Brian Craft

AI 1 : CSC 480

Assignment 2

Github: <https://github.com/priorfire4411/Craft-Repo/blob/master/artificial_intelligence/Connect_Four_Game/simacogo_agent.py>

Youtube: <https://youtu.be/fVxGSdiY-v8>

1. What number of plys makes the game easy? Challenging? Too challenging? Explain how this would impact a consumer experience in the game?

I found anything up until about ply 5 to be too easy. This is the point where the game began to block moves. At the point of around 7 plys is when the game got too challenging, although this could be because I didn’t have the mental energy to analyze my moves in depth. If I were to commercialize this game, I feel you have to offer a difficult level, otherwise consumers could be turned off by the lack of challenge or over challenge. The best example of this I can think of is Guitar Hero, in which a user is given the chance to move up the difficult. Anything on the extremes will alienate consumers.

1. What number of plys makes the game run too slow? Is there a tradeoff between the game running too slow and the game being too easy?

I was having runtime issues at around 7. There is a tradeoff between ease and speed. A game running fast will be too easy and a game running to slow will reduce the ease.

1. How much deeper can the game explore? Does this alter the answers to question 1 and 2?

I was able to get to ply to 8, but it ran quite slow. Ply 9 wasn’t a reasonable run time. My answers don’t change. The question this did bring up is how video games are able to program AI agents that have even larger search spaces, and more complex ones, and still have efficient runtimes? While I understand this game wasn’t built to scale, being it ran locally in memory, I would like to understand more of how video games are able to scale and if there are other methods that are more efficient. The other question this brings up, is if programming using recursion is best. I’m wondering if there is an algorithm that can perform depth first search and once a positive cost is persisted upward, in this case, one in which the AI agent would gain in the standings, would be a sufficient methodology.