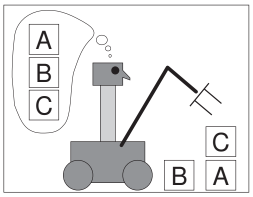

CS640 Fall 99

Research Memo 4: Writing a Proposal

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Research is speculative – you don't know what you'll have in the end until you get there. The purpose of the proposal is to 1) indicate where you'd like to be at the end and 2) describe the route you think you might travel to get there.

The form of the proposal varies depending on who needs to be convinced about the merit of your destination and how much it will cost to get there. Among the most informal is the class project proposal – usually about one page in length which sketches out a well constrained idea. Only two people need to be convinced about its merit (you and the instructor), and the cost of the journey is relatively low (a few weeks of part time work or one week of more than full time). Among the most formal are project proposals to funding agencies – usually 40-60 pages in a stylized format and organization specified by the people who give out the money[1]. These proposals must convince lots of people from varied backgrounds and cost lots of money and several years of effort by many people.

Your proposal for CS640 is in between, but tending toward the more informal end. As you can see from the grading form, I, as grader, am trying to evaluate the merits of the project, primarily motivation and feasibility.

Format The document should be 7-12 pages, 1.5 line spacing, reasonable font size (10-12pt) and 1 inch margins all around. I need space to write comments; this format works well for that.

You should include a cover page with your name, the date, and a title. Titles, in general, should be short and use descriptive keywords. Your paper should end with a bibliography. Use any citation style you like.

Some of your grade does depend on the writing (not just the ideas). So, be sure you spell-check the final version and proofread it. If I cannot understand your prose, I am unlikely to think it contains good ideas.

Content As suggested above, the proposal must describe what you'd like to do and how you intend to do it. On the former, you should articulate what problem or questions you will address in the project and why they are worth pursuing. You should cite and, where appropriate, review other work that has addressed the same or similar problems/questions. You should also motivate 1) why this problem is significant, 2) what about it has not yet been solved and 3)

[1] Should you wish to see an example, I can show you several.

how you will demonstrate/evaluate your contribution. On this last note, ultimately, you may find out that whatever you chose to do wasn't a good idea after all; it happens in research, but you at least need to assure me that you'll know at the end whether or not it was.

On the latter, you should develop a short plan of work. The paper should include a list of tasks that you think you will need to accomplish and some indication of how much coding and evaluation needs to be done.

Make clear what are your ideas. If you plan to use code from others, state it. If you plan to compare your results to others, state it.

Suggested Organization The following is not required, but clarifies what I expect to be in any proposal.

1. **Cover page**
2. **Statement of Purpose:** what is the problem? what do you intend to show? what questions do you hope to answer? why is this an important problem?
3. **Background:** who has worked on this before? what did they learn that is useful? can you exploit any prior code or results?
4. **Solution:** what will you do to address the problem? will you be writing code? how will you constrain the problem or solution so that you can get it done? why is your solution a good idea?
5. **Demonstration/Evaluation Plan:** how will you demonstrate your statement of purpose? what kinds of experiments might you run? how much generality would you like to claim?
6. **Plan of Work:** what are the tasks required to implement and test your solution?
7. **Bibliography**