ColorBlindAid

Students Name : Akshit Choudhari

Mentor's Name : Satyam Kumar

Colorblind people of given types Protanopia, Deuteranopia, Tritanopia find it difficult to differentiate between a few set of colors whose wavelengths overlap in the LMS curves. So, the goal was to help a colorblind differentiate between these colors, say, two block of colors which fall near the overlap of LMS curve are placed next to each other, a colorblind will find it difficult to find the boundary between these two blocks. Using LMS daltonization a correction filter for all three types of dichromacy was created. I failed to follow the Initial plan of Selective masking to only changes the color values of pixels that are not seen properly by the user.

I used numpy library to work with the 3d arrays carrying the RGB values as in depth of 3 layers of a 2d array whose each element represented a pixel of image.

OpenCV library was used to stream video from the device camera, access image/video files from system for debugging, image processing.

Flask was used in attempt to make a server based application, however I was not able to process the video stream in it.

Experience

I had never used python and had no experience in using libraries like numpy, opencv beforehand. This project helped me get a good idea in python programming , libraries (numpy, opencv), computer vision and machine learning. Even though I failed to integrate a proper ML model or neural network, I did learned few things regarding it. Time management is probably something I need to work on because I gave a lot of time in theoretical learning rather than practically applying what existing knowledge I had.

Link to repository

https://github.com/Akshit17/ColorBlindAid