How to Write a Proposal for the Course Project

This is a companion to “How to write a proposal,” which was distributed in class and also is available at the following URL.

http://www.eecs.umich.edu/eecs/courses/eecs498.005/proposals.html

That document was written for graduate students working on a year-long research project, and is a notch or two too ambitious for this course. Even so, proposal-writing is a vitally important skill for many computer science professionals. If you are pursuing a career in computer science, it is likely to be a major factor in how successful you are. So we need to take it seriously.

1. Phases of proposal preparation

There are three phases to proposal preparation:

1. **Initial planning phase.** This is where you choose a project, set your goals, clarify your ideas, and find the materials you will need.

2. **Project planning.** With the goals in place, you need to plan how you will execute them. For an NLG project, this is where you will decide what data you’ll be using and what the target texts should look like, and design your software approach. For instance, if content selection and document planning is a major issue, you’ll need to decide what planner you will use and how to write the plan operators. What communication goals are you likely to start with, and how will the planner convert the goals into a document specification? Will user modeling be an issue for you project? If so, what will your user model look like, and how will the document planner take it into account? (Actually, I don’t recommend getting involved with a user model in a one-term project; you want to design a project that you can finish.) Will microplanning issues be important? For instance, if you are dealing with a domain in which referring expressions used heavily, you’ll need to say how you’ll handle referring expression generation. Probably you will be using an available realizer. If so, you’ll need to refer to it, and familiarize yourself with the format of the realizer input—this will be the output of the system that you are designing.

One way to see if your project plan is detailed enough is to choose an example (this will be some input data and the desired output text) and to take it by hand through the stages of the NLG system you’re contemplating. Make sure that you have a clear idea of the algorithms and representations you’ll need to transform the input into the output.
You also need to think about the needs of potential users, to make sure that you can get all the materials (input data, off-the-shelf-software, corpora) that you need for the project, and foresee any potential systems problems.

Also you need to decide how you’ll evaluate the system.

Think about the scale. For a one-term project, feasibility is a virtue; you want to think small. If the project design gets out of hand, you may want to go back to your goals and shrink them. For instance, you might decide to concentrate on a component in this project.

(3) **Writing the proposal.** This is the easy part.

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2. **You don’t have to do this on your own!**
   
   As you go through the design process, I’ll be available to discuss it with you. Come to see me during office hours, send me email if you need to see me at other times, exchange email about the project at any time. I will try to make myself maximally available during the proposal planning phase.

3. **The proposal itself**

   Here’s a format for the proposal.

   1. The background section can be omitted unless your project is building on previous work. If it is doing that, you need to refer to the work, describe it, and say how you’re extending it. What are the new ideas?

   2. Begin with a research problem section. State the technical problem you intend to solve. Indicate how it might be useful. This can be brief; it is just an introduction to the next section.

   3. The technical approach section. This is the core of the proposal. It’s where you spell out your technical plan and explain the project design. Evaluation issues would also be addressed in this section.

   4. The milestones section provides a work plan for carrying out the project. This is your schedule for getting the project done.

   5. The references section mentions any references you’ll use, and sources for data, software, and other materials.