CSCE420: Introduction to Artificial Intelligence
Communication Project: One

Dylan Shell
February 15, 2014

Introduction

This is an assignment in which the primary skill being assessed is your ability to communicate. Communicating technical aspects of what you have learned is a vital ability that will stand you in good stead for your whole life.

Think about a technical problem and solution that incorporates Artificial Intelligence methods, and then record a brief video (to be shown in class) covering the main features of the topic. If possible, you should pick something already of interest to you, for example: chatbots, poker playing agents, the AI in starcraft, etc.

Teams of up to four students are permitted. In these cases, the video will be graded as a group effort, so incorporate input (and possibly also actual speaking) from each team member.

Topic

You have a very wide choice of topic. Anything that is of particular interest to you that has been covered in the course, is covered in the textbook, or can be shown to relate in a technical way, is a fair choice for a topic. However, note that an important part of what you will be expected to communicate is the problem statement. Do not assume that you can skip over the motivation for the problem: the audience for your talk may understand AI but may know little about the problem, or even understand what it entails. It is up to you to convince them of the importance of the problem and to illustrate the problem in an accessible way.

It is important that the topic actually relate to AI problems, approaches, or philosophy in non-trivial way. The one purpose of your video is to emphasize such this relationship.

The assignment

You do not have to submit a written report. You may opt to do so if you feel that it helps you communicate about your topic. Alternatively, you may post a link to a website, blog, or decide that the video will encapsulate everything you wish to say.
The aim of your communication project is to describe a technical problem and an AI-based solution to that problem to a public audience. You have freedom in the scope of the problem, and the level of detail described, but you should choose wisely. A good model of a potential reader is an intelligent but uninformed person who may have heard of the terms “Artificial Intelligence” but may not be intimately familiar with notation or specialized details of particular algorithms. Thus, while your written portion must define and motivate a technical problem as well as its solution, you should limit use of jargon or specialist language wherever possible.

This is difficult, which is one of the reasons this is included in the course. (And I want graduating aggies to be especially skilled at this.) So you will want to consider using more than plain prose. Images can be used to great effect to explain particular instances of the problems. So put some time into thinking about supporting figures or animations.

The following are pages you might take as examples of suitable topics made accessible.

**Depth First and Breadth First Search** — this series of pages show how using repeated and incremental variations of images can allow for easy explanation of algorithmic processes.


**Game Trees and Pruning** — this page incorporates both images to define a game tree for a particular problem, and an applet to permit interactive examination of the tree.

[http://www.ocf.berkeley.edu/~yosenl/extras/alphabeta/alphabeta.html](http://www.ocf.berkeley.edu/~yosenl/extras/alphabeta/alphabeta.html)

**Path-Planning** — despite the strange navigation buttons, this tutorial on path-planning has a particularly well-organized introduction.


**Constraint Satisfaction Problems** — this is comprehensive and beyond the scope what you have time to cover, but it serves as an excellent example of the flavor of the online-tutorial genre.

[http://4c.ucc.ie/web/outreach/tutorial.html](http://4c.ucc.ie/web/outreach/tutorial.html)

Here is an example of a fun, educational video (on a mathematical topic, although not on an AI topic) which might inspire you:

**Hexaflexagons** — [http://youtu.be/VIVIegSt8lk](http://youtu.be/VIVIegSt8lk)

### Submission

You should submit a video (*i.e.*, via a link to a hosting site like youtube) that is between 2 to 5 minutes. Submission should be via email to the instructor: dshell@cs.tamu.edu

The video is due at 11:59pm on 28 February 2014.