AlphaGo is a program that learns by playing other human people and developing models from playing them. Where as AlphaGo Zero does not play humans but rather learns by playing itself. This led to AlphaGo Zero beating Alpha Go in playing a game of Go. With AI learning this way in playing games like hide and go seek, the learning processes seems limitless at this point when compared to the Humans.

AlphaGo Zero uses a A2C algorithm. A2C stands for actor to critic. Where the Actor plays with an object, and then looks to the critic to see if it is a good idea. Where some Neural networks are created first and then the weights are changed, AlphaGo Zero changes based off every decision and does not decide based on a particular outcome. This is done by Looking for the Q values. The max values and not the minimum values. There are two neural networks that AlphaGo uses, Value and Policy network.

AlphaGo Zero also uses adversarial search where they act under the assumption that the opponent is always doing there best to win. So, the computer will try to stop you. This is known as Alpha beta pruning. This takes a neural network that has limited game sets and makes moves based on the neural network that has already been set up. There is also an example of Q learning being used in the game of POKEMON which some people might find interesting. This shows how the AI uses the Markov decision process to make moves against Pokémon to learn which moves are the most effective. Then puts them into a neural network with the probable outcomes to winning. The one thing about the computer AI is that it gave a thirty five percent chance of Pikachu beating Squirtle, but as humans we all know Pikachu beats Squirtle every time.

# [Shen Huang](https://medium.com/@shenhuang_21425?source=post_page-----da07d3ec5278--------------------------------), (March 15, 2019) Understanding AlphaGo: how AI thinks and learns (Fundamentals), https://towardsdatascience.com/understanding-alphago-how-ai-think-and-learn-1-2-da07d3ec5278

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