
Examples of Environment and Agents

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Examples:

1. Motivational example from Biology
2. Example from a "Unity" set-up
3. A Fascinating Example from Fluid Mechanics
4. Grid World: The basic example of RL

Eagle landing on a rock

Agent:

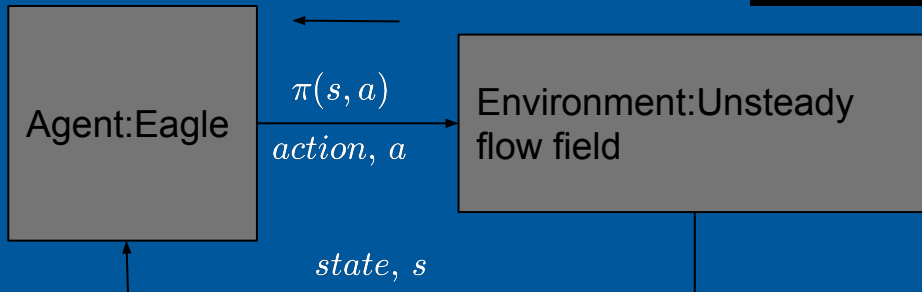
The eagle

Environment:

The nonlinear flow field around the eagle (Unsteady, Turbulent gust/wind)



reward, r

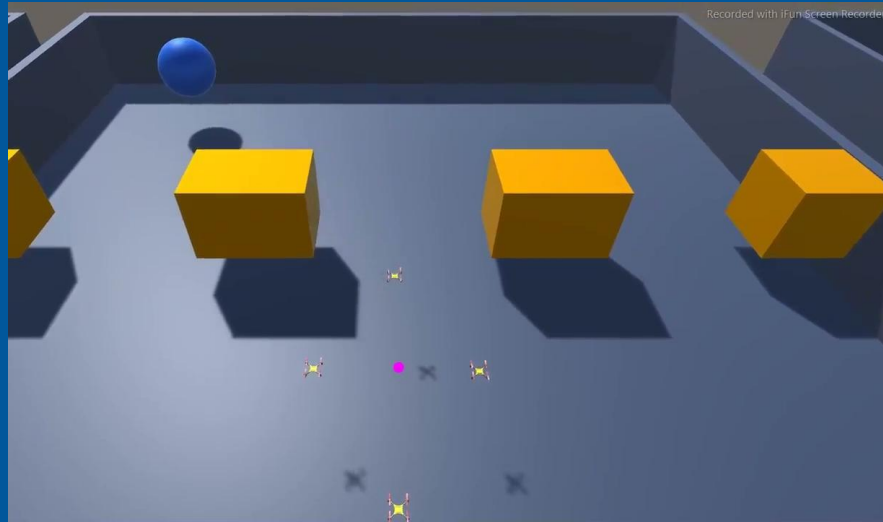


The End Goal,
maybe

Similar biological examples,
school of fish

RL-based impedance control of heterogeneous swarm (mobile robot + virtually linked swarm of drones) in Unity

ML-agent
Toolkit for Unity



<https://github.com/Unity-Technologies/ml-agents/blob/main/docs/Learning-Environment-Examples.md>

Environment



6m

6m

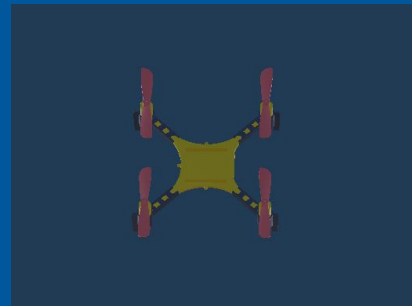
1m

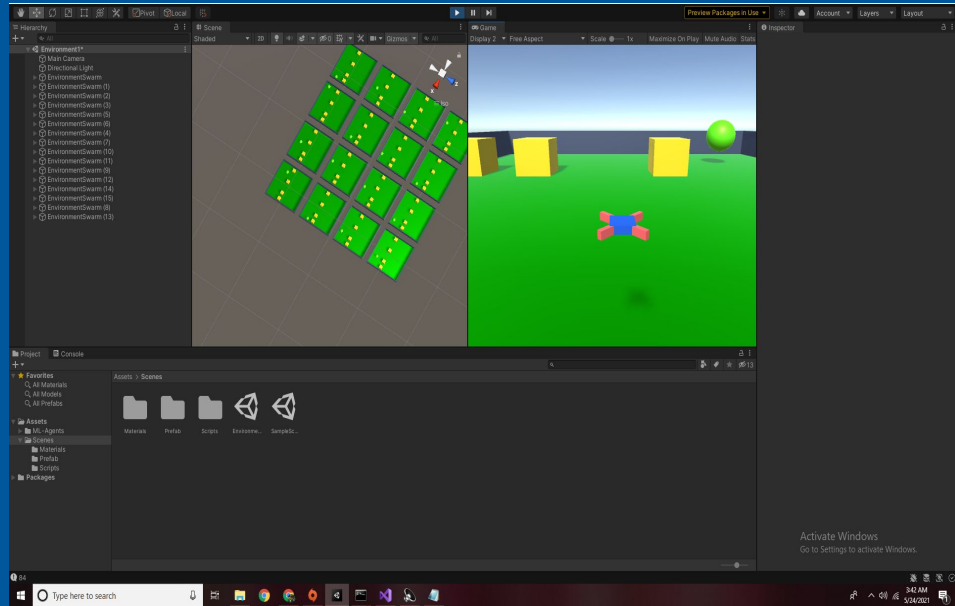
1m

0.5x0.5x0.5 m

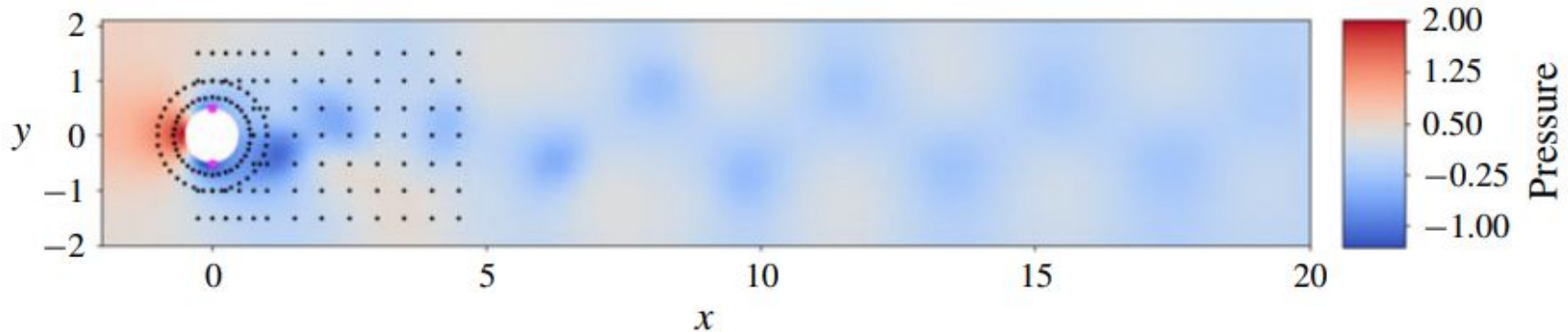
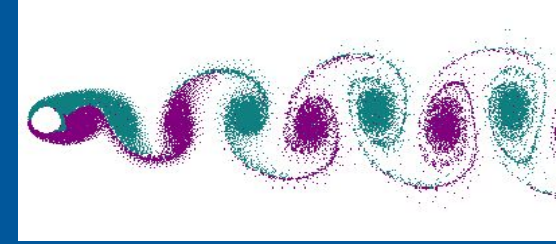
Target
position

Drone agent





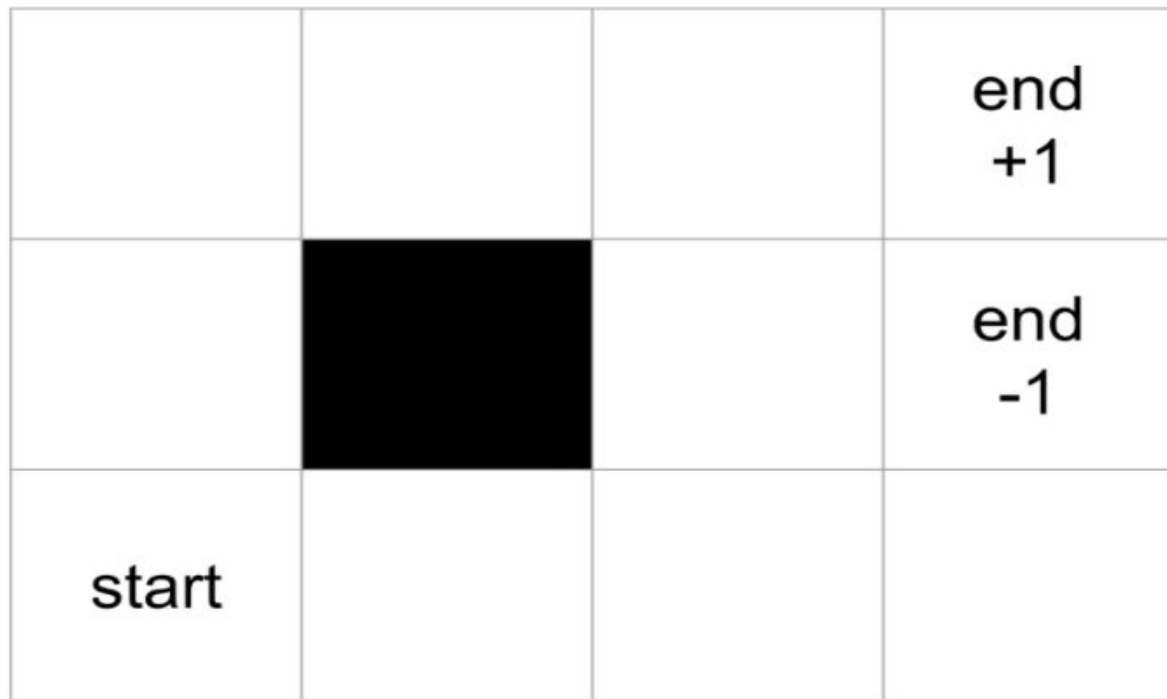
Artificial neural networks trained through deep reinforcement learning discover control strategies for active flow control



doi:10.1017/jfm.2019.62

Grid World: Agent and Environment

<https://towardsdatascience.com/reinforcement-learning-implement-grid-world-from-scratch-c5963765ebff>



Board



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Thank You!