set_3

March 16, 2018

0.1 6.832: Problem Set #3

Due on Friday, March 16, 2018 at 17:00. See course website for submission details. Use Drake release tag `drake-20180307`, i.e. use this notebook via `./docker_run_notebook.sh drake-20180307 .`, or whichever script you need for your platform.

To submit for autograding, upload this file, *and also the inertial_wheel_pendulum.py and inertial_wheel_pendulum_visualizer.py files supplied to you with any modifications you have made*, to the "Problem Set 3, Code Submission" assignment.

0.2 About this problem set

This problem set will entirely live inside this jupyter notebook.

Grades will be assigned based on three components:

- **Manually graded free-response questions** -- the TAs will manually assign grades to your answers to short answer responses. You can write inline responses using Markdown with inline LaTeX -- double-click on any problem writeup to see some examples. Double-click response areas to edit them, and press Control-Enter to finish editing them.
- **Automated code testing** -- we will run automated tests against specific functions (see more details when we introduce the first coding test).
- **Quick code review** -- we will perform a quick manual check to make sure you have actually implemented the functions correctly (as opposed to hacked the unit tests to pass!).

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1 1. Lyapunov Theory

The following are a series of short answer problems meant to test your understanding of Lyapunov functions and Lyapunov theory.
