

Application of Reinforcement Learning Methods

Group 19 - Final Project Report

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Abstract TODO

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1 Introduction

We present our final results of evaluating the reinforcement learning algorithms *Deep Deterministic Policy Gradient* and *Natural Actor Critic* on the simulated quanser systems platforms *Pendulum-v1*, *BallBalancerSim-v1*, *Qube-v0*, *DoublePendulum-v0*. We also present the results of the NAC algorithm on the real double pendulum hardware system.

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2 Deep Deterministic Policy Gradient

2.1 Evaluation on Pendulum-v1

2.2 Evaluation on BallBalancerSim-v1

2.3 Evaluation on Qube-v0

3 Natural Actor Critic

3.1 Evaluation on Pendulum-v1

3.2 Evaluation on DoublePendulum-v0

3.3 Evaluation on the Real Double Pendulum System

3.3.1 Using a Pretrained Model

3.3.2 Learning from the Physical System

4 Conclusion

References