



REINFORCEMENT LEARNING FOR CONTROL

Assignment

Complex controllers can be implemented through deep neural networks that are trained using reinforcement learning (RL). Such a system is self-learning through interaction with an environment. Since RL techniques are data-intensive and learning by interacting with a real-world environment is often not possible, virtual environments are typically used for training the controller. Recent research shows that learning from pixels can be as efficient as from state-based features in case the state is observable from the pixels.

You will use game/physics/rendering engines to train a controller using reinforcement learning. As a specific case, we initially focus on balancing a ball on a platform. We possess such a platform as a physical system at Sioux.

Activities

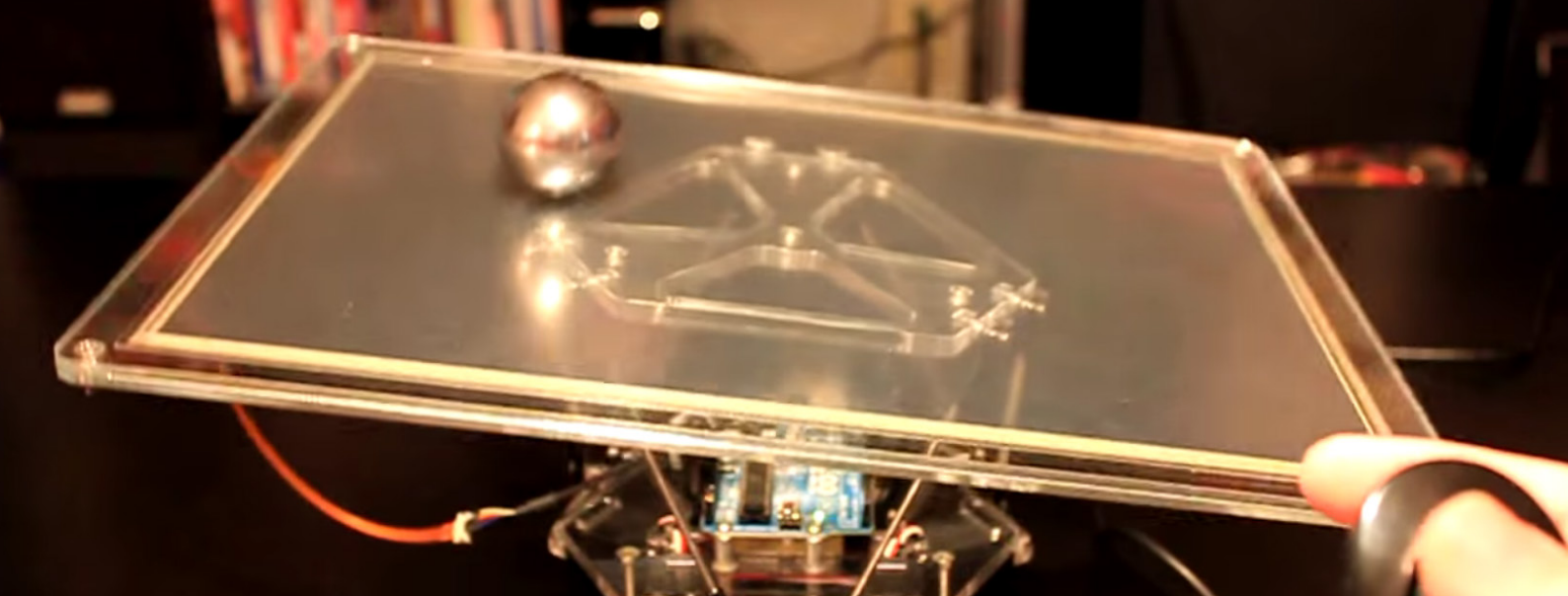
You will investigate simulation tools for RL purposes, in particular Unity and will setup an environment for simulation and training. You will consider various RL algorithms and test a selection of these. You probably need to tweak the training and model so it works.

Internship overview

- Master Student
- Internship (potentially Graduation)
- Mathware
- Location: Eindhoven

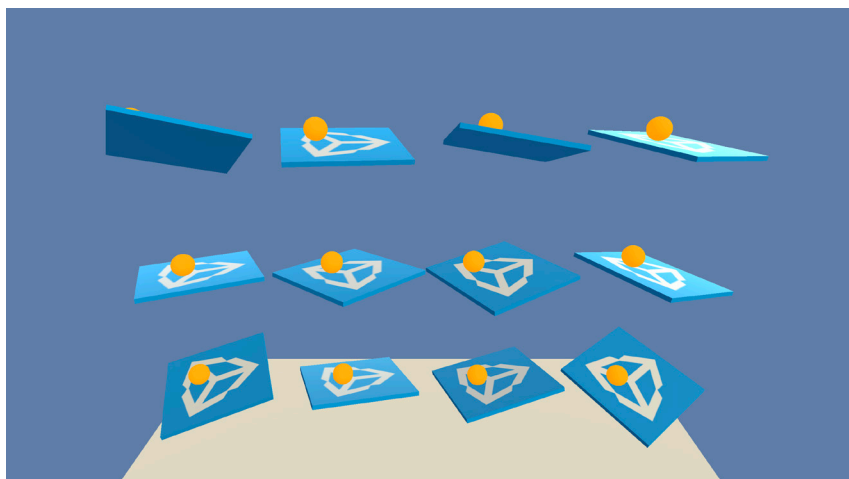
Technologies

- Reinforcement Learning
- Control
- Simulation
- 3D/Game Engines (Unity)



Context

The sim-to-real gap is about learned policies in a virtual environment failing in the real world. How to make it work in a real environment too? If time allows, you could also investigate how to transfer a learned policy in a virtual environment to a real physical system.



Why choose Sioux?

- Working on innovative technology
- Challenging, dynamic and varied work
- A comfortable and personal work environment
- Plenty of opportunities for personal development
- Great career opportunities
- Contributing to a safe, healthy and sustainable society

Get in touch!

Would you like to know more about this student assignment?

Contact:

Casper Gruijthuijsen

+31 (0)40 751 61 16

werving_mathware@sioux.eu