Computer Vision Internship Assessment Report

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What I built?

For this assessment procedure, I have built 2 projects using OpenCv.

Project 1: Basic Image Manipulation

In this project, I simply performed image manipulation technique (**Gray scaling, Gaussian Blur, and Canny Edge Detection**). The images used in this project is taken from google images and after processing, the results are kept in separate folder for ease of navigating. I used OpenCv basic functions available in OpenCv library such as **cv2.cvtColor** for Grayscale transformation, **cv2.GaussianBlur** for Gaussian blurring the images, **cv2.Canny** for Canny Edge Detection. These are mostly used for image processing pipeline and computer vision.

Project 2: Color Detection

In color detection project, I created a program that opens your default webcam and can detect the color of image you have clicked on depending on their average RGB values. I downloaded the csv file which contains all the RGB values of color combinations. It shows RGB values and calculates nearest distance to estimate the exact color of the point you clicked on. OpenCv's **setMouseCallBack()** function is used here which listens for mouse events such as clicking, moving, releasing, hovering, etc. and passes to the function I defined(here **show_color**).

Challenged I faced:

1. Firstly, the program did not take all images at once.
2. I initially used the wrong color conversion constant (COLOR_BAYER_BGGR2GRAY instead of COLOR_BGR2GRAY)
3. Webcam failed to show video as in my laptop, it was default to 1.

What I would improve if I had more time?

1. Add live color tracking, not just detecting color on click.
2. K-means clustering technique for dominant color detection.
3. Add more image manipulation such as cropping, flipping, rotating, etc. Perform Data augmentations on the images.
4. Make an interface to integrate these projects into web application.