RL – Continuous spaces

Tabular approach of Q-Learning is only suitable for MDP with small number of states. Recall, every state will correspond with a row in the Q-Table. Furthermore, if the space is continuous, the number of states is an infinite set, which cannot be handle by a finite table of values.

We need a way to generalize tabular methods, where deep reinforcement learning algorithms come into play.

# Introduction to Deep Reinforcement Learning

As mentioned, the first change of concept comes from the need to come up with **how to generalize** the algorithms covered by RL to continuous spaces, or spaces where the number of states is vast.

That lays to the necessity of developing Deep RL algorithms, where deep neural networks will handle the mapping between inputs (states) and outputs (actions). DRL includes **Value-based techniques like Deep Q-Learning**, and those that **directly tries to optimize the policy, such as Policy Gradients.**

Finally, most recent techniques tries to incorporate the advantages of both methods, like **Actor-Critic Merhods**.