CSE571 Project 2

Group: Dropouts

June 2021

1 Group Information

Members:

- Keyan Pishdadian (keyanp@cs.washington.edu)
- Jakub Filipek (balbok@cs.washington.edu)
- Kyle Deeds (kdeeds@cs.washington.edu)

Source code for behavior cloning approach:
`https://github.com/keyan/duckiebot_behavior_cloning`
Source code for reinforcement learning approach:
`https://github.com/balbok0/cse571-sp21-project-2-dropouts`

2 Task Overview

[TODO:] Reproducing RL research usually doesn't work: https://arxiv.org/abs/1709.06560

3 Environment Setup

3.1 Simulation

[TODO:] Discuss gym-duckietown and AIDO submissions

3.2 Real World

[TODO:] Show different maps used

4 Reinforcement Learning Approach

[TODO:] Discuss our initial approach using RL
[TODO:] how we anticipated this would work
[TODO:] ultimately how it performed poorly

4.1 DQN

[TODO:] Discuss general algorithmic idea behind DQN
[TODO:] Show training results using DQN and videos of simulator performance

4.2 DDPG

[TODO:] Discuss general algorithmic idea behind DDPG
[TODO:] Show training results using DDPG and videos of simulator performance

5 Behavior Cloning Approach

[TODO:] High level overview of behavior cloning and end-to-end control with monocular images

5.1 Data Preparation

[TODO:] Discuss data collection procedure and cleaning
[TODO:] Discuss final datasets used

5.2 Model Architectures

[TODO:] Discuss each model architecture evaluted
[TODO:] Show data from training

6 Performance Evaluation

6.1 Simulator and AIDO

[TODO:] Share links to videos from simulator and AIDO submissions
[TODO:] Discuss quantative performance for each model including baseline

6.2 Real World

[TODO:] Discuss quantative performance for each model including baseline
[TODO:] Share links to videos for each map/model evaluated

7 Potential Future Improvements

[TODO:] Discuss algorithmic enhancements
[TODO:] Discuss robot limitations