
REINFORCEMENT LEARNING NOTES

Overview

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1 Introduction

We can think of Reinforcement Learning as a separate paradigm of machine learning from other popular forms of machine learning (e.g. Supervised and Unsupervised learning) whose goal is to learn how to act optimally within an environment. Learning in this instance, refers to the agent interacting with the environment, getting feedback, and using that feedback to learn optimal behaviors.

2 Overview

Suppose we have an environment E that is in state $s_t \in \mathcal{S}$ at time step t and an agent who can take actions $a_t \in \mathcal{A}$ that effect the current state s_t of the environment E . The agent then recieves a reward R_t for the action a_t it took in state s_t . The goal of the agent is to learn a policy π that maps states to actions such that the agent maximizes the expected sum of rewards over time.

References