CPSC 97: Senior Conference–Computational Geometry and GIS
Fall 2006

Final Project

Project Proposal: Wednesday, November 8 (2:00 pm)
GIS Competency: Wednesday, November 15 (in class)
Review Draft: Friday, December 1 (11:00 pm)
In-class Presentations: December 13
Completed Project: Wednesday, December 20 (9:00 am)

1 The Project

(Everyone has indicated that they are working with a partner. In the description below, the word "you" always refers to "you and your partner". This project proposal outline is heavily borrowed from Richard Wicentowski's NLP final project guidelines, but you should read this proposal carefully for change.s)

Projects can range from the re-implementation of published work to the investigation of currently unsolved (or, more likely, poorly solved) problems. Regardless of the particulars of your project, the completed project should reflect a significant effort on your part.

The final project will have the following checkpoints. Do not wait until the last minute to start or ask questions.

1. A project proposal

   All of you have given me the name of your partner and at least a very short description of which project you would like to work on. For next week, expand on the project summaries I have written and turn in a more detailed proposal by Wednesday, November 8 at the start of class. The proposal should be no longer than three typed pages, but more than one page.

   Your proposal should address each of the following:

   - The problem you want to work on
   - How you propose to go about addressing the problem
   - A brief selection of previous literature in the area
   - Existing software/toolkits that you plan to draw from
   - Software (Python libraries, etc) you may need installed
   - Data that you will need/want for both training and testing
   - Other relevant information not covered by the above

   As you have already stated what problem you want to work on, please expand on the other items, including relevant previous literature related

to your topic. Do some google searches, fill out some ILL requests. There is likely related articles out there that we have not discussed in class. If you have questions about data acquisition or reading various data formats, please ask. I will post some tutorials on some of the more helpful tools online in the next few days.

2. An in-class demo of data you are using

   To make sure you are making progress and have access to data, I would like you to give a quick demo of the data you are using, preferably in GRASS, the open-source GIS installed on the lab machines. Those of you working with grids should demonstrate that you can acquire grid data, import and manipulate data using your software and export gridded data so that it can be imported into a GIS. You should be able to demonstrate the ability to perform simple GIS function such as importing, visualization, simple map manipulation (depending on what you need to use for your project). Groups working with vector data (lines and polygons) should demonstrate that they can manipulate vector data and diplay it, preferably in a GIS. I will post instructions online on where to get common sources of data, but those that are impatient, may want to contact me sooner so they can get started.

3. A 'review' draft of your paper (Friday, December 1)

   You will need to turn in a draft of your final paper. This draft serves three primary purposes. First, I will get a chance to assess your progress, review your work, and provide feeback before your final presentation and final report. Second, it will serve as a useful resource for you while you write your presentation. Finally, other students will get a chance to review your work and provide feedback in a peer-review environment.

   I encourage you to put a lot of effort into this draft. I can provide more feedback on more complete drafts and addressing this feedback will lead to better final projects.

4. An in-class presentation of your work

   On December 13, you will give and in-class presentation of your project. Presentations will be scheduled in 25-minute blocks. You should expect to talk for about 20 minutes, leaving the remaining time for questions.

   The presentations will be open to other students and faculty.

   You and your partner should participate equally in giving the presentation. You can create a presentation using openoffice (freely available and installed on our machines), PowerPoint, or any other method which can output to PDF (Keynote, LaTeX). If you have special needs (microphone, speakers, special software), you have to either arrange for this yourself or contact me ahead of time.

5. A conference-style paper

Your project will be fully described in a conference-style paper. I expect that most papers will be in the 7-10 page range, but depending on your verbosity and the need to include large tables and/or figures, you may have more.

2 Guidelines for your paper

To communicate all the work that you have done, you will write a paper about your work. Your paper should look and feel like a paper that you are submitting to a conference. Your paper should have seven sections:

- Abstract (200-300 word summary of what's to come)
- Introduction (What are you about to tell us? Do not just repeat the abstract)
- Related Work[1] (Compare or contrast your work with *at least one* other related works which we have not covered in class, and certainly any related work we have covered in class)
- Methods (In enough detail that someone could replicate your experiments, what did you do?)
- Results (Thorough analysis of your results, including tables and graphs)
- Discussion (Is something special about your methods? What do your results mean? Etc.)
- Conclusions (What do you want the reader of your paper to walk away remembering?)
- Bibliography/References

Your paper will be written using a LaTeX style file (no Microsoft Word) provided by Rich Wicentowski for his NLP seminar. These latex style files are available off the class web page.

2.1 Citing related work

From guidelines by Lisa Meeden in S'06 Developmental Robotics:

> The purpose of writing a research paper is to communicate your discoveries to others. It is important to explicitly acknowledge how your work relates to other work. This can be done either with a direct quotation from another source or by summarizing the key points from another source. You should avoid paraphrasing another

[1] You may want to combine the Introduction and the Related Work into one section.

> source as this can border on plagiarism. When summarizing another source, explain the essential information in your own words.
>
> When using the exact language from another source, you must use quotation marks. Or if you are using a passage that is more than four lines long, indent [...] the passage without quotation marks. For a direct quotation, provide a reference with a page number. When summarizing another source, you should also provide a reference, but a page number is not necessary.

In computer science it is rare that you need to quote large blocks of text from other sources. If you find yourself doing this, you should consider summarizing the key points and avoid quotations and paraphrasing. When in doubt, ask me.

3 What to turn in

Complete instructions about what to turn in will vary depending on the project, but you should expect to turn in all of the following on or before the morning of December 18:

- Your final paper including LaTeX source, including all external files required to successfully recreate your paper.
- The slides from your in-class presentation (a electronic copy, e.g., PDF, PowerPoint, etc.)
- All code that you wrote implementing your project including a brief description of how to use it.
- The test and training data (if you created it yourself or if you made some significant modification to existing data.)