Final Project Guidelines

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The final project is an integral part of this course. There is no better way to learn about probabilistic modeling then by applying it to a research questions of your own. You have a lot of freedom in choosing a topic for your final project. The only criterion is that it deeply involves the concepts (or extensions of them) that we are discussing in class. We expect you to choose your topic.

From past offerings of the class, most projects involve applying graphical models to a real-world problem. You choose a dataset, an interesting question about it (e.g., from your research), and address it with probabilistic modeling.

There are other types of projects too. Some projects are algorithmic, such as developing a new inference algorithm for a class of probabilistic models and studying the new algorithm empirically. Others are theoretical, such as understanding new properties of a class of probabilistic models. Some projects combine algorithmic goals, theoretical goals, and applied goals.

The project involves three assignments. For each, please use the latex template, a 12-point font, and 1-inch margins. Page limits are without figures; include as many pages of figures as needed.

Project Proposal

The project proposal is an abstract that imagines the completed project. We understand that your project will evolve and change over the semester, but writing an abstract early is a good way to plan and think about what it would mean to successfully complete it.

We encourage you to refer to computer science conferences (such as *Neural Information Processing Systems* and *International Conference of Machine Learning*) or journals (such as *The Annals of Applied Statistics*, *Journal of the American Statistical Association*, *Journal of Machine Learning Research*) to get a sense of how to write an abstract.

(We do not grade the project proposal.)

Project Milestone

The project milestone describes the problem you are addressing and discusses some preliminary results. Include what you have completed and what you plan to finish by the end of the semester.

The project milestone is 1–3 pages long. (We grade the milestone.)

Project Report

The project report is due at the end of the semester. The report is up to 5 pages. You can further include a set of appendices (of any length) to which you can banish any details. (We may not read the appendix when grading your work.) We encourage you to put source code online and open source, but do not hand in hard copies of source code.

Project Evaluation

We evaluate the project on ambition, significance, originality, technical depth, results, relevance, and writing quality. Two good books about writing are **?** and **?**.