EAS595 DL Robotics Assignment 2

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Due: 11:59 PM, Oct 26, 2023

What to submit:

1x Assignment report. The report should contain 1) the objectives, 2) descriptions of the task, 3) details of the experiments including verbose configurations of the model and the training/testing process, and 4) results with conclusions.

1x Code package. The code package should include: 1) the organized dataset(s), 2) codes of the training/testing procedures, 3) your trained model(s) that are ready to be evaluated. *Please make sure all codes and models submitted are executable without further configurations or inputs!*

Part 1: Deterministic Policies

Choose one environment with discrete observation & action spaces and one environment with continuous observation space (excluding MountainCar) from gymnasium. Train these environments with the stable-baseline implementation of DQN. Record and report the training process (reward function history, average episodic reward history, profile, etc.). You can customize the environments with wrappers if you prefer.

Part 2: Policy Gradient

Choose 2 continuous environments from gymnasium (preferably continuous observation AND action spaces). Train these environments with the stable-baseline implementation of DDPG, PPO, or SAC. Record and report the training process (reward function history, average episodic reward history, profile, etc.). You can customize the environments with wrappers if you prefer.

Bonus: MuJoCo Walker2D

Choose an RL implementation of your favor, train with the MuJoCo Walker2D environment. A bonus score of 50% extra will be awarded for the successful training of a policy enabling the walker to consistently walk forward.