# Project Proposal

## Overview

In teams of up to 4 people, you will be working on a final project. This is the first part of the final project: the project proposal.

The intention of the project proposal is to get you started on the process of the project. You can check out the project report handout for more details on the final assessment. There will be marks for originality, but it is acceptable to do a literature review as your project. If you are feeling overwhelmed by the project, please talk to me. I'm here to help you find your way!

**You don't have to do what you say in your proposal, and can completely change the project afterwards if you want. But it's important to have at least one reasonable plan to start from.**

## Inspiration

I recommend the following strategies for finding a project to work on:

- Come talk to the instructor! I can give you feedback on the feasibility of the project. I also have some project ideas, although I cannot guarantee that they are good ideas.
- Go through some of the papers in the Recent References section of the website. Ask yourself:
  - Are there are limitations to their approach? If so, your project could be centred around fixing those limitations.
  - Do the ideas presented in the paper generalize to settings that the authors did not consider? If so, your project could describe those generalizations.
- You can go through recent papers published at NeurIPS, ICML, ICLR, or JMLR to get project ideas.
- Workshops are usually great resources for new ideas. I particularly recommend looking through the papers presented at the following recent workshops.
  - Offline RL Workshop
  - Deep Reinforcement Learning Workshop
  - Advances in Approximate Bayesian Inference
  - Bayesian Deep Learning

## Details

**Collaboration** You may work in teams of up to 4 people. If you are having trouble finding a group of people to work with, please email the instructor. Only one proposal needs to be handed in per group.

**Length** The proposal should be short and not exceed 2 pages.

**Format** Please use 10pt, 11pt, or 12pt font with standard margins. You may use any format that you wish, but it should be readable. It should also have easily identifiable sections.

## Marking Scheme

This marking scheme is worth 15 marks and is based heavily on Prof. Duvenaud's marking scheme and we refer you to his wonderful recommendations for more details.

- **Introduction** (**3 marks**) Describe the idea that you want to pursue.
  - Set the context: if you are trying to solve a certain problem in this project, describe why it is worth solving. If you are trying to prove a certain theorem, describe why it is worth proving.
  - State one or two ideas that you want to pursue (concisely).
  - Describe what it would mean to successfully investigate these idea(s).
    - If you are trying to prove something, state the theorem that you want to prove.
    - If you want to come up with a new algorithm, describe the properties that you want this algorithm to satisfy.
    - If you want to design a new model, describe the type of data or task that it should be suited for.
    - If you want to write a review, describe how this review will reveal some new or important insights (e.g., by connecting distinct fields).
- **Work Plan** (**4 marks**) Plan your strategy for executing the project.
  - Write a sequence of activities that could in principle get you to the finished product.
  - The goal of this work plan is to structure your thinking and work.
  - You should sequence the activities so that they thoroughly 'vet' your ideas. Ideally, if your idea ends up not working, you find out early.
- **Description of Proposed Results** (**4 marks**) Describe how you plan to demonstrate the ideas in your proposal.
  - Write a list of proposed experiments, figures, results, tables, or summaries. For each one, say what the reader could learn from it.
- **Related work** (**4 marks**) Explain how your proposal relates to the literature.
  - It's OK if you do not find all related papers, but do your best to find a few closely related papers.
  - For closely related papers, include 1-2 sentence summaries.

## Academic Integrity

Because this assignment will involve citing other people's work, it is important that cite properly. In general, you should follow U of T's Code of Behaviour on Academic Matters.