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Review on AlphaGo article : Mastering the game of Go with deep neural networks and tree search.

In the past, Artificial intelligent players like **Deep Blue** machine have defeated chess champions like Garry Kasparov.But coming to Go game, its not that easy to defeat a professional Go player as in the case of chess.It is mainly because of the following reasons.

- Enormous search space.
- difficulty of evaluating board states.

Yes,Go game is really complex and that is the reason it has become a big challenge for Artificial Intelligence.

Later researchers developed a program called AlphaGo.The trick was pretty neat.In the past Artificial Intelligence used to use tree search to beat players.But AlphaGo used deep neural networks along with search algorithms which made it a powerful Go player.

The researchers introduced new search algorithm called Monte Carlo tree search algorithm.This algorithm used both deep neural networks and Monte Carlo simulation.To be precise it used what are called as value networks and policy networks with Monte Carlo simulation.

- **Value networks** is a deep neural network which is used to evaluate Go board positions.
- **Policy Networks** is a deep neural network to choose the moves.

These deep neural networks are trained with what is called **Supervised Learning** which is a part of machine learning as well as **Reinforcement Learning**.

RESULTS :

This trained AlphaGo has almost defeated other Go programs and achieved a winning rate of 99.8%.Then this is used against European Go champion and AlphaGo defeated him with 5 - 0.

References: https://storage.googleapis.com/deepmind-media/alphago/AlphaGoNaturePaper.pdf