Coursework (1) for *Introductory Lectures on Optimization*

Your name
Your ID

Oct. 1, 2022

Excercise 1. Please provide several main optimization forms in reinforcement learning.

Solution of Excercise 1: bla.bla... bla bla.. bla. □

Excercise 2. Please investigate what other commonly used oracles exist in the field of optimization, besides zeroth-order, first-order, and second-order oracles.

Solution of Excercise 2: bla.bla... bla bla.. bla. □

Excercise 3. For the performance analysis of the Uniform Grid Method, Proof that

$$\left(\left\lfloor \frac{L}{2\epsilon} \right\rfloor + 2 \right)^n , \text{ and } \left(\left\lfloor \frac{L}{2\epsilon} \right\rfloor \right)^n ,$$

coincide up to an absolute constant multiplicative factor if $\epsilon \leq O(\frac{L}{n})$.

Proof of Excercise 3: bla.bla... bla bla.. bla. □