XAI613 A1: Frozen Lake MDP

2022010638 Sungjune Kim

Q: Run both methods on the Deterministic-4x4-FrozenLake-v0 and Stochastic-4x4-FrozenLake-v0 environments. In the second environment, the dynamics of the world are stochastic. How does stochasticity affect the number of iterations required, and the resulting policy?

A: In a stochastic environment, the policy takes all the possible actions into account for each state. Therefore, stochasticity requires a larger number of iterations than the deterministic policies. Also, due to the stochastic nature, the policy often fails to arrive at the goal point within the maximum number of steps.