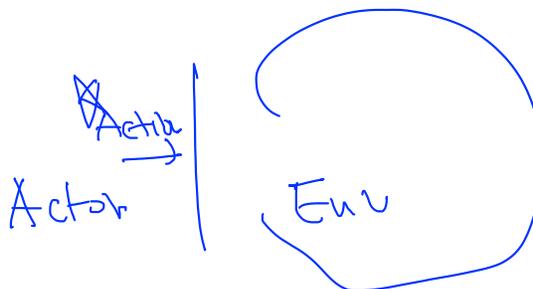




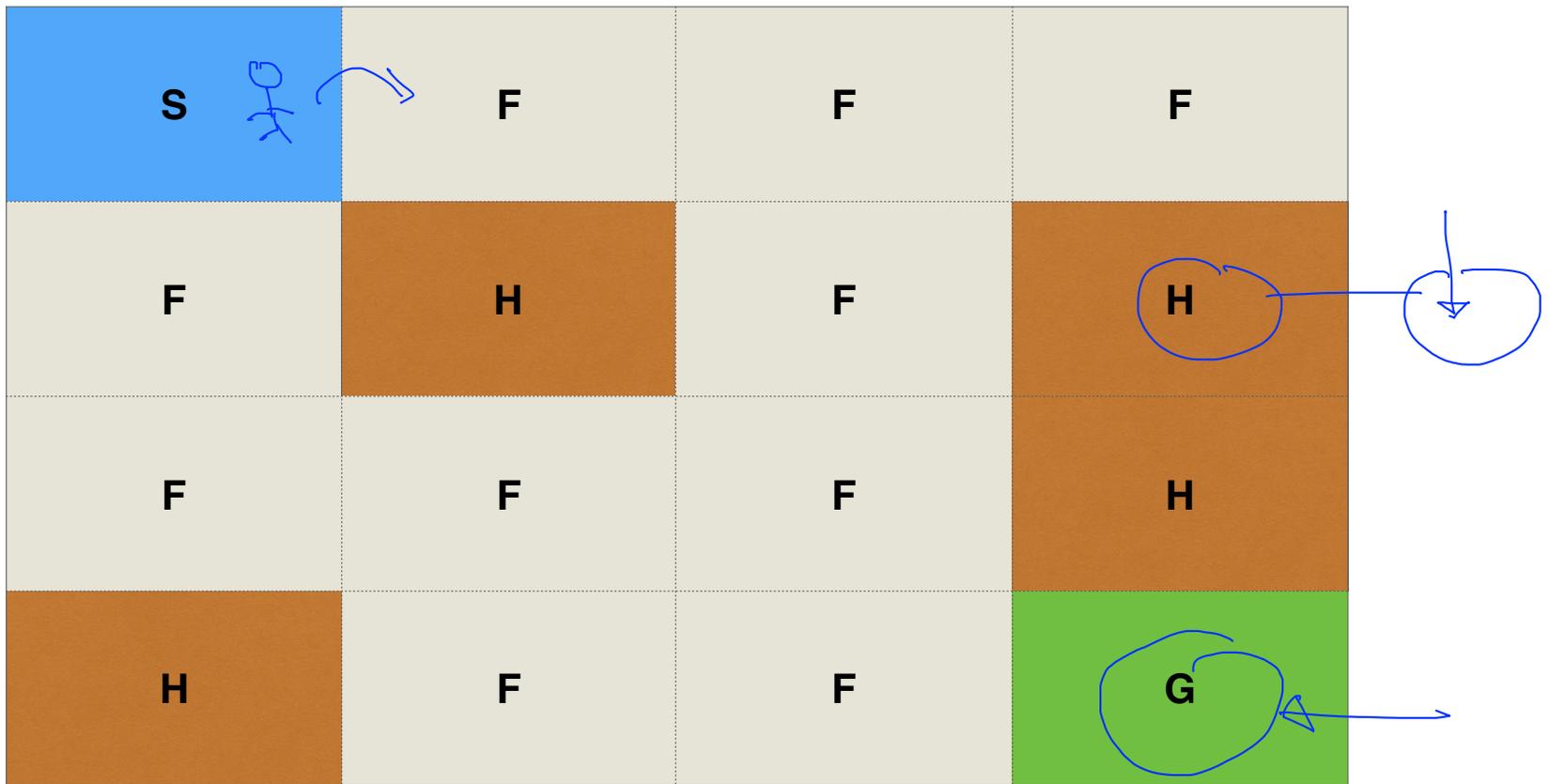
Lecture 2: Playing OpenAI GYM Games



Reinforcement Learning with TensorFlow&OpenAI Gym

Sung Kim <hunkim+ml@gmail.com>

Frozen Lake



Frozen Lake World (OpenAI GYM)



Agent

(1) Action (right, left, up, down)



(2) state, reward



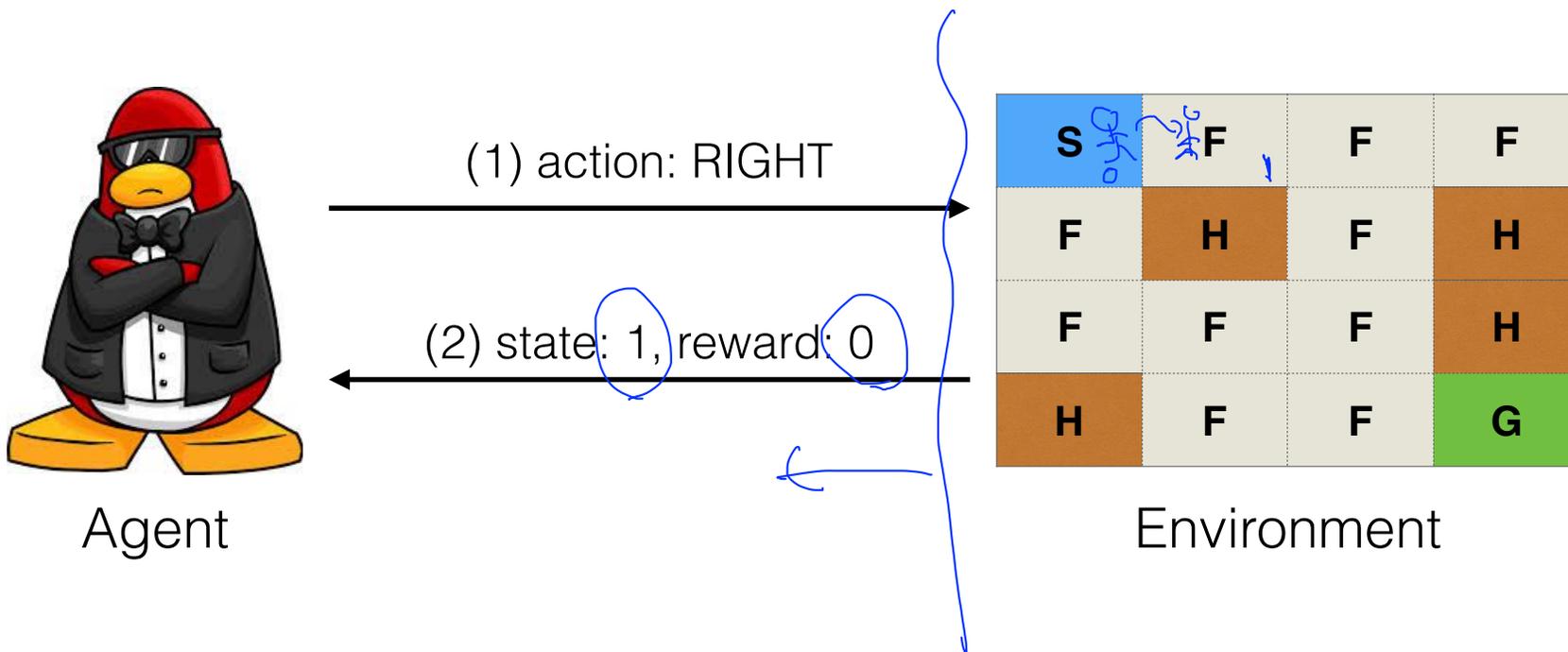
S ₀	F ₁	F ₂	F ₃
F ₄	H	F	H
F	F	F	H
H	F	F	G

state

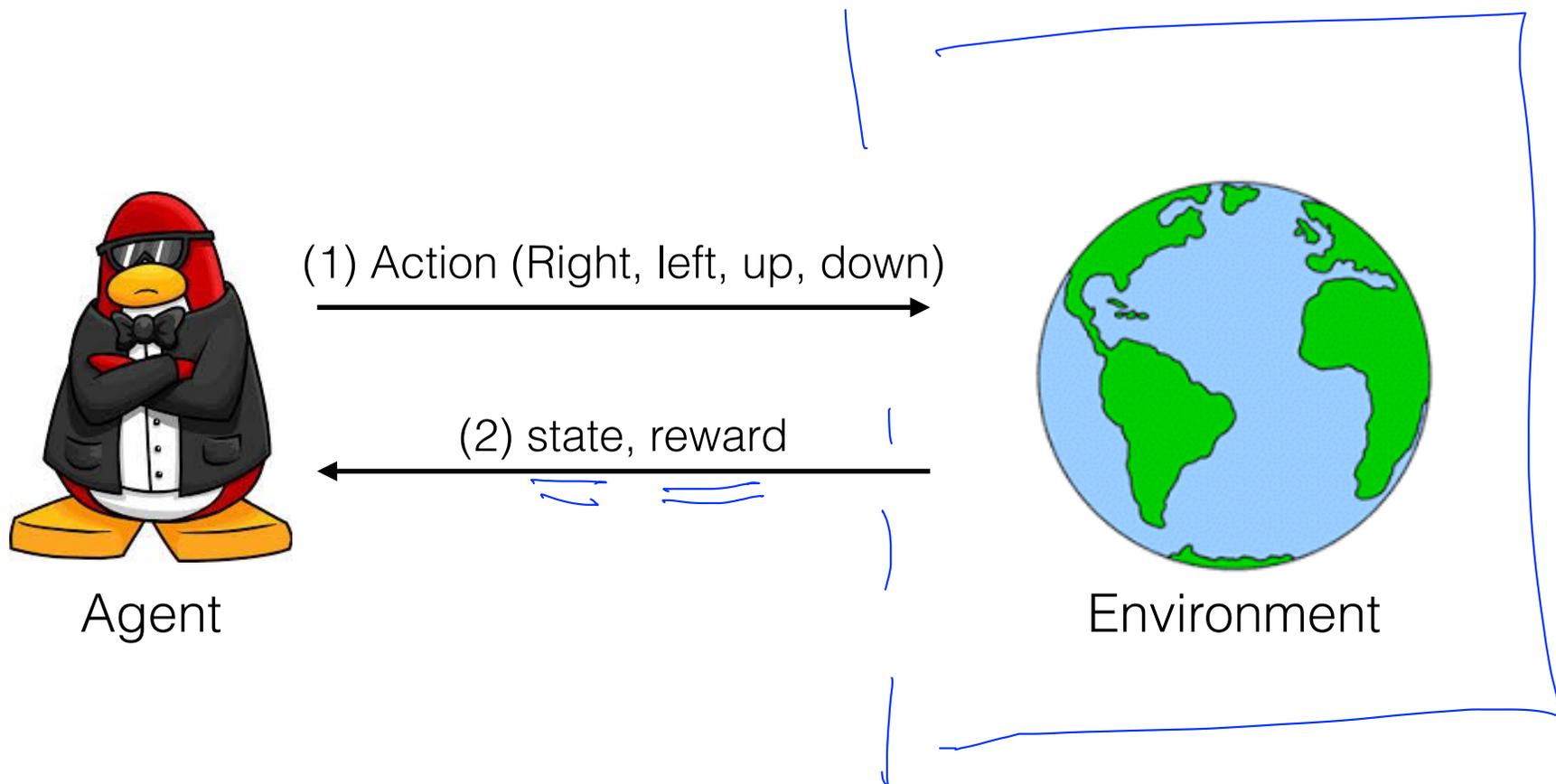
state

Environment

Frozen Lake World (OpenAI GYM)



Frozen Lake World (OpenAI GYM)





A toolkit for developing and comparing reinforcement learning algorithms. It supports teaching agents everything from walking to playing games like Pong or Go.

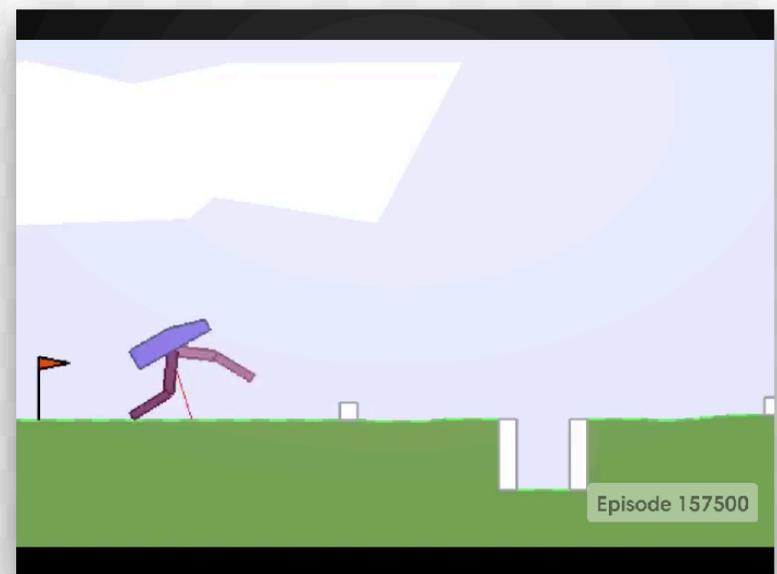
[Read the launch blog post >](#)

[View documentation >](#)

[View on GitHub >](#)



ceobillionaire's algorithm on Qbert-ram-v0



ceobillionaire's algorithm on BipedalWalkerHardcore-v2

<https://gym.openai.com/>

```
import gym
env = gym.make("Taxi-v1")
observation = env.reset()
for _ in range(1000):
    env.render()
    action = env.action_space.sample() # your agent here (this takes random actions)
    observation, reward, done, info = env.step(action)
```



We provide the environment; you provide the algorithm.
You can write your agent using your existing numerical computation library, such as TensorFlow or Theano.

<https://gym.openai.com/>

Frozen Lake World (OpenAI GYM)



(1) Action (Right, left, up, down)



(2) state (observation), reward



Solution

S	F	F	F
F	H	F	H
F	F	F	H
H	F	F	G

```
import gym
```

```
env = gym.make("FrozenLake-v0")
```

```
observation = env.reset()
```

```
for _ in range(1000):
```

```
    env.render()
```

```
    action = env.action_space.sample() # your agent here (this takes random actions)
```

```
    observation, reward, done, info = env.step(action)
```

True
False

Frozen Lake World (OpenAI GYM)



Agent

(1) Action (Right, left, up, down)



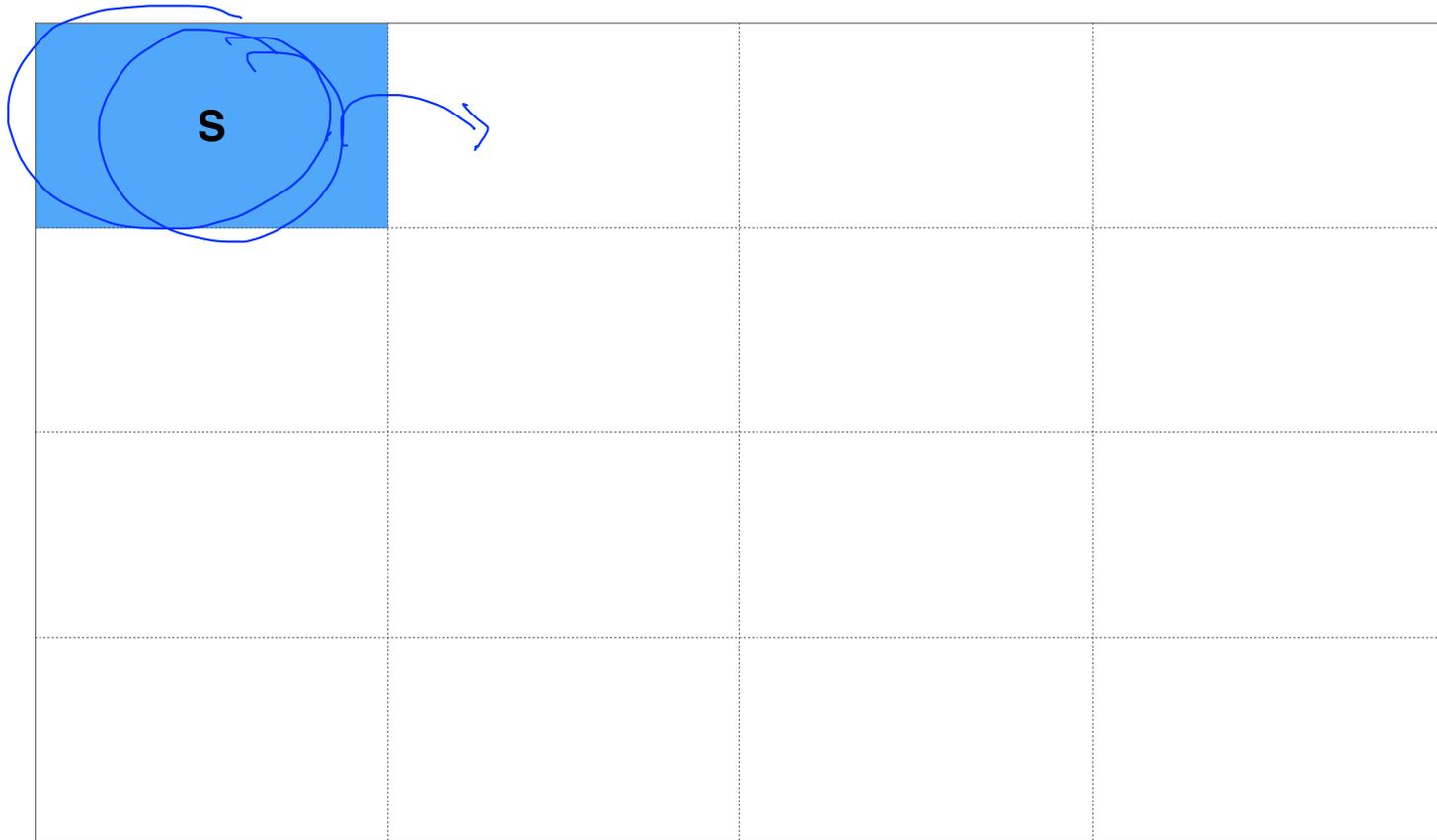
(2) state, reward



Environment



NEXT: Try Frozen Lake Real Game?



Next

Lab

Playing GYM game





Lab 2: Playing OpenAI Gym Games

Reinforcement Learning with TensorFlow&OpenAI Gym

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