Davin Jeong
CSC630
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CSC630: Weekly Check-in 3

Note: I am submitting this weekly check-in late, but I will only refer to my work last week. All my work from the week of 11/9 will still be associated with Weekly Check-in 4.

Most of my work this week had to do with the Chess Bot that Will and I have been working on. We split up the project into the evaluation and search tree components. I took responsibility for the latter, so I learned a lot about search trees and the alpha-beta pruning algorithm. I summarized my understanding in a jupyter notebook: "Project: Exploring Search Trees and Alpha-Beta Pruning for Chess." My favorite resources during the research process were Alpha-beta Pruning in Chess Engines and The Anatomy of a Chess AI. While experimenting with these ideas, we realized that our initial Python implementation of the search tree and the library we were using for chess rules were both too slow, so we decided to transition our code to C++. After writing my pseudocode of the search algorithm, I worked on integrating the "thc-chess-library." I haven't been successful thus far; there are a lot of small bugs that I have to crinkle out, as the "library" is actually multiple source/header files, and the code seems to be written in a c++ version I am not familiar with.

One question I have about the content is: our python evaluation model is written in PyTorch whereas our search algorithm will be written in C++. Do you have any advice on integrating these components together? My current idea is to train the model in PyTorch and then to rewrite the predict function in C++'s PyTorch.

My goals for next week are threefold: 1) finally finish and submit the gradients project 2) write a c++ version of the alpha-beta pruning algorithm 3) combine the evaluation and search components into a functioning chess bot.

I worked a lot with William Yue on the Chess Bot this week.