

Introduction to OpenAI Gym

Jae Yun JUN KIM*

Due: Before the beginning of next lab session

Evaluation: Code, results and explanation about the code

Remark:

- Only groups of two or three people accepted (preferably three).
 - No plagiarism. If plagiarism happens, both the “lender” and the “borrower” will have a zero.
 - Do thoroughly all the demanded tasks.
 - Study the theory for the questions.
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Source: OpenAI Gym website (<https://www.gymnasium.dev/>)

1 Installation

Install first OpenAI Gym from a terminal. It is recommended that you do so from a Python virtual environment.

```
python -m venv venv_gym
(For MS Windows users) .\venv_gym\Scripts\activate
(For Linux or Mac users) source ./venv_gym/bin/activate
pip install gym
```

Verify whether it is well installed and observe its version.

```
pip list
```

Once verified that OpenAI Gym is well installed, code the following Python script:

```
import gym
env = gym.make('CartPole-v1', render_mode = 'human')
observation, info = env.reset(seed=42)
for _ in range(1000):
    action = env.action_space.sample() # this is where you would insert your policy
    observation, reward, terminated, truncated, info = env.step(action)

    if terminated or truncated:
        observation, info = env.reset()
env.close()
```

*ECE Paris Graduate School of Engineering, 10 Rue Sextius Michel 75015 Paris, France; jae-yun.jun-kim@ece.fr

1.1 Note

1.1.1 Error message: pygame is not installed

To solve this issue, type the following command on a terminal:

```
pip install gym[classic_control]
```

1.1.2 Error message: box2D is not installed

You may get an error message saying that “box2D is not installed.” If you do not get this message, then you can skip this section and go to next section. Otherwise, install it with the following command

```
pip install gym[box2d]
```

1.1.3 Error message: Microsoft Visual C++ 14.0 is required

You may receive another error message that says:

```
error: Microsoft Visual C++ 14.0 is required. Get it with "Build Tools for Visual Studio": https://visualstudio.microsoft.com/downloads/
```

Then, go to the website:

<https://visualstudio.microsoft.com/visual-cpp-build-tools/>

Download the Build Tools and install them. Then you will see the installation window. Within this window you need to choose “Desktop development with C++.” Then, hit the **Install** button.