Reinforcement Learning on a Real Robot via OffWorld Gym

Kristjan Lõhmus
Viido Kaur Lutsar
About us

- **Project owner:**
  Ilya Kuzovkin *(the expert)*

- **Team members:**
  Kristjan Lõhmus - Data Science MSc
  Viido Kaur Lutsar - Software Engineering MSc

- **OffWorld Gym**
  Provides both a simulated environment and a real environment
  Provides a simple API for controlling the robot
The problem

- Teach a robot to navigate in a real environment
- Using reinforcement learning
- With only visual sensory input data
- The robot has to reach the monolith in the environment
We were aiming to try Deep Q-learning with enhancements such as:

- Priority experience replay
- Doubling

And other Reinforcement learning algorithms:

- Proximal Policy Optimization
- Soft Actor-Critic
Results

Setting up the environment was unsuccessful
Encountered issues on every step:
  ○ Insufficient documentation
  ○ Outdated dependencies
Finally we were met with issues in the source code that we couldn’t solve.

Future:

Help OffWorld via reporting issues (with possible solutions) in the GitHub repo
Create a pull request for Windows support!