Google Research Football

A Novel Reinforcement Learning Environment

Abstract: (Submitted on 25 Jul 2019)
Recent progress in the field of reinforcement learning has been accelerated by virtual learning environments such as video games, where novel algorithms and ideas can be quickly tested in a safe and reproducible manner. We introduce the Google Research Football Environment, a new reinforcement learning environment where agents are trained to play football in an advanced, physics-based 3D simulator. The resulting environment is challenging, easy to use and customize, and it is available under a permissive open-source license. In addition, it provides support for multiplayer and multi-agent experiments. We propose three full-game scenarios of varying difficulty with the Football Benchmarks and report baseline results for three commonly used reinforcement algorithms (IMPALA, PPO, and Ape-X DQN). We also provide a diverse set of simpler scenarios with the Football Academy and showcase several promising research directions.

Reference:
https://arxiv.org/abs/1907.11180

Video:
Google Research Football

Prerequisite:
- Python3
- Virtualenv (to install follow below steps)
  - $ pip install virtualenv
  - $ virtualenv env_name --python=python3
  - Ubuntu: source env_name/bin/activate
  - Windows: . /env_name/bin/activate

Code and Readme:
https://github.com/google-research/football/tree/75e88e49c552f3e096ae4054a1dd1a7ccfb837
#training-agents-to-play-GRF
Solution: set environment variables for MESA driver, like this:
MESA_GL_VERSION_OVERRIDE=3.2 MESA_GLSL_VERSION_OVERRIDE=150 python3 -m
gfootball.play_game

Results:

Source: [https://ai.googleblog.com/2019/06/introducing-google-research-football.html](https://ai.googleblog.com/2019/06/introducing-google-research-football.html)