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# Assignment-02

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## 1 ALPHA GO - THE MOVIE

This is rather a documentary to be more precise. The viewers happens to view the speaker's perspective of the whole journey of ALPHA-GO. Starting with the love of board games which makes any player think ahead of his current move showing high skill, this was chosen as the platform for training AI models as it has a perfect touch of human behaviour. Go was one such game that involved complexity needed for an AI model, so beating a GO champion was chosen as the next goal. The complexity of Go is like we have 200 possibilities at each step which branches to a huge number of possibilities. Some people also believed that human intuition was also needed to win the game. So as first progress Fan Hui , a Go professional was called upon to play a series of 5 games with ALPHA-GO. And something interesting happens the European champion loses 5-0. The CEO says that the training of ALPHA-GO model started by showing it thousands of Go games that other professional players have played. Because they are learning for themselves they can go beyond what the programmers know how to do and allow us to make new breakthroughs. Deep Mind did not stop here they wanted to fight a tough opponent , so Lee Sedol, a nine-down professional, the highest rank ever was challenged. But before the game Fan Hui was again invited so that he could experiment with ALPHA-GO to provide a value feedback about the model. And then they find a weakness of ALPHA-GO getting caught in a state from where its hard to say about whether it will find a way out or not. Unfortunately the team could not find a way for it before the game. Talking about the situation around it was a sense of national pride for some on the other hand someone thought of it as the final truth moment in AI. The game was very interesting , ALPHA-GO was seeming to have a human intuition in some moves which even made Lee Sedol awe. Then there an instant where ALPHA-GO makes a mistake , but all the players watching the game was not even sure whether its a mistake or a calculated trap. This was scary. After hours of intense game , Lee Sedol finally resigns making ALPHA-GO win the first game. ALPHA-GO has three components there's the policy network which was trained on high-level games to imitate those players and then we have a second component we call this the value net and it can evaluate the board position and say what is the probability of winning in this particular position and then third component is the tree search where it would look through different variations of the game and try to figure out what will happen in the future. Then there goes the second game and Lee Sedol players at a much slower pace but still could not make it, he loses. Its a natural tendency that we want the human to win. And that was reflected after that game that day, everyone was shocked about how could a machine even do this?. The champion himself with 18 world titles under his belt says that he is quite speechless. The day 3 of the game starts with a new strategy , but ALPHA-GO had the advantage from the very start. And again ALPHA-GO wins the game , thus winning the tournament as well. There was silence everywhere around the room, the ALPHA-GO team even after such a huge breakthrough were not able to celebrate seeing Lee Sedol very disappointed . But Lee Sedol goes for the fourth game. Now something shocking happens , in the middle of the game ALPHA-GO gets caught in the loop hole or the weakness as we talked earlier and starts to loose. It's win percentage at every move. Finally leading to Lee Sedols first victory. This one win was enough to bring back the smile on everyone's face. The fifth game again goes in the favour of ALPHA-GO making it a 4-1 win for ALPHA-GO.

This victory marked one of the historical achievements in the field of AI. Just like Kasparov says "A good human plus a machine is the best combination".