HOW TO INSTALL OPENCV

In linux ubuntu.

frist you need to update packages

```
sudo apt-get update
sudo apt-get upgrade
```

after then you install os libraries

```
Remove any previous installations of x264</h3>
sudo apt-get remove x264 libx264-dev

We will Install dependencies now

sudo apt-get install build-essential checkinstall cmake pkg-config yasm
sudo apt-get install git gfortran
sudo apt-get install libjpeg8-dev libjasper-dev libpng12-dev

# If you are using Ubuntu 14.04
sudo apt-get install libtiff4-dev
# If you are using Ubuntu 16.04
sudo apt-get install libtiff5-dev

sudo apt-get install libavcodec-dev libavformat-dev libswscale-dev libdc1394-22-dev
sudo apt-get install libxine2-dev libv4l-dev
sudo apt-get install libgstreamer0.10-dev libgstreamer-plugins-base0.10-dev
sudo apt-get install qt5-default libgtk2.0-dev libtbb-dev
sudo apt-get install libatlas-base-dev
sudo apt-get install libfaac-dev libmp3lame-dev libtheora-dev
sudo apt-get install libvorbis-dev libxvidcore-dev
sudo apt-get install libopencore-amrnb-dev libopencore-amrwb-dev
sudo apt-get install x264 v4l-utils

# Optional dependencies
sudo apt-get install libprotobuf-dev protobuf-compiler
sudo apt-get install libgoogle-glog-dev libgflags-dev
sudo apt-get install libgphoto2-dev libeigen3-dev libhdf5-dev doxygen
```

If you want to use Python you need to install Python libraries for openCV

```
sudo apt-get install python-dev python-pip python3-dev python3-pip
sudo -H pip2 install -U pip numpy
sudo -H pip3 install -U pip numpy
```

If you need virtual environment .

```
# Install virtual environment
sudo pip2 install virtualenv virtualenvwrapper
sudo pip3 install virtualenv virtualenvwrapper
echo "# Virtual Environment Wrapper"  >> ~/.bashrc
```

```
echo "source /usr/local/bin/virtualenvwrapper.sh" >> ~/.bashrc
source ~/.bashrc

############ For Python 2 ############
# create virtual environment
mkvirtualenv facecourse-py2 -p python2
workon facecourse-py2

# now install python libraries within this virtual environment
pip install numpy scipy matplotlib scikit-image scikit-learn ipython

# quit virtual environment
deactivate
######################################

############ For Python 3 ############
# create virtual environment
mkvirtualenv facecourse-py3 -p python3
workon facecourse-py3

# now install python libraries within this virtual environment
pip install numpy scipy matplotlib scikit-image scikit-learn ipython

# quit virtual environment
deactivate
######################################
```

Download opencv from Github

```
git clone https://github.com/opencv/opencv.git
cd opencv
git checkout 3.3.1
cd ..
```

Download opencv_contrib from Github

```
git clone https://github.com/opencv/opencv_contrib.git
cd opencv_contrib
git checkout 3.3.1
cd ..
```

Create a build directory

```
cd opencv
mkdir build
cd build
```

Run CMake

```
cmake -D CMAKE_BUILD_TYPE=RELEASE \
      -D CMAKE_INSTALL_PREFIX=/usr/local \
      -D INSTALL_C_EXAMPLES=ON \
      -D INSTALL_PYTHON_EXAMPLES=ON \
      -D WITH_TBB=ON \
```

```
      -D WITH_V4L=ON \
      -D WITH_QT=ON \
      -D WITH_OPENGL=ON \
      -D OPENCV_EXTRA_MODULES_PATH=../../opencv_contrib/modules \
      -D BUILD_EXAMPLES=ON ..
```

Compile and Install

```
# substitute 4 by output of nproc
make -j4
sudo make install
ldconfig
```

compile your first program

```
g++ -std=c++11 removeRedEyes.cpp `pkg-config --libs --cflags opencv` -o removeRedEyes
```

Error

if you get error in instaling with include eigen3, install then
`udo apt install libeigen3-dev`
if it is already installed you can change
`#include <eigen3/...> by #include #include <eigen3/Eigen/Dense>`