

The Monte Carlo method is a technique for estimating the value function in reinforcement learning. The equation for estimating the value of a state s using the Monte Carlo method is given by:

$$V(s) = \frac{1}{N(s)} \sum_{i=1}^{N(s)} G_i$$

where:

- $V(s)$ is the estimated value of state s ,
- $N(s)$ is the number of times state s has been visited,
- G_i is the return (cumulative reward) from the i -th visit to state s ,
- The sum is taken over all $N(s)$ visits to state s .

This equation represents the average of all returns observed from visits to state s , providing an estimate of its value based on empirical data.