

Reinforcement Learning

REL301m

Prerequisites

- ❑ **Completed:**

- ◆ AIL303m
- ◆ DPL302m

Learning Objectives

- ❑ Understand The K-Armed Bandit Problem
- ❑ Understand Estimating Action Values
- ❑ Understand Exploration vs. Exploitation Tradeoff
- ❑ Introduction to Markov Decision Processes
- ❑ Understand Goal of Reinforcement Learning

Learning Objectives

- ❑ Understand Continuing Tasks
- ❑ Understand Policies and Value Functions
- ❑ Understand Bellman Equations
- ❑ Understand Optimality (Optimal Policies & Value Functions)
- ❑ Understand Policy Evaluation

Learning Objectives

- Understand Policy Iteration (Control)
Understand
- Understand Generalized Policy Iteration
- Introduction to Monte-Carlo Methods
- Understand Monte-Carlo for Control
- Understand Exploration Methods for Monte-Carlo

Learning Objectives

- ❑ Off-policy learning for prediction
- ❑ Introduction to Temporal Difference Learning
- ❑ Advantages of Temporal Difference
- ❑ Temporal Difference for Control
- ❑ Off-policy Temporal Difference Control: Q-learning

Learning Objectives

- ❑ Define model in Reinforcement Learning
- ❑ Define Planning in Reinforcement Learning
- ❑ Dyna as a formalism for planning
- ❑ Dealing with inaccurate models
- ❑ Estimating Value Functions as Supervised Learning

Learning Objectives

- ❑ The Objective for On-policy Prediction
- ❑ The Objective for Temporal Difference
- ❑ Linear Temporal Difference
- ❑ Feature Construction for Linear Methods
- ❑ Episodic Sarsa with Function Approximation

Learning Objectives

- ❑ Exploration under Function Approximation
- ❑ Understand Average Reward
- ❑ Learning Parameterized Policies
- ❑ Policy Gradient for Continuing Tasks
- ❑ Actor-Critic for Continuing Tasks
- ❑ Policy Parameterizations

Learning Objectives

- ❑ Exploration under Function Approximation
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Learning Objectives

- ❑ Implement 3 labs from the basic to advance of Reinforcement Learning
- ❑ Implement an assignment for Reinforcement Learning problems
- ❑ Finish Guided Project Create a Tic-Tac-Toe game in Python

Q & A