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Autonomous robotics: Action, Perception, and Cognition

June 9, 2024

Exercise 5 Potential field approach

Please upload solutions on the web page before midnight on **June 16, 2024** (Sunday).

This exercise invites you to read the Chapter on "Motion planning" by Kavraki and LaValle, which is part of the *Springer Handbook of Robotics* (Sicilian, Khatib, editors, 2nd edition 2016) provided as background reading on the webpage. [This handbook is available as a pdf with multimedia contents for RUB members at `https://link.springer.com/book/10.1007/978-3-319-32552-1`].

You may look over the entire chapter to get an impression of the style in which this work is framed. It is often useful to read the opening paragraphs of sections, but skip all the technical contents, which often goes beyond what you may be able to understand given your background.

The Sections 7.1 and 7.2 are useful reading to support what was mentioned in the last lecture.

Read in detail only Subsection 7.4.3 on the Potential Field Approach.

Apart from reading this material, your only task for this exercise is to describe in your own words the difference between the attractor dynamics approach and the potential field approach. You may first want to point out in which ways these two approaches are similar or share conceptual assumptions, and then point out the differences. A text-only description is fine, but feel free to use equations or drawings if you find that useful.