

CS 712—Advanced Topics in Artificial Intelligence: Probabilistic Graphical Models

Course project

Spring 2008
Department of Computer Science and Engineering
Wright State University

Worth: 45% of final grade

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The goal of this project is to get you to tackle a probabilistic artificial intelligence problem of your own choosing. This requires you first to identify an interesting task that you would like a computer to perform. Note that it might be hard work to think about what you are really interested in, but it is crucial for the project remain open ended and in your hands. It is up to you to pick a problem you would like to solve, and then discover what it would really take to tackle it successfully. (You might try visiting the library, surfing the web, or even just thinking for a bit to get some ideas.) The intent of the project is to get you to start off with something interesting and ambitious (i.e. a system that you think would be really neat to build), and through the course of the project learn about the research that is going on in an interesting sub-area of probabilistic artificial intelligence, and also (more importantly) how to take a general idea and hone it down to a concrete and doable task. Along the way it is hoped that you will learn useful things, like:

- How to take a poorly defined problem and turn it into a concrete proposal (and then a concrete implementation and test).
- What is involved in solving the specific problem you are interested in, how hard it is to actually succeed.
- How partial progress can be sensibly made on difficult problems (or perhaps how not).
- How to read the research literature to find the ideas and techniques that might be relevant to your needs.

Experience in these areas will help you in whatever direction you follow in your professional career. In the end, however, the project is just a chance to learn more about some sub-area of machine learning that you might be most interested in, as well as create a potentially interesting system.

The basic types of projects in this course are:

1. A survey of existing literatures on a relevant subject
2. Empirical investigation of an application problem.
3. Experimental investigation of a technique (or techniques) in an abstract setting.
4. Theoretical investigation of a technique or problem.

The project deliverables are:

0. Project statement and progress report. Due each Wednesday (in class). Worth 0% of final course grade.
1. Final project. Presentation Monday, June 9 & Wednesday, June 11. Report due Wednesday, June 11. Worth 45% of final course grade.

Projects must be done in groups of 2 or individually.