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Reinforcement learning

13th Aug 2023

Reinforcement learning: A more subtle way of learning

Reinforcement learning is the subset of machine learning in which an agent is trained in an environment. Methodologies such as reward, action, policy and discount rates are used to train the agent. I want to focus on the reward term because it gives us a score on how the agent performs in relation to the environment. In other words, rewards represent profit and loss. This helps the agent stay on track and take optimal action.

The reward can be either negative or positive, based on the activity chosen by the agent and where the agent does business. So if the reward function determines the agent's motivation, you must. On an abstract level, unsupervised learning was supposed to avoid prescribing "right and wrong" performances. But we can see how this RL simply shifts the responsibility of the teacher/critic to the reward function. A less circular way to solve the problem is to infer the best reward function. Once we have the right reward function, the problem is finding the right instruction and this can be solved using standard reinforcement learning models. Think about these two statements:

*“I get paid well if I get good grades, so I study.”*

*“The teacher physically punishes me if I don't get good grades, so I study.*”

Reward and punishment are potent modulators of associative learning in instrumental and classical conditioning. I want to perform the two modulators with respective to classical RL algorithms such as Q-learning, SARSA with temporal difference. I believe that certain RL problems can be solved by invoking psychological factors such as cognitive responses to punishment. I think I could make a solid agent trained by physical pain as punishment.

When I talk about pain, I mean a type of pain called nociceptive pain, which is caused by tissue damage in the body. It feels sharp, painful, or throbbing.

For example, We've all played classic video games before, but I noticed that in boss fights, the higher we shoot/damage the boss, the angrier and harder it gets. I want to repeat the same psychological idea of ​​reinforcement learning and conclude the difference.