

CS 330 Autumn 2022 Homework 3
Goal Conditioned Reinforcement Learning
and Hindsight Experience Replay
Due Wednesday October 27th, 11:59 PM PT

SUNet ID:

Name:

Collaborators:

By turning in this assignment, I agree by the Stanford honor code and declare that all of this is my own work.

Problem 3: Analyzing HER for Bit Flipping Environment

a) num bits=6

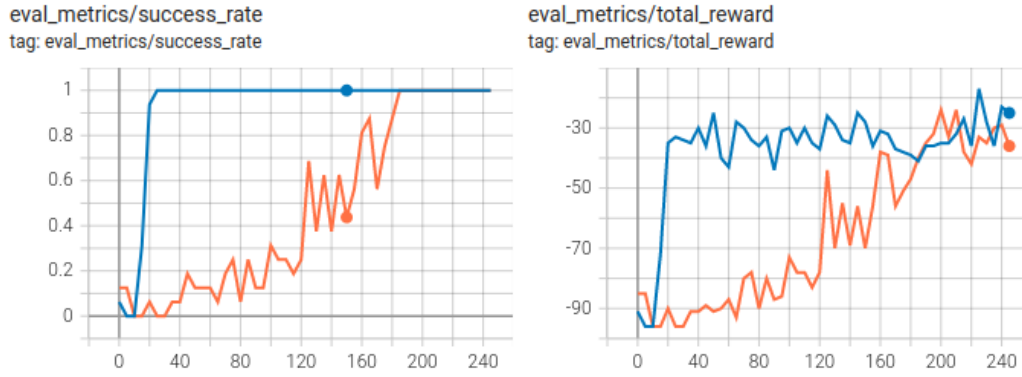


Figure 1: Orange: No HER, Blue: HER-Final

b) num bits=15

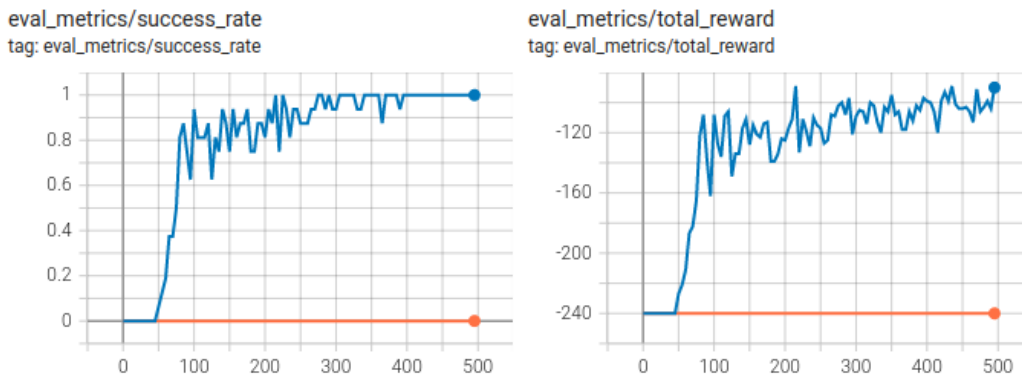


Figure 2: Orange: No HER, Blue: HER-Final

c) num bits=25

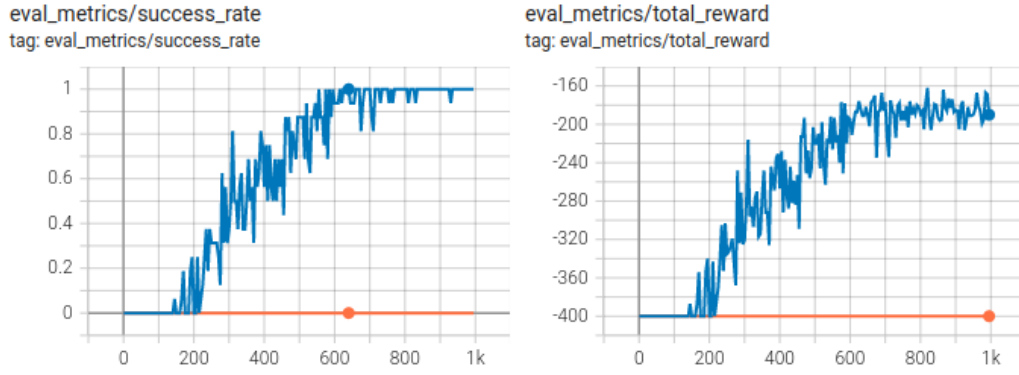


Figure 3: Orange: No HER, Blue: HER-Final

d) compare the three versions of HER for num bits=15

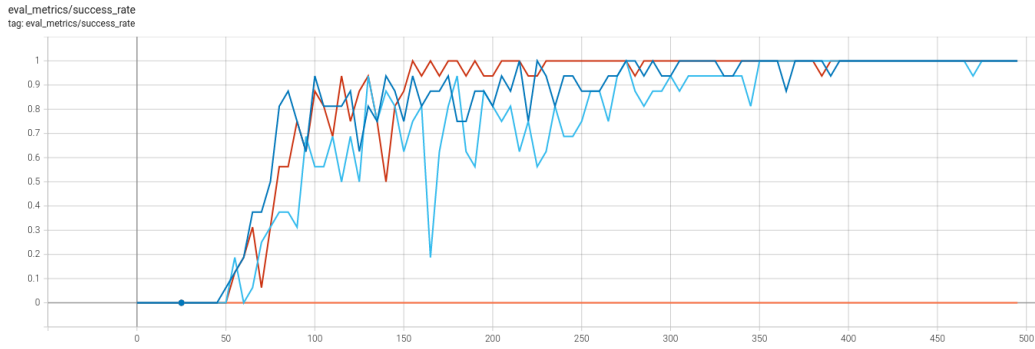


Figure 4: Success Rate : Orange: No HER, Blue: HER-Final, Red: HER-Random, Turquoise: HER-Future

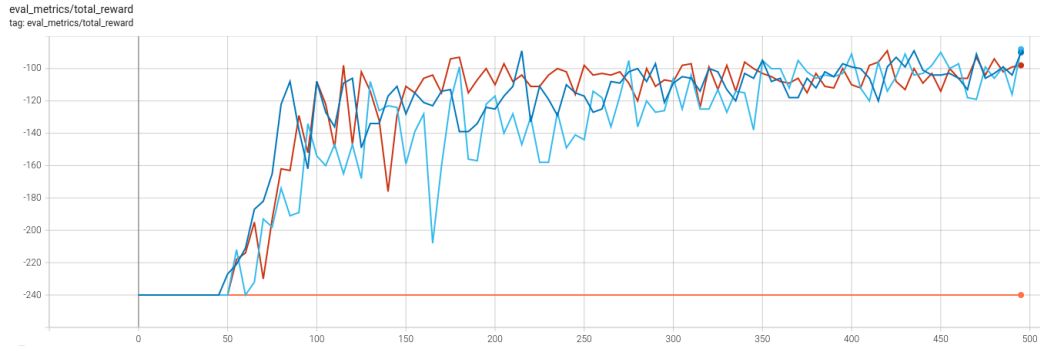


Figure 5: Total Reward : Orange: No HER, Blue: HER-Final, Red: HER-Random, Turquoise: HER-Future

e) Summary

Using HER always improves performance. Without HER, success rate improves only for 6 bits.

HER-Final and HER-Random performs similarly. HER-Future performs slightly worse.

Problem 4: Analyzing HER for Sawyer Reach

a) Screenshots

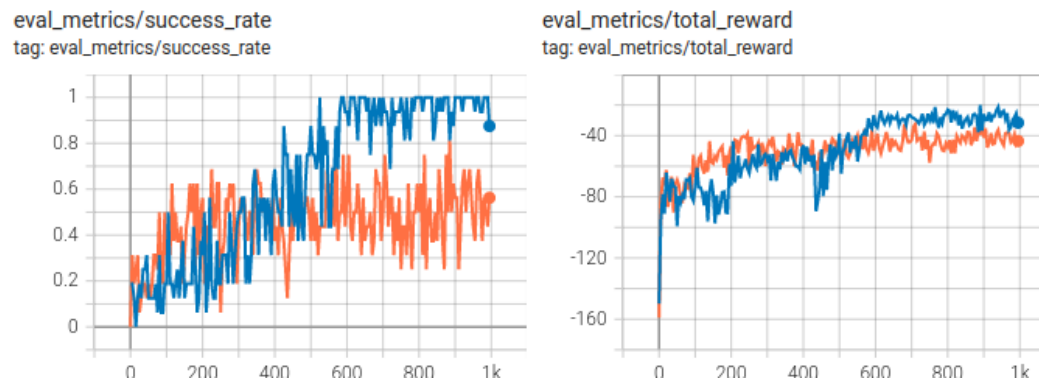


Figure 6: Total Reward : Orange: No HER, Blue: HER-Final

b) Summary

Success rate 1.0 is only achieved when HER is used.