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Reinforcement Learning, an Introduction and Some Results

mercredi 3 avril 2024 10:00 (50 minutes)

Reinforcement Learning is the "art" of learning how to act in an environment that is only observed through interactions.

In this talk, I will provide an introduction to this topic starting from the underlying probabilistic model, Markov Decision Process, describing how to learn a good policy (how to pick the actions) when this model is known and when it is unknown. I will stress the impact of the (required) parametrization of the solution, as well as the importance of understanding the inner engine (stochastic approximation).

I will illustrate the variety of questions by describing briefly three different questions:

- How to apply Reinforcement Learning to detect faster an issue during an ultrasound exam ?
- How to solve faster an MDP using better approximation ?
- How to make RL more robust while controlling its sample complexity ?

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