Midterm Project

Problem

Result Replication Presentation

Note: Submission will be on the RLDM website soon.

One aspect of research in reinforcement learning (or any scientific field) is the replication of previously published results. One benefit to replication is to aid your own understanding of the results. Another is that it puts you in a good position for being able to extend and compare new contributions to what's in the existing literature. Replication can be challenging. Researchers often find that important parameters needed to replicate results from papers are not stated in papers or that the procedures stated in papers have ambiguity or subtle errors. Sometimes obtaining the same pattern of results isn't possible.

Read Richard Sutton's 1988 paper ("https://webdocs.cs.ualberta.ca/~sutton/papers/sutton-88-with-erratum.pdf") and create an implementation and replication of the results in Figures 3, 4, and 5. (You might also compare these results with those in Chapter 7 of Sutton's textbook: https://webdocs.cs.ualberta.ca/~sutton/book/ebook/node73.html ("https://webdocs.cs.ualberta.ca/~sutton/book/ebook/node73.html").

You will present your work via a short (at most 3 minutes) **video presentation** and a **2-to-3-page written report**. The report/presentation should include a description of the experiment replicated, how the experiment was implemented, and the outcome of the experiment. You should describe how well the results match the results given in the paper as well as significant differences. Also describe any pitfalls you ran into while trying to replicate the experiment from the paper (e.g. unclear parameters, contradictory descriptions of the procedure to follow, results that differ wildly from the published results). What steps did you take to overcome those pitfalls? What assumptions did you make? Why are these assumptions justified?

Grades will be based on the fidelity of the replication (25%), how well you show you understand the original paper (25%), the quality of your presentation (25%), and your written report (25%).

You will have to submit it on the RLDM website. Details will come soon.

How to make video presentations?
Do what you think is the simple. For example, Keynote allows you to record audio over your presentations.

- Make a slide set.
- Start a screen recorder and record your voice while you present.

Some students might want to use a handy cam. That's fine too. Just let us see your slides properly.

Picture from NIPS 2016. OMS students met Rich Sutton (in red) with their TA, Ashley Edwards (second from left), after they wrote this paper.