CSE573 - Winter 2021 - Project Proposal

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Topic

Creating two Go AI agents that first play small Go with the capacity to search the entire space. Then another agent capable of large Go, that learns to play using Reinforcement Learning. The goal is to end up with an AI agent that has learned to play Go (better than places pieces randomly), and can play against an opponent.

Definition & Motivation

Go has been implemented as a third party environment to OpenAI's gym: Go.
I am a data scientist by day, and am interested in learning more outside statistical learning - applying Reinforcement, Transfer, and Deep learning.

Milestones

Date	Objective
Feb 22	Create environment, clone gymGo, get requirements, run demo.
Feb 26	Interface with environment manually and programatically.
Mar 1	Build a Go agent that can play small Go (3x3).
Mar 6	Build a RL Go agent that can play large Go.
Mar 10	Have a final RL Go Agent. Test agent results.
Mar 12	Start aggregating results and Presentation/Report.
Mar 14	Finalize Presentation.
Mar 16	Finalize Report.

Risks

There is significant risk that the difficulty to develop a simplistic Go agent could inhibit my ability to explore RL. If this occurs, I can pivot to focus on the simplistic small Go agent, and develop better heuristics, improve search, etc.

Resources

Resources for interfacing with OpenAI gym environments here: gym documentation. Information specific to go here: Go github. Details about setup, environment, and getting started with gym environments here: OpenAI gym github.