Homebrew/homebrew-core (git revision ccaae; last commit 2019-03-04)
MacBook-Pro-di-Matteo:~ matteo$
```

This is the tested homebrew version. Other versions should also be fine.

3. Update homebrew repo database:

$ brew update

4. Install opencv.

$ brew info opencv

```
MacBook-Pro-di-Matteo:~ matteo$ brew info opencv
opencv: stable 4.0.1 (bottled)
Open source computer vision library
https://opencv.org/
Not installed
From: https://github.com/Homebrew/homebrew-core/blob/master/Formula/opencv.rb
==> Dependencies
Build: cmake ✘, pkg-config ✘
Required: eigen ✘, ffmpeg ✘, jpeg ✘, libpng ✘, libtiff ✘, numpy ✘, openexr ✘, python ✘, python@2 ✘, tbb ✘
==> Analytics
install: 13,060 (30 days), 53,535 (90 days), 232,842 (365 days)
install_on_request: 12,167 (30 days), 48,976 (90 days), 213,075 (365 days)
build_error: 0 (30 days)
```

After running “brew update”, the opencv should be in version 3.4.1 or higher. The “cmake” is not necessary.

Note that the opencv version found is version 4.0.1; to get the last release of opencv 3 you have to specify its version: “opencv@3”

$ brew info opencv@3

```
MacBook-Pro-di-Matteo:~ matteo$ brew info opencv@3
opencv@3: stable 3.4.5 (bottled) [keg-only]
Open source computer vision library
https://opencv.org/
Not installed
From: https://github.com/Homebrew/homebrew-core/blob/master/Formula/opencv@3.rb
==> Dependencies
Build: cmake ✘, pkg-config ✘
Required: eigen ✘, ffmpeg ✘, jpeg ✘, libpng ✘, libtiff ✘, numpy ✘, openexr ✘, py
thon ✘, python@2 ✘, tbb ✘
==> Caveats
opencv@3 is keg-only, which means it was not symlinked into /usr/local,
because this is an alternate version of another formula.

==> Analytics
install: 1,293 (30 days), 1,976 (90 days), 1,976 (365 days)
install_on_request: 1,290 (30 days), 1,960 (90 days), 1,960 (365 days)
build_error: 0 (30 days)
```

In the following, we will describe the installation procedure for opencv 3 (if you want to install opencv4 the procedure is the same, just use 'opencv' instead of 'opencv@3').
The "Required" will be automatically installed with "$ brew install opencv@3" which will be mentioned later. You don't need to install one by one by yourself.

Finally, run:
$ brew install opencv@3

Run the following to add opencv libraries to your PATH:
$ echo 'export PATH="/usr/local/opt/opencv@3/bin:$PATH"' >> ~/.bash_profile

Install also CMake:
$ brew install cmake

To uninstall OpenCV:
$ brew uninstall opencv@3

Setting up OpenCV

1. Install pkg-config, an helper tool to compile applications and libraries

$ brew install pkg-config

2. Check the linker flags for OpenCV

$ pkg-config --cflags --libs opencv

The output should looks like (just the first lines):
-I/usr/local/Cellar/opencv/3.4.5_1/include/opencv -I/usr/local/Cellar/opencv/3.4.5_1/include -I/usr/local/Cellar/opencv/3.4.5_1/lib -lopencv_stitching -lopencv_superres, -lopencv_videostab

If it does not work, specify the location of opencv.pc file on you MAC:
$ pkg-config --cflags --libs /usr/local/Cellar/opencv/<version_number>/lib/pkgconfig/opencv.pc

Compiling code from the terminal

$ g++ $(pkg-config --cflags --libs opencv) -std=c++11 yourFile.cpp -o yourFileProgram

Compiling code in Xcode

1. Create a new project, go to *Build Settings* and search for *Header Search Paths*
2. Set the Header Search Path to the path of OpenCV *include* folder, it should be similar to */usr/local/Cellar/opencv/<version_number>/include*

3. In the *Build Settings*, search also for *Library Search Paths*
4. Set the Library Search Path to the path of OpenCV *lib* folder, it should be similar to */usr/local/Cellar/opencv/<version_number>/lib*

5. In the *Build Settings*, search also for *Other Link Flags*
6. Set the other linker flags with all the flag values obtained after running the pkg-config command above (e.g. -lopencv_stitching, -lopencv_superres, -lopencv_videostab, and so on)

To run your code, just press Cmd + R

References:

https://medium.com/@jaskaranvirdi/setting-up-opencv-and-c-development-environment-in-xcode-b6027728003