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, black-jack, or some other card game. 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 doesnt 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. Note that some projects are too ambitious, so make sure you schedule the work to make sure you have something to show at the end.

You may work alone or in groups of two or three.

2   Timeline and Deliverables

11/3/2016 Project proposal due.   Please submit a one-page document describing a proposed problem and solution via SVN. There should be a ./project/ directory in your SVN account. We will review all project proposals. Some projects will be given the go-ahead via email while we will ask to meet in person with other project groups. The proposal must show that you have read background material on your topic and are qualified to undertake what you propose to do. It should include full references for the papers and other sources that you have consulted and that will form the foundation for your work. If you are working in a group, you must say who is responsible for each portion of the work. It must specify:

1. Problem description: What problem are you solving? Describe the problem from a computational perspective. What are the inputs and outputs (exactly)? Why is it interesting?

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: What results do you expect to show?

12/14/2016 Final project due.   The papers should be written using the AAAI format (for the AAAI Conference on Artificial Intelligence): `http://www.aaai.org/Publications/Templates/AuthorKit17.zip`. Of course, we don't expect these projects to be submitted to the conference (although you are certainly welcome to!), it is helpful to look at papers

from previous years to get an idea how they are written. AAAI papers (and papers from several other conferences) for many years can be found at this link: `http://www.aaai.org/Library/conferences-library.php`. Some sample project reports will also be made available. Also submit the code used to produce your results as a separate directory in the project SVN directory. Your report can be organized differently, but the general organization is the following:

1. Abstract: A short summary of what problem you are solving, how you solved it and what the results are.

2. Introduction: A longer description motivating the problem and solution method.

3. Background: Any background information needed to understand the methods used in the project (e.g., a description of a general search problem or some simpler algorithms that you build off of).

4. Related work: What other methods could be applied to your problem, why didn't you use them and how they relate to your method.

5. Project description: What you actually did in formal detail (with algorithms, equations, etc.).

6. Experiments: A description of how you chose these experiments, how the experiments were run, what the results were and why you got these results (Under what circumstances does the algorithm solve your problem successfully? When does it fail?) Again, they should be formal, often with graphs. These results could also include analysis such as a comparison of different methods or performance on different variants of the problem.

7. Conclusion: A summary of the results and what you learned by trying to complete this project.