

BioE 2696/ECE 2695 Literature Review Project

1 April 2009

A 15% component of your grade is a literature review project. This is an opportunity for you to dive more deeply into a particular topic from the class that interests you, or to explore a field related to the course, even if we did not cover it directly. For your literature review, you will research and read a body of papers related to a single theme, and digest them so that you can write a cohesive written summary. Here are some guidelines:

- The due date is April 22nd.
 - You are HIGHLY ENCOURAGED to submit a title and draft bibliography for your research report on or before April 15th. And, if you wish to submit a draft of the report itself, we will provide feedback.
 - Each person must work on their literature reviews separately. Of course it's OK to discuss your papers with your classmates, and get their ideas or opinions, but each person must submit their own paper.
 - Please summarize at least three journal article in a written document about 5-7 pages long (plus a bibliography). The three articles can't be review articles - you can include review articles in your research and in your presentation, but they must be in addition to three research articles. (If you have any questions about whether an article is original research or a review, ask Aaron or Mao.)
 - Of course, to find three good articles, and to really understand them, you should expect to read at least superficially several others as well. As a rough estimate, you should expect to find and peruse about ten articles on your topic. The first three you uncover on a topic probably won't turn out to be the best three to write on.
 - It is OK if the papers are related to your project, but it is better if they are on a different topic. You can only have two of your main papers overlapping with the other members of your group.
 - Feel free to choose any of the topics we discuss in class, but you can also look beyond those topics if there is something else that intrigues you. (Remember chicken head stability?)
 - Write your report assuming we have not read the articles. Nevertheless, make sure you give a deep summary of the papers. For each paper, summarize its main findings. Point out the further opportunities for experiments or modeling you would pursue, if it was your own work. If you spot any flaws or concerns with the papers, indicate them. And, of course, highlight the links between the papers. How do they go together? For example, do they reinforce or contradict each other? What are the remaining "big questions" in the field you chose to explore?
 - For those of you who may be fairly new to a literature survey like this, some tools to get you started. These library tools may only work from computers on the campus network.
- 1) Start at pubmed.org. Type in the name of a keyword, author, or topic you are interested in. Select a few interesting-sounding papers. Look at the bibliography in those papers to find other relevant articles - perhaps you want to identify the "classics" in the field to get you started.

2) Once you've found a paper, author, or a topic you are interested in, use the citation index to find other relevant papers. Go to isiknowledge.com, and type in the author, paper, or subject you are interested in. Sort the results by "times cited." There are several things you can use this for:

- 1) What is an author's (or a field's) most impactful ("classic") paper?
- 2) What are some more recent studies that may follow up on an old classic?

We hope you will enjoy this literature review as an opportunity to explore the many exciting fields in which control theory and systems analysis interact with neuroscience. There are many, and we can only cover a subset of them in the lectures!