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Journal Report 1

Wednesday (9/4)

Today I was focusing on getting straight line detection to work. Once I get a straight line detector, I can cluster them into sets of parallel lines to find the board. I successfully implemented a straight line detection algorithm that involves the CLAHE algorithm and Hough line detection. It takes the input image of the chessboard and runs it through CLAHE with three various sets of hyperparameters so it can handle different levels of lighting/exposure. Afterwards, it applies a probabilistic Hough transform to each resulting image and compiles all of the detected line segments into one I’m still working on tuning hyperparameters for optimal detection, but it has promising results as of now.

On top of that, I’ve been closely reading and understanding the inner workings behind the algorithms outlined in the research that Kevin Fu and I found last year for our proposal. The main one I’ve been focusing on is by Czyzewski et al. In the paper, they outline a heatmap type algorithm that can detect the board given lattice points, but I’m not fully understanding what the workings are behind their algorithm. They called it the CPS algorithm (chessboard position search) and they detail a method of searching subsections of the image and assigning error values to each subsection.