

CS 4100: Semester Project

Due: December 12, 2014

Only students in CS 4100 need to complete a final project.

1 Project Description

The final project should be an application of some area of AI to a problem of interest to you. For example, you might develop a game playing agent for a simple version of poker, blackjack, and some other card games. The game playing agent might be based on adversarial search or it might use reinforcement learning. Alternatively, you might use constraint satisfaction methods to develop various puzzle-solving agents. In the past, students have sometimes explored applications of classification to machine vision problems. It doesn't matter so much what application you choose to study. The key requirement is that you think about how the methods we studied in class (or perhaps other methods that we did not study!) can be applied to a real-life problem.

2 Timeline and Deliverables

11/6/2014 Project proposal due. Please submit a one-paragraph document describing a proposed problem and solution. All projects are responsible for meeting with the instructor or a TA in person to get the go-ahead for their project. (In some cases, we will give you the go-ahead over email.)

12/12/2012 Final project due. You must submit a three or four page project report. Your report should include the following:

1. **Problem description:** What problem are you solving? Describe the problem from a computational perspective. What are the inputs and outputs (exactly)?
2. **Algorithms:** What algorithms do you use? Why are these algorithms appropriate? How are these algorithms typically used, and how are you using them?
3. **Results:** Quantitatively characterize how your algorithm worked. Under what circumstances does the algorithm solve your problem successfully? When does it fail? You should quantify performance somehow. For example, if you are using a search algorithm, you might report the number of nodes expanded for different problem scenarios. If you are using a learning algorithm, you might report accuracy. If you are using reinforcement learning, you might report average utility as a function of trial number.