OpenCV installation in Ubuntu 20.04

The following procedure is extracted from the website :
https://linuxize.com/post/how-to-install-opencv-on-ubuntu-20-04/.

The main steps are:

1. installing the dependencies of the OpenCV library
2. downloading the source code
3. compiling and installing OpenCV
4. Setting the system to find the library

BE CAREFUL!

For a complete installation you also need the extra_modules. They contain SIFT features extractors and other methods important for some Laboratories. Moreover, you need to set the OPENCV_ENABLE_NONFREE flag to ON.
If you decide to follow other guides make sure to install the extra modules.

1 Installing the dependencies

Open the terminal (CTRL+ALT+T) and install some required packaged using the following command:

sudo apt install build-essential cmake git pkg-config libgtk-3-dev libavcodec-dev libavformat-dev libswscale-dev libv4l-dev libxvidcore-dev libx264-dev libjpeg-dev libpng-dev libtiff-dev gfortran openexr libatlas-base-dev python3-dev python3-numpy libtbb2 libtbb-dev libdc1394-22-dev libopenexr-dev libgstreamer-plugins-base1.0-dev libgstreamer1.0-dev

(If some errors occurred try ***sudo apt update*** and re-run the program)

2 Downloading the source code

Create your workspace and move to it with the following commands:

cd && mkdir workspace && cd workspace

Clone the OpenCV's and OpenCV contrib repositories with the three following commands:

mkdir ./opencv_build && cd ./opencv_build

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

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

Change the version to the desired one (4.5.2 for us):

git checkout 4.5.2

Create the build directory:

cd ~/workspace/opencv_build/opencv && mkdir -p build && cd build

Set up the OpenCV build with 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_QT=ON -D* OPENCV_ENABLE_NONFREE=ON *-D OPENCV_GENERATE_PKGCONFIG=ON -D OPENCV_EXTRA_MODULES_PATH=~/workspace/opencv_build/opencv_contrib/modules -D BUILD_EXAMPLES=ON ..

At this point, if there are no errors the following output will be displayed by the terminal:

-- Configuring done
-- Generating done
-- Build files have been written to: /home/$USER/worskpace/opencv_build/opencv/build

3 Compiling and installing OpenCV

The two following commands may take a while depending on the computer used.
Now compile the code with the command:

make -j8

The command -j indicates the number of cores to use.
Now install OpenCV:

sudo make install

If everything is fine with the following command you should see the version of OpenCV that you installed. (4.5.2)

pkg-config --modversion opencv4

4 Setting the system to find the library

The following commands allow you to use OpenCV in your system:

echo '/usr/local/lib' | sudo tee --append /etc/ld.so.conf.d/opencv.conf

sudo ldconfig

echo 'PKG_CONFIG_PATH=$PKG_CONFIG_PATH:/usr/local/lib/pkgconfig' | sudo tee --append ~/.bashrc

echo 'export PKG_CONFIG_PATH' | sudo tee --append ~/.bashrc

source ~/.bashrc