

**Exercise: Learning from Demonstrations / Imitation Learning (ca. 2h)**

In the lecture we talked about an alternative approach to Reinforcement Learning: Instead of leaving the robot alone to explore the world by trial-and-error, we could help it by showing the robot some examples which action we would perform in some situations (states).

Implement a “Learning from demonstrations” scenario!

For this, first augment your robot simulator such that you can record actions for the robots, e.g., the user controls the robot via the arrows keys. Augment your simulator such that you can save recorded (state, action) pairs in a text file and when the simulator is restarted, these demonstration data items shall be reloaded from the file.

Then think about and implement some approach such that the demonstration data items are used to control the robot similarly to the way the teacher has demonstrated it.