Deep Learning Lab Course 2017
(Deep Learning Practical)

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Final project

Towards working in research

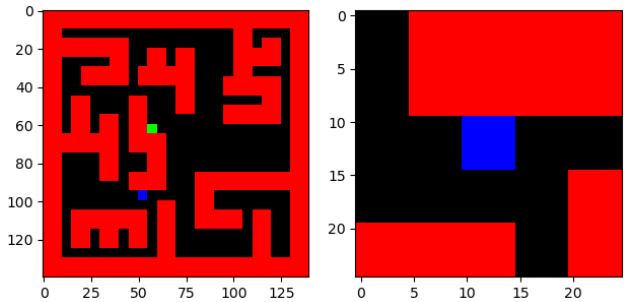
- The last exercise is your final project. The idea is to improve previous exercises with some more advanced concepts and present your work in a joint poster session to other students and staff from the dl lab.
- The final project requires you to send us code, your poster and to present your work at the poster session.
- The poster session will take place on Monday 12.02.2018 in the Kinohörsaal and starts at 2.15pm. Be there earlier to hang up your poster before.
- We will provide you with a poster template. Prepare your poster in A0 format and send it as pdf (github,bitbucket) to your respective tutor kleinaa@informatik.uni-freiburg.de or eitel@informatik.uni-freiburg.de

Hand in your final project on the **12.12**.
Work in groups of 2-3 people (no individual projects).

Topics

We have several topic ideas but you can also suggest your own ideas and we will check if they are feasible. If possible choose your topic today or send it to us via email on 17.01.2018.

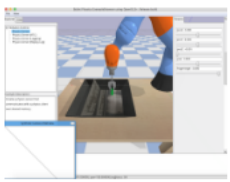
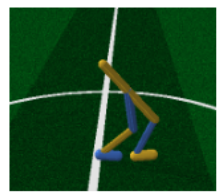
Visual planning topics



Improve the agent of exercise 4:

- Hyperparameter optimization for visual planning together with students from ML/CV track. Optimize network architecture and learning process.
- Curriculum learning for changing target problem.
- DQN with target network and experience replay.
- DQN with prioritized experience replay.
- DQN with noisy nets for exploration.
- DQN with multi-step targets.
- Visual planning with moving obstacles (pedestrians).
- Implement imitation learning algorithm for changing target (DAGGER).
- Exploration strategies for visual planning with changing target.
- Implement policy gradient method or actor critic for visual planning with fixed target.

General Deep RL topics

KukaBulletEnv-v0	HalfCheetahBulletEnv-v0	Walker2DBulletEnv-v0
		

- Implement DQN for Atari games.
- Compare three different deep RL algorithms on OpenAI gym/pybullet environment
- Your ideas . . .