

STELLENAUSSCHREIBUNG

Masterarbeit

GENERALIZATION IN REINFORCEMENT LEARNING

UMFELD

Investigating and Benchmarking the Robustness of State-of-the-Art Reinforcement Learning Algorithms against Changes in the Environment

Deep Reinforcement Learning (RL) is a promising field of research with impressive results on many tasks such as playing Go or Chess. However, even state-of-the-art RL agents are limited in their ability to generalize acquired knowledge towards previously unseen tasks. This limits their applicability in real world, non-deterministic environments.

The purpose of this thesis is to compare how different RL agents perform if presented with previously unseen environments. In this context she/he develops non-deterministic OpenAI Gym environments and a systematic procedure to assess an agent's generalization performance. Hereby, the student acquires state-of-the-art knowledge of generalization in RL and provides the research community with a systematic evaluation framework for generalization.

AUFGABEN

- In-depth literature review about generalization techniques in reinforcement learning
- Development of a test bench for the generalization of reinforcement learning algorithms
- Experimental comparison of state-of-the-art RL algorithms in non-deterministic environments

WIR BIETEN

- Continuous and thorough mentoring of the student
- A highly motivated and fun team
- Constructive teamwork

WIR ERWARTEN

- Basic knowledge in python programming and reinforcement learning
- Ability to plan and work independently
- Very good knowledge of German or English

BEWERBUNG

We are looking forward to your application to Patrick Philipp (philipp@fzi.de) or Marco Heyden (heyden@fzi.de).

Please provide us with the following information:

- Transcript of Records
- CV

WEITERE INFORMATIONEN

- Start: From now on
- Responsible institute at KIT: AIFB | Prof. Dr. York Sure-Vetter
- Themen-Schwerpunkt: Automation und Robotik, Wissen und Informationsdienste
- Studiengänge: Informatik, Informationstechnik, Informationswirtschaft,
Verwandte Studiengänge