

COMS 4995 Parallel Functional Programming Project Proposal

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Project Idea:

Minimax (plus alpha-beta pruning, if time allows) algorithm on the Othello game. The game will be designed to be played interactively between two AI instances, one playing black and the other playing white. It should look like the following:

Game starts:

Black: (1,a)

White: (2,b)

...

Black: (8,e)

Black/White wins/draws!

To make it more interesting, I can design the program to take a user input for the initial move, such that the user can observe how the game is played along between two AIs playing optimal moves, from that initial move. The 8*8 board would be rendered either in the plaintext mode, or in a colorful way using a graphic haskell library,if time allows.

Reasoning:

Since minimax is a non-trivial algorithm and has the tree structure, therefore it looks like a good Haskell application. Also since it is a searching algorithm on a board game, it makes sense to use parallel programming in Haskell to shorten the search time for an optimal move.

Also I have seen people suggesting 2048, which I did in the AI class, using Minimax and alpha-beta pruning, therefore minimax on the Othello game seems similar and the workload might be good for one person.