SI252 Reinforcement Learning 2025/05/01

Homework 6

Professor: Ziyu Shao *Due: 2025/06/01 11:59pm*

1. **Required: OpenAI Spinning Up in Deep RL**. Welcome to Spinning Up in Deep RL! This is an educational resource produced by OpenAI that makes it easier to learn about deep reinforcement learning (deep RL). Please study the documents and install the environment with PyTorch version.
   (a) Finish the problem set 1: "Basics of Implementation" . It includes three exercises: Gaussian Log-Likelihood, Policy for PPO, and Computation Graph for TD3.
   (b) Finish the problem set 2: "Algorithm Failure Modes" . It includes two exercises: Value Function Fitting in TRPO, and Silent Bug in DDPG.
2. **Optional: Hugging Face Course in Deep RL**. Welcome to Hugging Face Course in Deep RL! This is an educational resource produced by Hugging Face community that makes it easier to learn about deep reinforcement learning (deep RL).
   (a) Finish basic units including unit 1(Introduction to Deep Reinforcement Learning), unit 2(Introduction to Q-Learning), unit 3(Deep Q-Learning with Atari Games), unit 4(Policy Gradient with Pytorch), unit 6(Actor-Critic Methods with Robotics Environments), unit 8(Proximal Policy Optimization)
   (b) (Bonus)Finish all remaining units
3. **Useful Resources**.
   (a) Getting Started With OpenAI Gym: The Basic Building Blocks
   (b) Famous Deep RL libraries CleanRL, Stable Baselines3, RL Baselines3 Zoo and Sample Factory.
   (c) RL with PyTorch