RL Resources

By David Szeto

Three Topics
- RL Toolkit
- awesome-rl
- OpenAI Gym

RL Toolkit

RL Toolkit
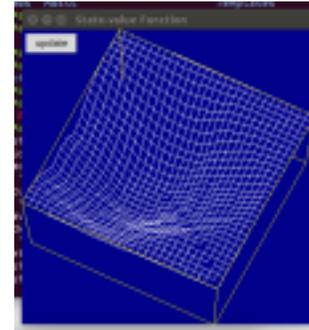
- http://incompleteideas.net/rlai.cs.ualberta.ca/RLAI/RLtoolkit/RLtoolkit1.0.html
- Collection of utilities and demos for reinforcement learning
- Provides a standardized interface between environments and agents: http://incompleteideas.net/rlai.cs.ualberta.ca/RLAI/RLtoolkit/RLinterface.html
- Provides implementation of tile coding to efficiently handle large state spaces
- Provides simple graphics library to easily make graphical displays

RL Toolkit

- Provides various agents and environments
- Uses tk GUI framework
- Recently ported to Python 3 – but!
- ~/Documents/MSc/2542/software_demo/run_rl_toolkit.py
- ~/Documents/MSc/2542/software_demo/run_rl_toolkit_mountain.py

awesome-rl

Awesome Reinforcement Learning

A curated list of resources dedicated to reinforcement learning.

We have pages for other topics: awesome-rnn, awesome-deep-vision, awesome-random-forest

Maintainers: Hyunsoo Kim, Jiwon Kim

We are looking for more contributors and maintainers!
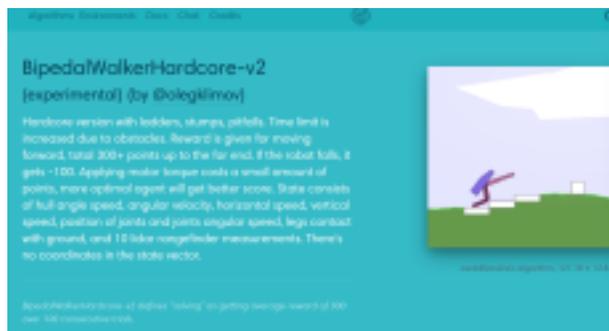
Contributing

Please feel free to pull requests.

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- Codes
- Theory
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  - Surveys
  - Papers / Thesis
- Applications
  - Game Playing
  - Robotics
  - Control

awesome-rl

- https://github.com/aikorea/awesome-rl
- Curated "awesome" list of resources related to RL
- Contains... a lot.
- https://xkcd.com/927/

OpenAI Gym

BipedalWalkerHardcore-v2

(experimental) (by @olegklimov)

Hardcore version with ladders, stumps, pitfalls. Time limit is increased due to obstacles. Reward is given for moving forward, total 300+ points up to the far end. If the robot falls, it gets -100. Applying motor torque costs a small amount of points, more optimal agent will get better score. State consists of hull angle speed, angular velocity, horizontal speed, vertical speed, position of joints and joints angular speed, legs contact with ground, and 10 lidar rangefinder measurements. There's no coordinates in the state vector.

BipedalWalkerHardcore-v2 defines "solving" as getting average reward of 300 over 100 consecutive trials.

OpenAI Gym

- Toolkit for developing and *comparing* RL algorithms
- Provides a standardized interface between agents and environments
- Provides a wide variety of benchmarks for measuring effectiveness of RL algorithms
- Provides a standardized set of environments to get apples-to-apples comparisons

OpenAI Gym

- Python 2 or 3
- Still in beta
- https://gym.openai.com/