Kevin Chung

10/14/19-10/18/19

Period 5

Journal 6b

This week I successfully implemented better line detection algorithm, that utilizes CLAHE and probabilistic Hough transforms to find line segments rather than full lines. Often times, the board lines will be occluded by either pieces or a player’s hand, so detecting line segments is more reliable than detecting full lines. After it finds the segments, it looks at groups of lines and determines if they are linkable through an equation detailed in Czyzewski, et al. It then takes grouped segments and converts them to point clusters and finds the line of best fit to link the segments together. The reason it uses CLAHE is to account for different levels of exposure/lighting without physically changing the light.

On Wednesday (10/16/19), I met up with Kevin Fu to sync up and talk about the next steps. While we were discussing, I ran my line detection algorithm on a live feed. We found out that my algorithm was tuned to a close up board, since the line clustering algorithm is based on the pixel distance between the lines, which is much smaller when the board is farther away from the camera. This means that I will have to alter my algorithm so it isn’t based on pixel distance, as the board will be far away from the camera most of the time.

The image on the left shows the previous line detection algorithm, where there are some lines that are missing and more “noise” lines that are incorrect. The image on the right is the improved line detection algorithm that I explained above. All the lines were detected, and only a few “noise” lines are detected.

