**Project 2 Report**

**Removing Unwanted Caption from Snapchat Images**

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Group 2:

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**Objectives:**

The objective of this project was to use MATLAB software to implement an algorithm that would have the capabilities of removing unwanted caption bars and text from images taken with the Snapchat picture messaging mobile application. Using the Snapchat mobile application, users can take pictures with a smartphone and add captions to these images that consist of a bar with text to send to other Snapchat users. Users are also able to save these images for later viewing, this can however lead to issues as once the image is saved the caption bar and text is “burned” onto the image and can no longer be edited or removed. This can be annoying to users as it disrupts the saved images with unwanted objects in the image. The goal for our project is to process these saved images so that the caption and bar are removed and what is left is the unedited original image.

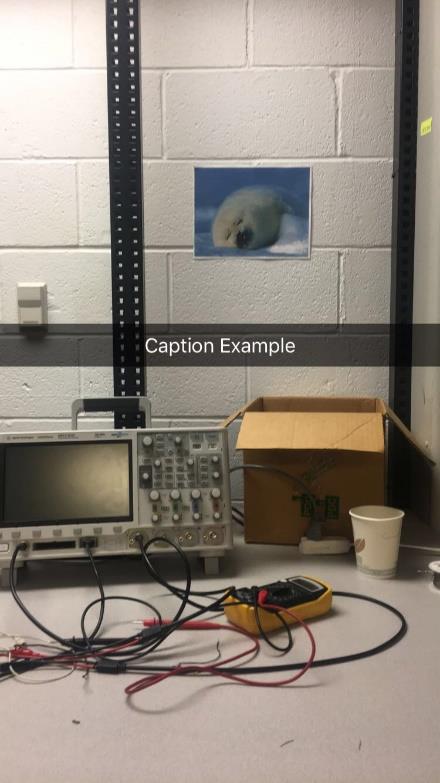
 

Figure . Snapchat image with unwanted caption example (left). Goal of removing caption to revert to original image on the right.

**Method:**

In order to develop the MATLAB algorithm that will remove unwanted captions from Snapchat images, we thought the best approach would be to first isolate the transparent caption bar that shows the placed text onto the image. In order to isolation this caption bar, the Hough transform was utilized in order to extract the line segments in the given image. Using the Hough transform with determined threshold and minimum line length, we were able to isolate the caption bar of the Snapchat images. Figure 2 displays an example image where the isolated caption bar is highlighted with a green line.

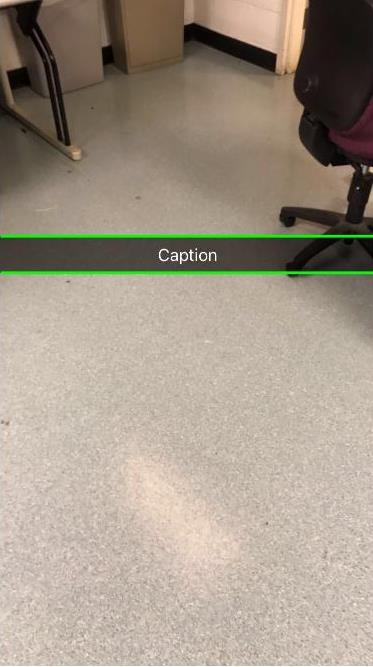


Figure . Isolation of the Caption Bar

With the caption bar now isolated, the next step is to determine the best method for removing the text in the bar. Once the text in the bar is removed, a method for removing the semi-transparent caption bar needs to be determined. One possible solution would be to adjust the contrast of the bar since the bar is transparent and makes the object in the image behind the bar darker. Adjusting the contrast may lighten the bar and adjust the color of the pixel to a value that is closer to that of the original image.

After locating the snap bar with the Hough transform the bar itself needs to be removed. An averaging filter will increase the intensity of the pixels that are darken by the snapchat bar. This algorithm takes 5 pixels in a random column and measures the intensity difference between pixels in the same column within the bar. The difference will then be averaged for each RGB value and that value of all the pixels in the bar will be increased by the amount calculated.

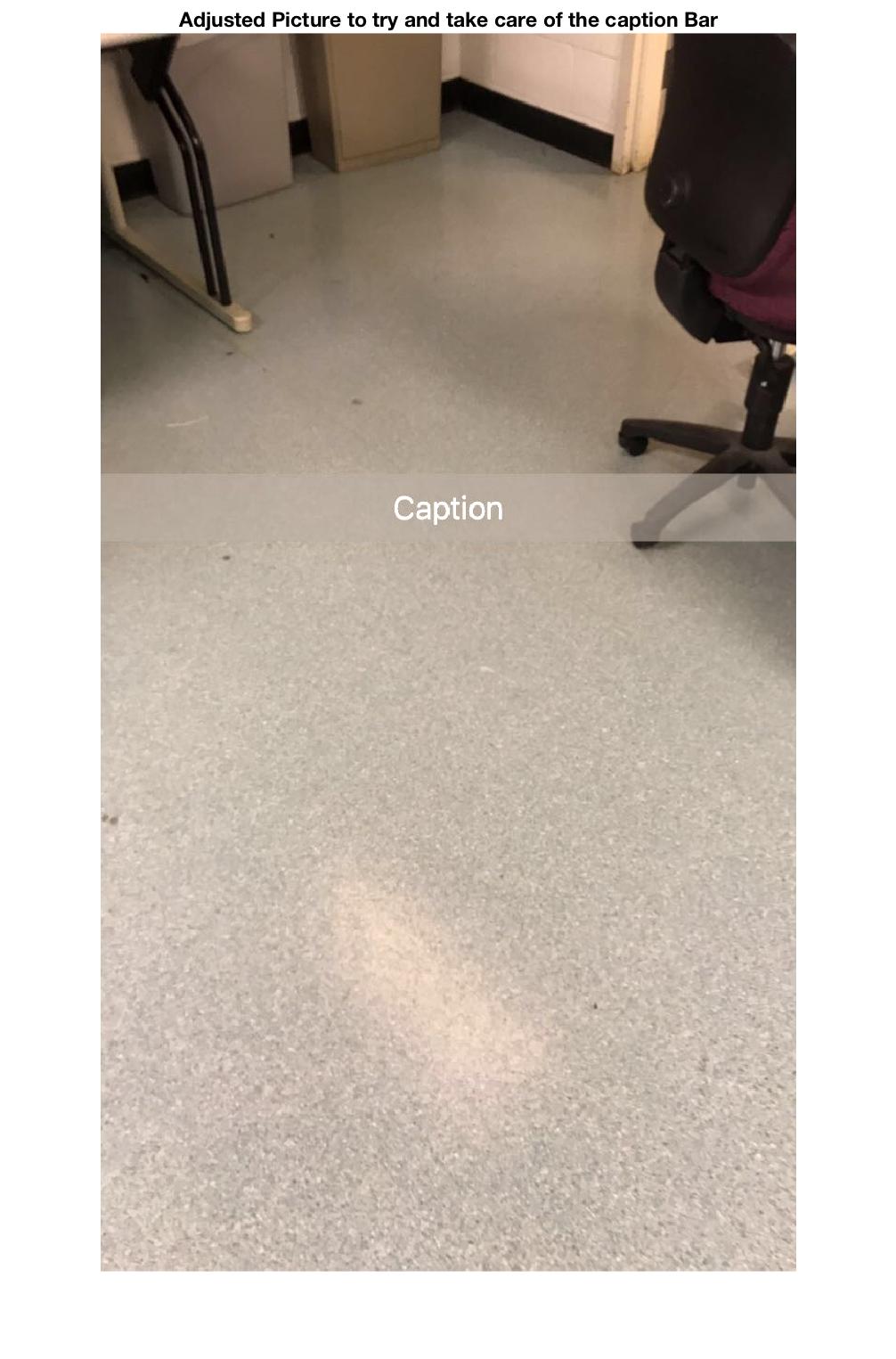
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Figure . Picture with Bar removed

**Summary of Findings / Conclusion:**