CSC2542
Paper Presentations and Critiques

Sheila McIlraith
Department of Computer Science
University of Toronto
Fall 2010

What follows is an elaboration of what I told you in the first class regarding Paper Presentations and Critiques. The elaboration is in red.

Presentations (15%)

- Students taking the course for credit must give one (possibly two) **class presentation and lead a discussion** of an assigned reading.
- Presentation and discussion of each assigned reading will take **up to** one hour. This discussion will be informal and interactive. The student paper presentation should be approximately 40 minutes in length and should help stimulate discussion. The presenter should provide an overview of the paper, identify the important contributions of the paper and situate the paper within a broader research context. The presenter should be prepared to be interrupted and to answer questions about the paper.

...

Presentations (15%) (cont.)

- All of our papers are conference papers. Sheila will attempt to get the conference presentation slides from the authors. You need not use these slides but you may use them. In some cases you will have the source. In other cases you will not. You may use these slides "verbatim" and/or modify or edit them. Please ensure that any slides that you produce attribute material to the authors appropriately. Most slides we will receive are for a 20 minute presentation. I expect you to augment these presentation slides with slides and/or material that you present at the board.
- You will be evaluated on your ability to convey the material in the paper in a clear manner. You will not be evaluated on "how pretty" your slides are.

Presentations (15%) (cont.)

- ~~Presenting students must **make an appointment to meet with Sheila (several days) prior to their presentation** to go over the material they plan to present. Students should have a substantial draft of the presentation ready to show at that time.~~
- If you are having problems with your paper or presentation, please email me at least 3 days prior to your presentation so we have time to set up a meeting.
- Students presentations will be posted on the course Web page. Presenting students also have the option of linking any relevant supplementary material. Please email me your presentation the day after you present, so that I can post your slides.

Paper Critiques (10%)

- Once we start reading research papers, each week students will be required to **hand in a 1-2 page written critique** of the assigned readings. Reports are not required by students on weeks they are presenting a paper.
- Your goal in the written critique is to explain the nature of the problem, its significance, and your assessment of the contribution. You may write a separate critique of each reading on a given week, or one critique that discusses all of the assigned readings together.

You will not have to do paper critiques for the instructor and guest lectures, but you will be expected to participate in class.

Example critique from previous course

1 Structural Patterns Heuristics via Fork Decomposition

1.1 Summary

One of the best heuristics developed over the last twenty-five years is to measure the amount of work needed to solve a simpler version of the original problem. There is a fundamental tension in this scheme between the effort it takes to solve the simpler version and the informativeness of measuring that effort, with respect to the original problem. Typically, the simpler problems are generated from the original by ignoring some of the variables in the original problem. As we ignore more variables, the problem becomes easier to solve but less informative about the original problem. The paper proposes a method of choosing variables to ignore which would permit larger (and therefore more informative) sets of variables while still guaranteeing that the generated problem is solvable. The paper uses the $SAS+$ problem representation and makes the claims that, if variables can be found with small domains, then substructures (particularly, a node and all of the children nodes fanning out of it, or a node and all of its predecessors) of the causal graph can be extracted that are solvable in polynomial time. The paper concludes with a theoretical analysis of tightness of the lower bound which I didn't really follow.

1.2 Significance

This paper extends the previous papers we discussed about additive heuristics and pattern databases. In that previous work, the actions had to be completely disjoint so that, when we summed the heuristic cost given by any database, we could be assured that no action cost was being double counted. In this paper, that constraint is relaxed that so that the cost for an action is split across the various databases. When we sum up the action costs across all the databases, we still don't exceed the original action cost. That is an interesting generalization and would seem to allow a lot of alternative additive formulations.

The authors also make the following interesting observation on bounds of the size of simplified domains. Since we wish to compute heuristics in polynomial time, and computing a planning problems is exponential in either the number of variable values, this means that the size of suitable simplified problems is logarithmic in the size of the original problem (unless we exploit problem structure). It is easy to believe that logarithmic heuristic functions would be weak predictors of the difficulty of the full problem, so the search for problem structure to exploit and how to exploit it seems very important.

The (more legible) pdf is linked from our course announcements page.