

# **CS4475 Project 1 Presentation**

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## **Intro**

I decided to use what I've learned of color manipulation for this project. I came up with the idea of applying season filters on a given image.

## **Logic**

So the logic is that you set a range of lower and upper bounds of RGB values, and whatever pixel that falls in that range gets detected. Setting the range was made possible by using `cv2.inRange` function. It allows you to pick an upper RGB value and a lower one, and automatically performs the calculation on the input image.

At the end a mask image of the original that shows only the detected pixel locations is produced. The detected pixels are white. The rest remain black.

## **Filters**

For the seasonal filters, I had to research quite a bit to find the right function. I ended up using the `numpy.where` function. Basically this function allows you to select a specific RGB value from the mask, then change the RGB value of your image every time that value is selected. So in my case, whenever a pixel in the Mask has an RGB value of `[255, 255, 255]`, the pixel at that location on your chosen image changes value. In `changeToWinter`, I set this value at `[0, 150, 230]`. At the end, I applied Gaussian Filter to smooth out the final images.

## **Conclusion / Discussion**

I'm pretty satisfied with the result. The results didn't look as bad as expected. The filters worked especially well on Image 1. Even though the filters didn't detect every single shades of green, I feel like these results feel more natural and artistic. Since every pixel is pretty much a mixture of Red Green and Blues, it wasn't possible for me to singly pick out all the green colors. Some pictures worked better than others. If the picture has a big contrast between what is green and what's not, it has a higher chance of getting you good results.