ME 586: Biology-Inspired Robotics

University of Washington

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writing good reviews

Overview Good paper reviewing is an important part of the job of a researcher. The purpose of writing reviews is to get you to both understand the paper and be aware of its limitations. For this course, a good review consists of **at least 4 sentences, but not more than two paragraphs** that *in your own words*

1. succinctly summarizes the main contribution of the paper
2. notes one major strength of the paper
3. notes one major weakness or where it needs correction or improvement, and
4. suggests one question or future work direction that should be followed, or makes some connection to another paper.

Some remarks.

- You will not be able to understand all of the details of most papers, but it is important to bet the basic points correct. You may perform background reading/research online to better understand the paper, but it is not expected.
- In an ordinary academic paper review, you are asked to recommend whether a paper should be accepted or not, but this is not required for this course.
- Additionally, your review will be shorter than a typical academic review.

Below is an example review that you may use as a guideline for this course:

> This paper describes the procedure for landing a small, light, fixed wing glider on a suspended string perch. This maneuver requires aggressive maneuvers with non-steady airflow, which requires an accurate model and a robust control scheme. To do this, the authors used an IR motion capture arena to track the location, orientation, and control surface deflections of the aircraft over the course of 240 flights. The data was then used to estimate parameters like longitudinal aerodynamic coefficients at various angles of attack, including angles well within the region of stall. The authors then designed an optimal controller that carefully controlled drag forces during stall to slow the aircraft and land successfully on the perch. The experiment was deemed a success since 1 out of 5 flights resulted in the aircraft perching successfully – excessive error was introduced by the launcher the other 4 out of 5 times.
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> This paper introduces a very interesting concept (fixed-wing perching), and they introduced a method to derive a model that can be used for control from the behavior of the aircraft itself, rather than analytic models that may not capture important effects. They failed, however, to justify the need for this task by not giving any useful examples of these maneuvers. In addition, this method for determining the system model and optimal control scheme is very complicated and not very robust. For further research, it would be interesting to see how well the unsteady system model they derived predicts other types of aggressive maneuvers.