Research Review of AlphaGo

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AlphaGo

Due to the enormous search space it presents and to the non-trivial evaluation of the board positions, the game of Go is the classic game that poses the most difficult challenge to Artificial intelligence systems.

The purpose of the studied paper is to present a new approach which involves a pair of deep neural networks trained through supervised learning and reinforcement learning.

The results look promising as the success rate obtained is comparable to the one obtained through stochastic analysis and Monte-Carlo algorithms. Combining the neural networks with a stochastic approach achieved a 99.8 percent win rate.

The idea presented is to separate the systems which evaluate board positions (value networks) from the systems which evaluate moves (policy networks). They are trained from expert games via supervised learning at first and, after this initial stage, the training consists of reinforced learning from its own results feedback.

Another interesting point is that AlphaGo does not need an expert to craft the evaluation functions, given that it develops the function through machine learning algorithms. Also, it employs both neyural networks and Monte Carlo tree search techniques, optimizing the obtained win rate.