

## **CS97 - Fall 2009 - Computer Perception**

### **Project Guidelines**

Prof. Doug Turnbull

turnbull@cs.swarthmore.edu

In this course, you will experience the life cycle of an academic research project in the field of computer perception: brainstorming an idea, doing a literature review, conducting active research, preparing a paper, and defending your work.

You may work by yourself or with one other student.

### **Deliverables**

- 1) Proposal (9/29)
  - 2) Proposal Update with Literature Review (10/8)
  - 3) Literature Review Presentation (30 minutes) (10/20-11/5)
  - 4) Full Manuscripts Due (8-pages) (11/10)
  - 5) Review Period (11/12-11/17) - Peer Reviews, Writing Center Review
  - 6) Conference Presentation (15 minutes) (12/3-12/5)
  - 7) Camera-Ready Conference Paper (8-pages) (12/10)
- (Bonus) Submit Paper to a Top-Tier Peer-Reviewed Conference

All documents must be prepared using Latex and be submitted as a PDF. The final paper will be formatted using a standard latex stylesheet. Make sure there are no page numbers on you pdf.

### **Getting Started (Today)**

*"If I've seen further, it is standing on the shoulders of giants"* - Sir Isaac Newton

Two ways to start your project are to:

- 1) identify the problem you are interested in, explore existing solutions, propose a solution, and go...
- 2) explore existing research, re-implement existing algorithms, re-run existing experiments, play with existing data sets, and expand...

You may also want to see last year's course proceedings. Please **plan to meet with me** early and often to bounce your ideas.

## Proposal (9/29)

*"Only fools rush in"* - Elvis

Planning what you are going to do takes some mental restraint since we often want to dive right in, but some good planning will give you direction and save you time and energy in the end.

Format:

- A) Title, Authors, and Contact Info
- B) Introduction: 1-2 paragraph summary of the problem you are solving, why it is interesting, how you are solving it, and what conclusions you expect to draw from your work.
- C) Related Work: 1-2 paragraphs describing similar approaches to the one you propose. This need not be an exhaustive summary of related literature, but should be used to put your solution in context and to support your solution.
- D) Proposed Solution: 3-4 paragraphs describing what you plan to do, how you plan to do it, how it solves the problem, and what types of conclusions you expect to draw from your work.
- E) Experiments: 1-3 paragraphs describing how you plan to evaluate your work. List the experiments you will perform. For each experiment, explain how you will perform it and what you hope to conclude from the results.
- F) Requirements: software, data, test subjects, etc.
- G) Schedule: list the specific steps that you will take to complete your project, include dates and milestones. This is particularly important to help keep you on track, and to ensure that if you run into difficulties completing your entire project, you have at least implemented steps along the way. Also, this is a great way to get specific feedback from me.

## Proposal Update with Related Work Review (10/8)

Refine your proposal based on feedback, early experiments, and current progress. Your "Introduction" and "Related Work" should turn into the first two sections of your final manuscript.

Also add an annotated bibliography of **no less than 4 papers, where 2 are papers we have not covered in class**. You should both turn in the

- A) 1-page paper summaries for each referenced paper
- B) 2-3 paragraph summary of all the "Related Work" written in prose.

## Literature Review Presentation (45 minutes per person) (10/20-11/5)

You will briefly present the results of your literature review to the class. Stated another way, you should give an informative talk on a specific topic. You should motivate the talk with a quick introduction to your project, but **focus on the research of others**, and how it relates to your work.

### **Full Manuscripts Due (8-pages) (11/10)**

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:

A) Abstract: a 200-300 word summary of paper that stress the highlights. It is strongly advised that you write this section last!

B) Introduction: the motivation for your work.

C) Related Work: a summary of related work and specifically how it is similar to or dissimilar from your work.

D) Methods: a description of your proposed solution. You should give enough detail that someone could replicate your work. You may also want to include a figure to provide a visual representation of you work.

E) Experimental Setup: a description of how you evaluate your work.

F) Results: a thorough analysis of your results, including tables and graphs.

G) Conclusions/Discussion: an explicit statement of what you can conclude from your work. What do you want the reader of your paper to walk away remembering? You may also want to describe some future directions for your work.

H) Bibliography/References

### **Conference Presentation (15 minutes) (12/3-12/5)**

A concise description of you work that follows the same format as you manuscript. Your goal is to **entice others to want to read you paper** because it is interesting and useful.

### **Camera-Ready Conference Paper (8-pages) (12/10)**

A polished and updated version of your manuscript based on the feedback from your reviewers. You may also want to re-run experiments and improve your figures, tables and graphs to maximize comprehensibility. This will be the verison that is include in the course proceedings.

### **BONUS: Submission to a (top-tiered, peer-reviewed) conference**

If you submit you manuscript to a peer-reviewed conference and either (a) it is accepted and published, or (b) I and another faculty member think that it should have been accepted, then you will get an A for the class.

(If you are interested in graduate school, this might be your golden ticket in.)