

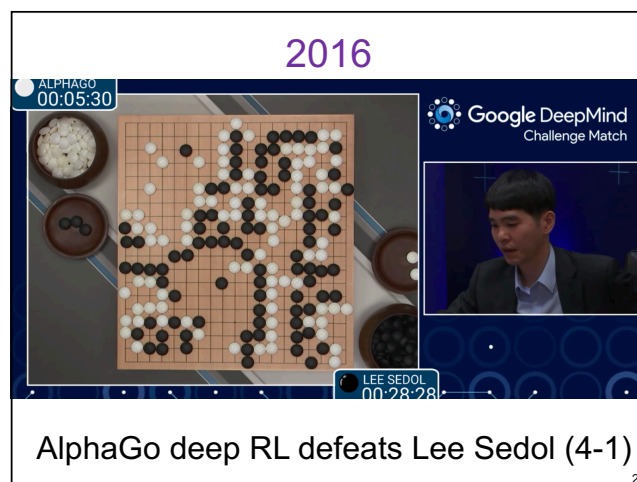
AlphaGo and Monte Carlo Tree Search

Machine Learning for Big Data
CSE547/STAT548, University of Washington
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A feat previously thought to be (a decade?) away!!!

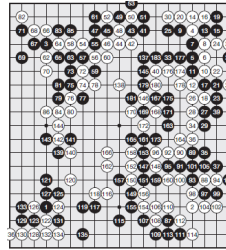


Chess vs. Alpha Go

1997, AI named "Deep Blue" beat chess world champion.



Search space: b^d : $b = 35, d = 80$



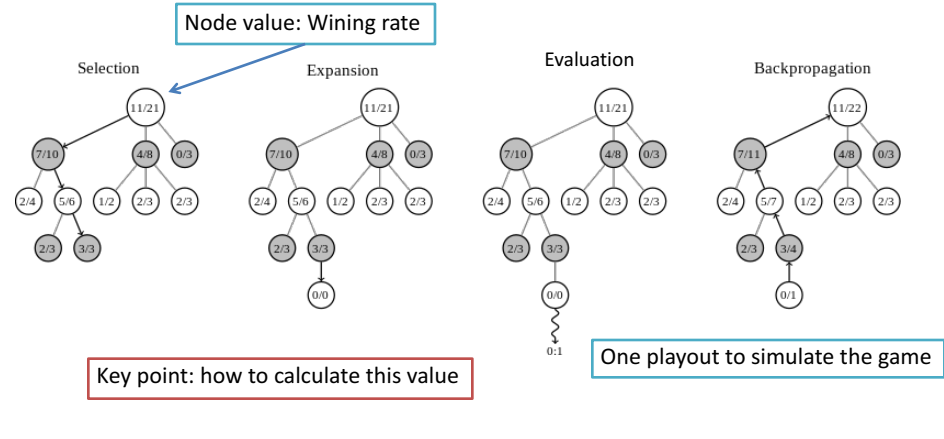
Search space: b^d : $b = 250, d = 150$

Key Points

- Given current game state,
 - how to decide next action "a"?
 - How to evaluate each legal action?

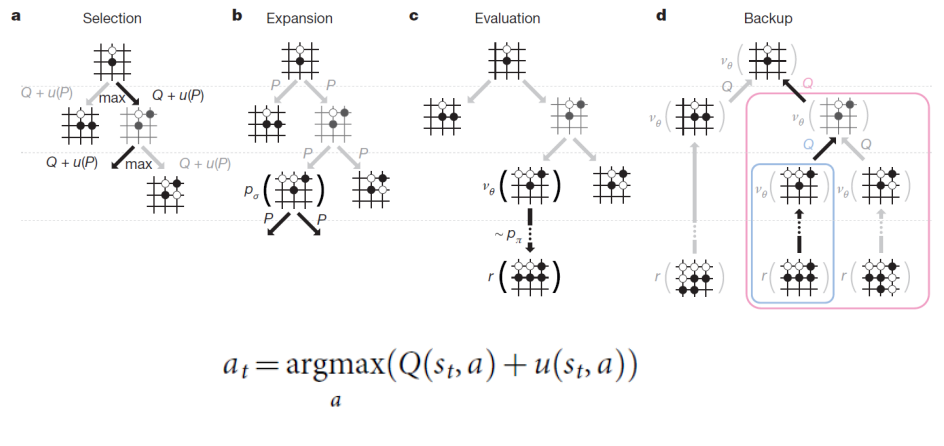
Monte Carlo Tree Search (MCTS)

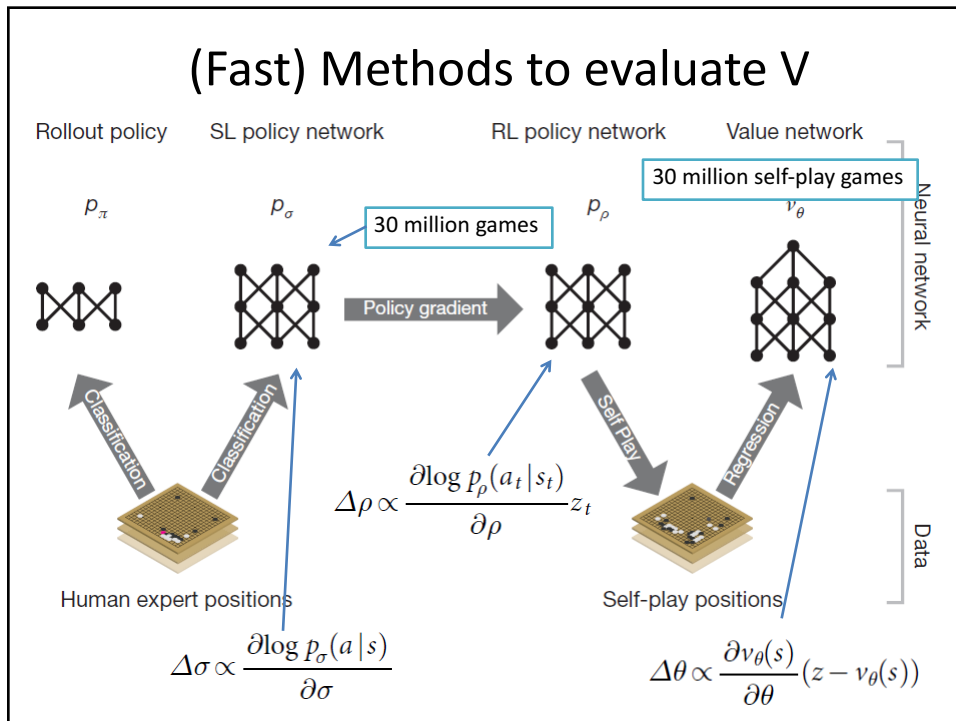
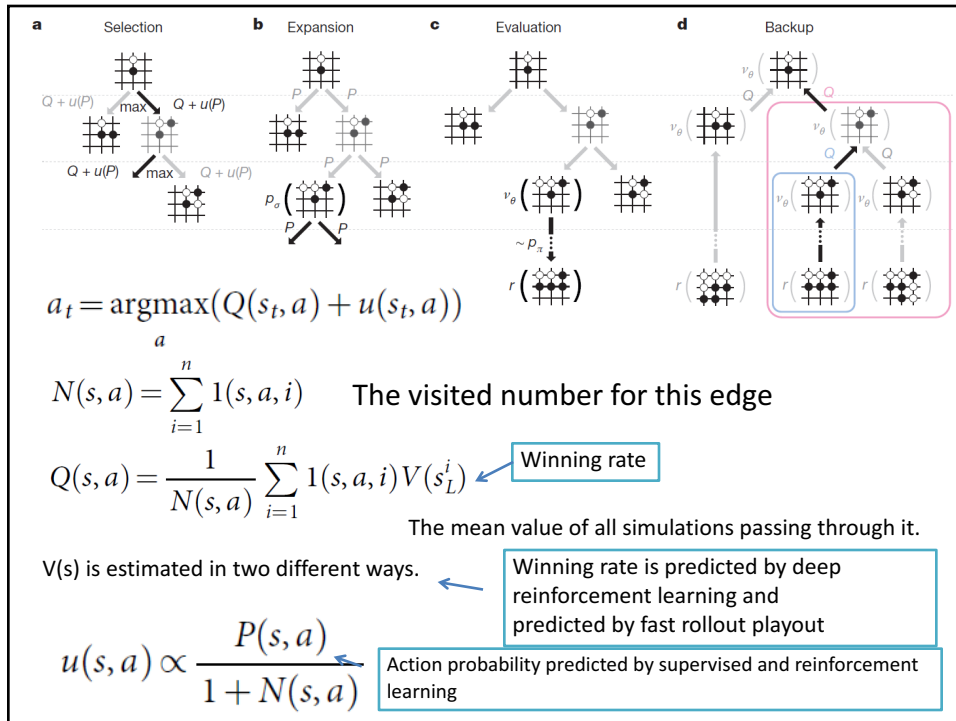
- A popular heuristic search algorithm for game play
 - By lots of simulations and select the most visited action.



Monte Carlo Tree Search (MCTS)

- AlphaGo
 - Key point: how to calculate the value for each action (path)





Thanks!

- ML for big data:
 - lots of different methods/challenges in the wild.
 - Participate in the ML community.
- Posters:
 - Looking forward to the poster session.
- Have a great summer!

Acknowledgments

- Some slides modified from:
prlab.tudelft.nl/sites/default/files/deepmind_go_nature.pptx