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

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
```

Custom implementations can be trained using config files in their respective directories in the `config` folder.

Development

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

- `algos`- Follow a similar line of coding as in the `algos` folder as this will lead to easier integration and faster progress.
- `configs`- Make sure that your arguments are clean and tuned. A `configs.yaml` is a great way to tune your parameters.
- New files- Incase you wish to make a new file for your code, then please do so in the `algos` folder. This will keep the directory consistent.