**Project #2 CV2 Documentation**

**Documentation:**

https://docs.opencv.org/4.x/

The Python OpenCV-2 library allows you access to a great image processing and computer vision tool. This open-source library is designed to solve computer vision related issues and holds many functions used to achieve this. For many functions in this library, the ‘cv2.imread()’ method is used to load an image from the specified file. Some parameters to consider include the path, flag, and return value. The flag parameter states the way the image should be read which by default is ‘cv2.imread()\_color’ which loads a color image which a few other factors such as image transparency become neglected. There are two other flags which are ‘cv2.imread\_grayscale’ and ‘cv2.imread\_unchanged’ which loads an image using grayscale schema and the alpha channel respectively. There are many other important methods included in this library including the ‘cv2.imshow()’ and ‘cv2.imwrite()’ methods. These two methods have specific parameters to consider just as the ‘cv2.imread()’ method has. The ‘cv2.imwrite()’ method has parameters such as the filename, image, and return value while the ‘cv2.imshow()’ method has parameters such as the window name, image, and return value. Overall, the Python OpenCV-2 library has many different methods/functions that can be used to further enhance computer vision.

As it can also be considered an open-source image manipulator, there are many useful and interesting ways to use this library. The OpenCV Python library could be used to perform face detection and object tracking which opens a variety of unique opportunities. Face detection could be used to increase security in a variety of environments whether at home or in a more corporate setting. It could also be used to accomplish what many social media companies have, face tracking and automatic user identification tracking. Because this library is open source, it gives the user great flexibility when planning and developing projects. Another interesting use for this library includes using it alongside robotics to accomplish object tracking. It is possible that using this library, one could create a precision handling robotic limb to accomplish various tasks. This could be used for something like quality testing of products such as smartphones and tablets. The OpenCV Python library holds many methods and functions that could accomplish many tasks for both impractical and practical ideas.