

Replicating AlphaGo

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Problem

- Perfect information games have optimal value function...
 - BUT Exhaustive search infeasible for large games
 - (Go is 250^{150} states) (~centillion)
- Difficult to quantify position / score at any given point
 - Influence vs. territory



Data Sources

- KGS games, ~500k for high-dan & professional
- Multiple states, rotations generated



Strategy

- AlphaGo used about 30 million game states
- Policy Network reached 57% accuracy



Algorithms

- Policy network to predict next move
 - Value network to predict score / winner
 - In theory: Monte Carlo Tree Search to save time
 - Optimize by accuracy of validation set
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- Insert picture of board and probability distribution (policy network)



Result

- Policy network - I reached X% accuracy
- Value network - I just looked at win/loss, Y% accuracy
- ??Insert picture of accuracy vs # filters in CNN??



Next Steps

- Implement Monte Carlo tree search
- Connect to KGS and use reinforcement learning to improve model



Thank you

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