Update your package list:

```
sudo apt update
```

Install the necessary packages for building OpenCV:

```
sudo apt install build-essential cmake git libgtk2.0-dev pkg-config libavcodec-dev
libavformat-dev libswscale-dev
```

Install additional image and video I/O libraries:

```
sudo apt install libjpeg-dev libpng-dev libtiff-dev libjpeg8-dev libjpeg-turbo8-dev
libtiff5-dev libjasper-dev libdc1394-22-dev libgstreamer-plugins-base1.0-dev
libavresample-dev
```

Install Python and the necessary packages for Python bindings (if needed):

```
sudo apt install python3-dev python3-pip python3-numpy
```

Clone the OpenCV repository from GitHub:

```
git clone https://github.com/opencv/opencv.git
```

Create a build directory and navigate to it:

```
cd opencv

mkdir build

cd build
```

Run CMake to configure the build (adjust options as needed):

```
cmake -D CMAKE_BUILD_TYPE=Release -D CMAKE_INSTALL_PREFIX=/usr/local ..
```

Compile OpenCV:

```
make -j$(nproc)
```

Install OpenCV system-wide:

```
sudo make install
```

Navigate to include directory

```
cd /usr/local/include
```

Copy /include/opencv4/opencv2 to /include/opencv4

```
sudo cp -r opencv4/opencv2 ./
```

Navigate to lib direectory

```
cd /usr/local/lib
```

Creating opencv4.pc in pkgconfig directory

```
sudo mkdir pkgcofig

cd pkgconfig

sudo touch opencv4.pc

sudo gedit opencv4.pc
```

Copy, paste & save the following in opencv4.pc:

prefix=/usr

exec_prefix=${prefix}

includedir=${prefix}/include

libdir=${exec_prefix}/lib

Name: opencv

Description: The opencv library

Version: 2.x.x

Cflags: -I${includedir}/opencv -I${includedir}/opencv2

Libs: -L${libdir} -lopencv_calib3d -lopencv_imgproc -lopencv_core -lopencv_ml -lopencv_features2d -lopencv_objdetect -lopencv_flann -lopencv_video -lopencv_highgui -lopencv_imgcodecs

Navigate to your root directory

```
cd ~
```

run following command

```
export PKG_CONFIG_PATH=/usr/local/lib/opencv4.pc:$PKG_CONFIG_PATH
```

you should be able to include the <opencv2/opencv.hpp>

you can compile your code using the following command:

```
g++ your_code.cpp pkg-config --cflags --libs opencv4
```