Advice-based Conservative Q-Learning (Adv-CQL)

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This repository contains the original implementation for *No Imitation for Me: Advice-based Offline Reinforcement Learning for Aerial Control*. Code is based on the Gym-Pybullet-Drones framework.

Requirements

Our implementation is written using *Python 3.7* and tested on *Ubuntu 18.04* using *PyTorch*. Use the following command to setup the required dependencies-

```
setup.sh
```

Usage

Adv-CQL resides in the `ADV_CQL.py` file. The `singleagent.py` file runs experiments and saves results in the `results` folder.

To run an `ADV_CQL` agent on the `takeoff` task with `kin` states use the following-

```
python singleagent.py --configs ADV_CQL --env takeoff --obs kin
```

This will train the agent for `2e5` timesteps. Default settings train an `SAC` agent on the `hover` task with `kin` feature inputs as per the following-

```
python singleagent.py
```

RL agent implementations can be found in the `algos` folder with their configurations in the `config` folder. Additionally, expert weights can be found in the `experts` folder.

Development

So what is a good place to start your work? Have a look at the following-

Directory	Description	Use Case
`algos`	RL agents	Design custom agents
`configs`	Agent configs	Set/tune custom configs
`experts`	Expert weights	Add new experts
`single_agent_rl`	Drone control envs	Add custom envs