

CHECKERS COMPETITIVE PLAYER ANALYSIS

Bob Wagner

The optimizations & enhancements made to the base AlphaBeta player were as follows:

- More advanced SBE
 - > Set more accurate material weighting
 - ; drew from Checker playing experience and AI vs. AI observation
 - > Added back row guard bonuses
 - ; make it more difficult for opponent to obtain kings
 - > Added bonuses for moving towards the side of the board
 - ; online research suggests that this may be a safer way to play
 - > Added bonuses for corners at endgame for Kings
 - ; harder for opponent to win if Kings are assuming a defensive position in the corner
 - ; seemed to have won the game a few times for my player
- Allow algorithm to setMove(move) as it gets them, instead of at the end of each iteration (thereby possibly getting a better move overall)
- If only one move in possibleMoves, skip search and return it

Performance notes against standard alpha-beta player:

Good; BobPlayer was able to beat it. BobPlayer seemed to make noticeably more intelligent choices than AlphaBetaPlayer, but both still showed some flaws.

Performance notes against humans player:

There's still work to do here. I am able to beat it every time I play it. It gives up pieces too easily and does not account for moves such as placing your piece between two computer pieces. The static board evaluator would most certainly need to be tailored, adding many more checks and refining values to achieve better results. Additionally, if given more time, I would research and implement a more efficient search algorithm.