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Continuous VS Discrete Action Spaces:

In reinforcement learning, we deal with choosing optimal actions over time. Actions can either be discrete or continuous. A discrete action is an action taken in which the choices are countable in number. If the options are innumerable, we call the action space continuous.

Choosing items from a menu is (generally) a discrete action space problem because each item is a seperate choice from each other item. If we wanted to frame a menu choice as continuous, we could ask for a mix of two options in a certain proportion such as an ice-cream cup with 63.5% sea salt caramel, and 36.5% mango. By choosing different proportions, we have in effect an infinite variety of ice cream flavors to choose (while staying within two overall scoops).

Notice that if a problem has both discrete and continuous elements, as in the example above, we can call the overall framing continuous.

Algorithms for Continuous Action Spaces:

Continuous Actor Critic Learning Automaton (CALCA) 2007
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.75.7658&rep=rep1&type=pdf

Newton's Method State Action Reward State Action (NM-SARSA) 2014
https://core.ac.uk/download/pdf/42489553.pdf

Deterministic Policy Gradient (DPG) 2014,
Deep Deterministic Policy Gradient (DDPG) 2015
http://proceedings.mlr.press/v32/silver14.pdf
https://arxiv.org/pdf/1509.02971v2.pdf

Asynchronous Advantage Actor Critic (A3C) 2016
https://arxiv.org/pdf/1602.01783.pdf
Also, see Deep Reinforcement Learning Hands-On by Maxim Lapan

Kernel Regression Upper Confidence Trees (KR-UCT) 2016
https://www.ijcai.org/Proceedings/16/Papers/104.pdf