# Notes on Deep Reinforcement Learning through Policy Optimization by Pieter Abbeel and John Schulman

Compiled by D. Gueorguiev 2/17/2024

## Policy Optimization

A diagram of a agent and environment

Description automatically generated

A diagram of a network

Description automatically generated

A diagram of a function

Description automatically generated

Consider control policy parametrized by parameter vector . We want to maximize the expected reward over a given time interval represented by its discrete time points

## Literature

[Deep Reinforcement Learning through Policy Optimization, Pieter Abbeel, John Schulman, OpenAI, Berkeley AI Research Lab, NIPS, 2016](https://github.com/dimitarpg13/reinforcement_learning_and_game_theory/blob/main/docs/nips-tutorial-policy-optimization-Schulman-Abbeel.pdf)

[Human-level control through deep reinforcement learning, Volodymyr Mnih et al, Nature, 2015](https://github.com/dimitarpg13/reinforcement_learning_and_game_theory/blob/main/articles/ReinforcementLearning/Human-level_control_through_deep_reinforcement_learning_Mnih_2015.pdf)

[Deep Reinforcement Learning with Double Q Learning, Hado van Hasselt et al, Google DeepMind, 2015](https://github.com/dimitarpg13/reinforcement_learning_and_game_theory/blob/main/articles/ReinforcementLearning/Deep_Reinforcement_Learning_with_Double_Q-learning_Hasselt_2015.pdf)

[The Cross-Entropy Method: A Unified Approach to Combinatorial Optimization, Monte-Carlo Simulation and Machine Learning, RY Rubinstein, DP Kroese, 2004](https://github.com/dimitarpg13/reinforcement_learning_and_game_theory/blob/main/books/The_Cross_Entropy_Method_A_Unified_Approach_Rubinstein_Kroese_2004.pdf)

[Dueling Network Architectures for Deep Reinforcement Learning, Z Wang et al, Google DeepMind, 2015](https://github.com/dimitarpg13/reinforcement_learning_and_game_theory/blob/main/articles/ReinforcementLearning/Dueling_Network_Architectures_for_Deep_Reinforcement_Learning_2015.pdf)

[Continuous Deep Q-Learning with Model-based Acceleration, S. Gu et al, U. of Cambridge, Google DeepMind, 2016](https://github.com/dimitarpg13/reinforcement_learning_and_game_theory/blob/main/articles/ReinforcementLearning/Continuous_Deep_Q-Learning_with_Model-based_Acceleration_Gu_2016.pdf)