CS5190 Spring 2020 - Assignment 4

Total points: 50

Due date: Wednesday, April 8, 2020

1. Hough Transform for Line and Circle Detection

For the image "pool table.jpg" attached in the assignment 4, **write a program that detects pool table and balls using Hough Transform**. Note: you are allowed to any OpenCV functions for this task.

a. (10 pts) Generate an image showing detected lines (show four main lines of the interior border like the following result) of the pool table overlaid on the top of the original image.
b. (15 pts) Generate an image showing detected balls overlaid on the top of the original image.
c. (5 pts) Generate an image showing the location of four corners of the pool table overlaid on the top of the original image.

2. Image Pyramids

(20 pts) For the following images (of size 700*350) and the mask, which can be downloaded from http://niftyhedgehog.com/2016/05/25/image-blending, **write a program to create a composite image of the two images with the mask, based on image pyramids.** Note: you are allowed to any OpenCV functions for this task.

Image 1

Image 2

Mask

What to Submit?

1. Python source codes for each task (Please comment the important code lines)
2. Inputs of each task
3. Outputs of each task
4. Readme.txt (Please describe things that our grader needs to know in order to run your program)
5. Please zip all documents as yourname_assignment4.zip and submit it in blackboard.