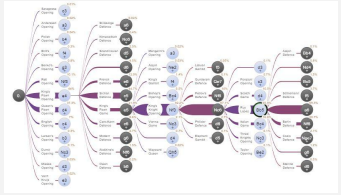
Chess with Deep Reinforcement Learning

The Problem

The effect of the size of the search space on the learning process of deep reinforcement learning methods



Hypothesis:
As the size of the search space increases, the number of training steps required to perform at a certain elo also increases

The Algorithm

Self-Play:

The best current player plays thousands of games with itself

Deep Neural Network:

The network learns from a blank state. Optimize the network weights every training loop

Monte Carlo Tree Search:

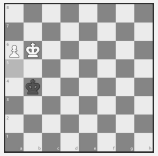
After many moves, select a move deterministically or stochastically

The Method

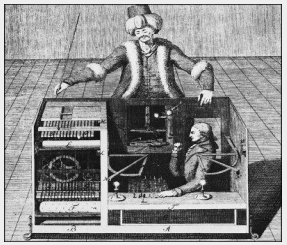
1- Have the same engine trained for different amount of steps

2- Have different chess positions where the size of the search space grows at different speeds

vs



3- Evaluate if the engine learns to make better decisions when the size of search space expends more slowly



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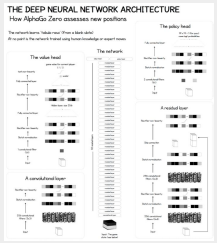

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The Results

The chess engine learns faster and starts performing better earlier when the search space is smaller

Contact

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