

GSOC Application - GFOSS

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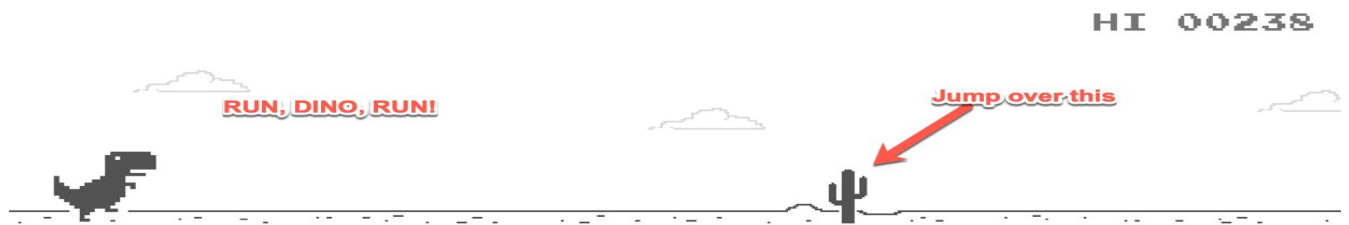
Title : Extend deepbots to support stable-baselines and implement gym-style default Reinforcement Learning environments

Contribution :

- Develop RL based environments which are based on openAI gym scenarios (https://gym.openai.com/envs/#classic_control). I also want to develop other testbeds which are different from the gym based environments.
- The environments should be enhanced to support following categories :
 - continuous state, discrete action space.
 - Continuous state - action space.
 - Discrete space - action
- Implement and integrate DQN, CEM and REINFORCE algorithms in the codebase. Currently, deepbots support DDPG and PPO which are only based on continuous state-action pairs. Other algorithms supporting an enhanced environment catalog will help beginners and researchers to understand much better about the RL algorithms and how they work on different sets of state-action pairs.
- Properly document the use of environment and algorithms to support users in their own implementation. Also, create easy-to-use methods and classes to help other tweak with the hyperparameter optimization of the algorithms and states of the environment.

Am I good enough ?

- I have previous experience in building a python environment and then using it to train a RL agent. [Dino AI](#) - where I created a simple clone of google chrome game.



So, I have 5 value based state objects and 3 actions (0 - nothing to do, 1 - jump, 2- crouch, it might vary for two agent scripts). The results are here.

<https://www.youtube.com/watch?v=mrzyq8SkX0A>

- I have worked on the mentioned algorithms using openAI gym environment and maintain a github repo while applying the algorithms on different gym based environments. Check it here. <https://github.com/sanketsans/openAlenv>
- I am also currently in top leaderboards for some openai gym environments.

Why am I doing this ?

- I am really excited about Reinforcement Learning and especially its applications in human-level intelligence in games. I was fortunate enough to work with RL during my internship and since then I try to learn new algorithms and implement them in a gym based environment or other simple environment which either I find on github or I create them.
- I recently found out about deepbots and it seems exciting to me and since it is still growing, I believe it can give me an opportunity (and a motivation) to work on different RL environment while working on open-source (which is an added bonus).
- Finally, GSOC is a really great opportunity to indulge myself into open source contribution and connect with mentors and like-minded people to establish connections and obviously help the community.
- Besides, I will want to stay with the organization in future as well.