AE483: Lab #4 Rubric

T. Bretl

November 29, 2017

Your activities in Lab #4 will be assessed with the following rubric.

(30%) Attendance (assessed individually)

You are expected to attend lab during the section for which you enrolled. If you must be absent on a certain day, please speak with your TA or with Prof. Bretl at least one week in advance.

- (10%) You arrived on time and participated actively throughout the first lab session.
- (10%) You arrived on time and participated actively throughout the second lab session.
- (10%) You arrived on time and participated actively throughout the third lab session.

(30%) In-Lab Demos (assessed as a group)

Your group is expected to show all of the following things to your TA during lab. (More detail about each one is provided in the lab manual.) If you do not finish these things during your lab session, you may show them during any TA's office hours until the time at which your report is due.

From agenda for the first day:

- (4%) You created a movie of your working planner (implemented in MATLAB), with ten spherical obstacles placed at random.
- (3%) You described why you chose the parameters you did.
- (3%) You identified at least one situation in which your planner gets stuck.

From agenda for the second day:

- (5%) You showed the simulator running with your working planner (implemented in C).
- (5%) You described why you chose the parameters you did, justifying any difference from what you chose for your MATLAB implementation.

From agenda for the third day:

- (2%) You showed your TA the quadrotor at hover.
- (4%) You showed your TA the quadrotor avoiding a stationary obstacle.
- (4%) You showed your TA the quadrotor avoiding a moving obstacle.

(40%) Report (assessed as a group)

Your group is expected to submit a report no later than 11:59PM on Friday, December 8. No late submissions will be accepted for any reason. Your report must satisfy the following requirements:

- It is a PDF with size 8.5x11 pages.
- It uses font "Times New Roman" (or similar) and size 12 point.
- It is single-spaced.
- It has 1-inch margins.
- It has a title, a list of authors, and a date.
- It has a minimum of six pages and a maximum of eight pages.

Any report that does not satisfy these requirements will receive zero credit. You are encouraged to submit your report early and to follow up with your TA to confirm that it satisfies requirements. (You may resubmit a new draft of your report with the same filename at any time before the deadline.) The four sections of your report will be evaluated as follows:

- Goal
  - (2%) There is a section with this title.
  - (4%) An engineer would understand what you wanted to do after reading this section.
  - (4%) An engineer would know how successful you were in doing what you wanted after reading this section. (You do not have to be 100% successful.)
- Method of approach
  - (2%) There is a section with this title.
  - (4%) An engineer would be able to implement your method of collision avoidance after reading this section.
  - (4%) An engineer would be able to repeat your experiments (both in simulation and in hardware) after reading this section.
- Results
  - (2%) There is a section with this title.
  - (4%) There is at least one figure in this section. It, and all other figures in the report, have the following characteristics:
    - Each figure has a descriptive caption.
    - Each figure is labeled, for example, Figure 1, Figure 2, etc.
    - The axes in each figure have descriptive and appropriately sized labels.
    - The tick labels (i.e., the numbers along the horizontal and vertical axes) in each figure are appropriately sized.
    - The lines in the plot (both axis lines and data curves) are sufficiently thick.
    - Plots containing more than one set of data contain a descriptive legend that is appropriately sized.

  - (2%) An engineer would understand the extent to which results in simulation matched results in experiment, by looking only at the figures in this section, even if he or she ignored every other part of the report.
  - (2%) An engineer would understand the extent to which the performance of the planner was good both in simulation and experiment, by looking only at the figures in this section, even if he or she ignored every other part of the report.

- Discussion
  - (2%) There is a section with this title.
  - (2%) An engineer would understand how closely the actual position matched the desired position in each experiment, and would understand at least one possible reason for any difference, after reading this section.
  - (2%) An engineer would understand how closely the results in experiment matched the results in simulation, and would understand at least one possible reason for any difference, after reading this section.
  - (2%) An engineer would understand how "good" your planner was, and would understand what you mean by "good," after reading this section.
  - (2%) An engineer would understand the limitations of your planner (e.g., the situations in which it "works" or "does not work"), after reading this section.