Project Abstract

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Problem Statement

In this project, we want to solve the issues of DDPG algorithm, such as data inefficiency, computation inefficiency on single computer, unintelligent exploration problem, and leverage previous trained data.

Project Idea

We add adaptive noise to the parameters of algorithm rather than actions to teach agents tasks much more rapidly and directly, and use multi-DDPG structure to choose the best agent as example in order to reduce the “chaos”.

What metrics will you be using to evaluate improvement

- The number of iterations to converge
- Converged rewards
- Animation performance

Closest state-of-art algorithm

‘Parameter Space Noise for Exploration’

Deep reinforcement learning (RL) methods generally engage in exploratory behavior through noise injection in the action space. However, this algorithm adds noise directly to the agent's parameters (parameters of neural network), which can lead to more consistent exploration and a richer set of behaviors. Also, this algorithm demonstrated can be implemented on both off-policy and on-policy, which ranges from DQN, DDPG, and TRPO on high-dimensional discrete action to continuous control tasks.

Point us to the repo online

https://github.com/openai/baselines