COMP5495: Robot Learning

Final Project - Part I

Due before 11:59PM on 3/23/2021

1 Introduction

This is the instruction for the first part of the final project (35% of your final grade) for this course. The goal of the final project is to give each of you an opportunity to dive more deeply into a particular topic of interest. For those of you that perform research outside of your classwork, I encourage you to choose a project that contributes to your personal research, if possible.

Consider the following criteria during the process of writing your final project proposal:

- Each project should contain a novel intellectual contribution, as well as empirical results on a problem of interest.
- The proposed project must have enough intellectual and experimental depth that it will result in a final writeup of roughly half a conference paper (4 double-column pages) per person.
- I encourage working with a partner (teams of two or three students) whenever possible. However, you are allowed to work alone. All work must be your own, but you can build on code found online as long as you cite it clearly and your portion of the work makes a substantial, novel contribution.
- You are **NOT** required to work on a robotics problem. The only rigid requirement is that the proposed method for solving the problem should be (at least loosely) related to a core topic we have covered (or will cover) in class, such as Learning from Demonstration, Reinforcement Learning, Inverse Reinforcement Learning, Transfer Learning, and so on. Thus, it is acceptable to work in a simulated environment or a domain such as a video game emulator if you choose to.
- Projects could include extending an algorithm in a novel way, comparing one or more existing algorithms rigorously on an interesting problem, or designing a new approach to attack a problem relevant to the course. In all cases, there should be a non-trivial intellectual contribution or insight from the approach or experiments.

For the first part of the project, you must write a one-page proposal (use the review Latex template) outlining your plans for the project. One project proposal per team is enough. This proposal will be worth 10% of the final project grade (3.5 pts out of 35 pts). Make sure to include the followings:

- A clear description of the problem you are investigating, both abstractly and in context of particular experimental domain.
- References to a few papers that are relevant to the subject of interest.
- A proposed plan to address your problem which should outline what methods you plan to develop, implement, compare, or extend, and how.
- A testable hypothesis
- An experiment to test your hypothesis and a clear evaluation criteria to determine the outcome of your experiment / hypothesis.