Thesis Reading and Critique

Due date: Monday, April 25, in-class

Assignment

Your first assignment in this course is to read through a number of M.S. theses, and to present your critique and analysis of them. The assignment has two parts: the reading part, and the critique part.

Reading Part.

You need to select four published M.S. in Computer Science theses for reading and review. The theses shall be selected using the following two-step process:

- **Thesis sources.** The key resource for looking up M.S. theses is Cal Poly's Digital Commons library portal. M.S. theses from 2008 through 2015 are found at the following URL:

  http://digitalcommons.calpoly.edu/theses/

  You can search the thesis list for `"Computer Science"` (this should bring up most of the theses, but the sort order will not be chronological). Alternatively, if you know the names of the students whose theses you want to access, just search for their names.

  Step 1: Full read theses. You will select two M.S. theses for *full read*. By **October 1** email me the titles of the theses you selected and the names of their authors.

  Step 2: Cursory read theses. On October 1, I will make public the full list of theses everyone has selected. *From this list* each of you need to select *at least* **two more** M.S. theses for a *cursory study*. By October 3 email me the titles of the extra theses you selected and the names of their authors.

Thesis Selection. For **full-read theses** you should try to select at least one thesis that is close to your field of study/project. If you need some guidance in that respect, feel free to consult either myself (I may remember some students who had M.S. theses in the area you are interested in), or your thesis advisor who may recommend some theses of his/her students.

For **cursory-read theses** select any thesis that looks interesting to you from the list of theses selected by your classmates. This way, most of the theses in the class will be read by at least two people. Note, that **full-read theses** DO NOT have to be unique - any number of students is allowed to choose the same thesis for a full read.

Also, while it may be tempting to pick theses from last year, please consider reading some of the earlier theses.

Aside from that, it is just as important for you to read a good thesis document as it is to read a document that is imperfect - the latter will allow you to better recognize problems with writing theses and NOT commit the same mistakes in your own work.

Assignment. Once your theses are selected, study them. For **full-read theses** you must read them in their entirety and attempt to understand as much of the work as possible. Your critique of full-read theses shall be based on the entirety of your experience reading the work.

For **cursory read theses** you must read at least the following parts of the document: *introduction*, *background*, *problem statement*, *outline of solution*, *outline of validation*, *results*, *conclusion*. You may leave off (but do not have to), the in-depth related work, solution design, solution implementation and validation design. The idea is as follows: you need to read enough to understand what the thesis is about, what problem the author is solving, and how well the author has actually solved it.

Critique/Analysis part

For this part of the assignment, do the following:

1. Analyze/Understand the structure of each thesis. Think of the following:
   - Do you think the structure of the thesis was successfully chosen?
   - Would you choose similar structure?
   - If the structure is imperfect, in your opinion, how would you improve it?
2. For each of the theses you selected, create a written evaluation. Your evaluation shall follow the standard established in previous courses: a few paragraphs of text followed by a formal evaluation based on the 11 criteria specified below.

Thesis Evaluation Criteria

You shall evaluate each thesis based on the following criteria:

1. **Problem Definition.** Is the problem properly defined? Is it clear?
2. **Writing Quality.** How well is the thesis written? Is the flow of the presentation easy to follow? Are there numerous typos, grammar errors in the text?
3. **Contribution.** Does the thesis advance the state-of-the-art in the field? How significant is the thesis to the field? (use your best guess on this. rely on the related work/background information provided in the thesis and your common sense, if the thesis is not in your area of expertise/research)
4. **Originality and innovativeness.** Are the ideas in the thesis novel? Does the attempted/completed work have analogs in research? Does the thesis break any new ground?
5. **Technical Depth.** How much technical depth does one need to understand the work described in the thesis? How well is this depth reflected in the text?
6. **Implementation.** Is there an implementation? How through does it appear to be? How well is it described?
7. **Validation.** Is there any validation to the main ideas of the thesis? How well-designed is the validation? How thorough is it?
8. **Potential for publication.** Did the research yield publishable results? How strong is the work presented and where can it be published?
9. **Potential of future research.** Does the research have natural extensions? Are there interesting unsolved problems raised by the thesis work?
10. **Overall quality of the project.** What is your overall impression of the work done by the student?
11. **Overall quality of the thesis.** What is your overall impression of how well the student captured his/her work in a thesis document?

Your thesis analysis page shall score the thesis on each criterion. For simplicity use $1 - 5$ scale:

Score	Meaning
1	Really Poor
2	Below Average
3	Average
4	Good
5	Excellent

(Feel free to use decimal values, e.g., 3.2, 4.5, 2.8).

Honor System

Generally speaking, it is possible to fill out the evaluations for the theses w/o reading them, simply restating the information contained in existing evaluations. I have little recourse against that. The reason why you are assigned massive reading in this class is to make your own eventual thesis documents better. This implies reading a few existing M.S. theses: both good and not so good, and analyzing both the content (what was done) and the write-up (how it was presented) and drawing conclusions for yourselves, on what works and what does not.

I have little recourse against you cheating on this assignment, short of engaging you in in-class discussions about the contents of each thesis. So, we use the honor system: you actually read the theses, while I trust you to have done so.

Submission Procedures

Submit your reviews to the course wiki. The wiki will have critique pages for some theses. If you are reading of the the theses with an existing critique page, submit your review there, and use the template provided on the page. If you are reading a thesis not read by others, start a new thesis page.

On your personal wiki page, post links to all critiques of the theses that you reviewed.

Deadlines

Assignment Part	Due Date
Select full-read theses	April 4
Select cursory-read theses	April 11
Analysis/Critique	April 25