ME 149: Final Project Submission

Optimal Control for Robotics

Assigned: April 3 — Due: April 29 at 11:55pm

Deliverables

You should submit two items to Trunk for your final project. The first is a `.pdf` format write-up and the second is a single `.zip` file that contains all of your source code. Both files are described in detail in the following sections.

If you are working with a partner, then both students should upload report and source code files to trunk. The files should be identical and the report should include both students names.

Project Report

The main body of the report should not exceed four pages. You may choose to include an appendix. The appendix has no page limit but each section must be referenced from within the main body of the report. The report should be written in a clear and concise manner, and it should contain equations, figures, and references where appropriate. The report can be organized however is best for your project, but take a look a some conference papers for inspiration. A good report will include a clear description of the problems being solved, written both in english and equations; a clear statement of the transcription method(s) and the resulting non-linear program; and a summary of the results.

Source Code

The source code should be well written and clearly documented. There are several requirements:

- There must be a `README.md` file in the top-level directory. As the name suggests, this file should be written in Markdown. This file should provide an outline of how your code is organized and any other information that will be useful to someone reading your source code. This file should also include a description for each entry-point file that you have provided.

- There should be one or more entry-point scripts in your top-level directory. These scripts should be named `MAIN_<description>.m`, and each should include documentation at the top of the file that describes what it does in detail.

- The entry-point scripts should run! You may assume that the test computer will have the code library for the course on the Matlab path. Clearly state any other dependencies in the `README.md` file as well as the entry-point scripts.

- Your function files should all be named in `camelCase.md` and provide help documentation following the format used throughout the class in the assignment solutions.

- You code should be well written and documented.

- Running each entry-point script should produce a set of plots that provide useful information about the problem being solved and the solution.

- Create a directory called `results` and save a `.pdf` version of each figure that your code generates.

Grading

I have included a draft of the rubric that I plan to use for grading the final project. This is included as a guide for helping to focus your work on the project, rather than as a script contract. I will award up to five additional points for projects that are ambitious and well done.

- **Project Proposal: 5pts**
- **Meets Basic Requirements: 10pts**
- **Meets Advanced Requirements: 5pts**
- **Code Runs: 10pts**
- **README.md: 5 pts**
- **Code — Documentation: 5 pts**
- **Code — Style: 5pts**
- **Code — Correct Implementation: 10pts**
- **Report — Problem Statement: 10**
- **Report — Methods / Transcription: 10**
- **Report — Results: 10**
- **Report — Correct Math: 5 pts**
- **Report — Clarity and Organization: 10 pts**