

【招待講演】

How do we define the reward in reinforcement learning?

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【概要】

In application of reinforcement learning algorithms to real world problems, the design of reward functions is critical for successful achievement of a task. We may have only a very rough idea of the reward function whose optimization would generate desirable behavior, so straightforward reinforcement learning may not be usable. To find a good reward function, two approaches are considered. One is inverse reinforcement learning which infer the reward function from observed behaviors which are usually assumed to be optimal. The other approach is so-called intrinsically motivated reinforcement learning, in which the agent learns behaviors from extrinsic rewards from the environment and intrinsic rewards calculated by the agent based on information theory, emotion, task complexity, and so on. This talk briefly introduces inverse reinforcement learning and intrinsically motivated reinforcement learning. Next, we will explain our methods for those problems: inverse reinforcement learning with density ratio estimation and constrained policy gradient for intrinsic and extrinsic rewards.