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AlphaGo

I choose AlphaGo because I have been following this project for some time and I was fascinated by it results and seems like a major milestone to me.

Goals

Create an AI that could consistently beat any opponent at the previously considered “impossible” AlphaGo game. The major obstacle was the sheer number of possible game states and moves which made it an impossible task to solve by sheer brute force as doing it that way would take more than the age of the universe.

Techniques

To be honest, event though I am familiarized with most of the deep learning techniques mentioned in the paper thanks to the “intro do deep learning” course, I still felt a bit lost most of the time when it got technical, but here is what I got from it.

AlphaGo used a lot of different deep learning techniques with both supervised and unsupervised learning, including convolutional networks, which work pretty much like scanners that allow the AI to have much higher sensibility to the relations between all the different positions, policy network, which if I understood well work as a sort of heuristics network to select the best move based on its current state without looking any further and all sort of other more “general” neural networks.

During training, they pit it against different versions of itself and all the other major Go AIs which allowed them to see which versions and optimizations worked better.

It seems to me that the main introduction made by AlphaGo was not necessarily new techniques but rather in how to use lots of already existing techniques together in an efficient and powerful way.

Results

I guess the results could not be better. It outperformed everyone and everything in every way in a relatively efficient way. But most importantly it did it in a creative way as opposed to other notorious AIs like Deep Blue, in the sense that id did not simply used a “table” of optimal moves but it created its own set of optimal moves to the point where apparently it has revolutionized the way Go is now seen and studied as it broke lots of conventions on what a good or bad move was considered.