Prof. Joschka Boedecker, Gabriel Kalweit, Maria Huegle, Andreas Saelinger

Reinforcement Learning
Exercise 7

0 Preliminaries

Our implementations will be based on PyTorch[1] and OpenAI Gym[2]. Follow the instructions for installation.

1 SARSA with Non-linear Function Approximation

This exercise is based on the discrete Mountain Car environment from OpenAI gym. We modified the reward function to yield the distance to the goal in order to make exploration easier. You find the environment in `mountain_car.py`.

(a) Implement a neural network representing the Q-function in `sarsa_fa.py`.

(b) Implement semi-gradient SARSA as discussed in the lecture based on your neural network as function approximator in `sarsa_fa.py`.

2 Experiences

Make a post in thread *Week 07: On-policy Prediction and Control with Function Approximation* in the forum[3], where you provide a brief summary of your experience with this exercise and the corresponding lecture.

[1] `https://pytorch.org/get-started/locally/`
[2] `https://gym.openai.com/docs/`
[3] `https://ilias.uni-freiburg.de/goto.php?target=frm_1837317&client_id=unifreiburg`