

IMAGE PROCESSING WITH OPENCV

OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products. Being a BSD-licensed product, OpenCV makes it easy for businesses to utilize and modify the code.

The library has more than 2500 optimized algorithms, which includes a comprehensive set of both classic and state-of-the-art computer vision and machine learning algorithms. These algorithms can be used to detect and recognize faces, identify objects, classify human actions in videos, track camera movements, track moving objects, extract 3D models of objects, produce 3D point clouds from stereo cameras, stitch images together to produce a high resolution image of an entire scene, find similar images from an image database, remove red eyes from images taken using flash, follow eye movements, recognize scenery and establish markers to overlay it with augmented reality, etc.

INSTALLATION

The first step is to install OpenCV on your computer.

OpenCV is mainly compatible with 2 languages : C++ or Python.

Of course, you have the choice but I would advise you to prefer Python. You will find here some guides to install the library :

https://docs.opencv.org/master/da/df6/tutorial_py_table_of_contents_setup.html

Another solution is to use Docker (if you know how to use it).

Verify your installation by following these first tutorials :

https://docs.opencv.org/master/db/deb/tutorial_display_image.html

To learn how to use the basics, follow the tutorial and try to :

- Open football.jpeg and extract the two players and the ball into small separated images
- Open Usth-Logo.png
 - o decompose according RGB Channels. You will have to obtain 3 images in graylevel (first will represent the Red channel, second will represent Green, third will represent Blue).
 - o Decompose into Two images (called masks) : one for the red shape of the Logo, another for the blue shape.