1 Project instructions

The final assignment in 15-780 is the course project. The purpose of this project is to give you a taste of research in AI, with an emphasis on topics covered in class. A project may consist of a theoretical or empirical investigation of an original problem, an extension or improvement to an existing algorithm, or an evaluation of known techniques in an new domain or with new data. You are free to select any topic along these lines for your project, as long as it builds upon material that was covered in class; see the end of this document for more specific guidelines.

2 Logistics

Projects are to be done in groups of two to three students each. Please get in touch with the course staff if you cannot find a partner; after the project proposal submissions, we may contact students to suggest merging groups, if not all students can find a group. Naturally, the number of team members will be taken into account during grading (i.e., a larger team would be expected to have a larger project). Ideally, each member of your team should spend 30 to 40 hours on the project over the course of the semester, including the time to create the written reports.

The intermediate and final reports should be written in Latex using the ICLR style sheet, available at https://github.com/ICLR/Master-Template/blob/master/archive/iclr2020.zip. Each group will have to submit the following items:

- **Project proposal, due 3/2**: A 300 work description of your proposed project, which should outline the topic and the approach you intend to take initially.

- **Intermediate report, due 4/11**: A 2-page (plus references) written report detailing your current progress on the project. This should include a detailed description of work completed, as well as highlight work remaining to be done and proposed approaches for the remainder of the project.

- **Final report, final due date TBD**: A 5-page (plus references) written report detailing the work done. Your report should include a detailed description of the research you have done, including situating the work within past related work, providing an overview of your algorithmic or theoretical approach, and then describing your results.

- **Video overview, final due date TBD**: A three minute video, uploaded to YouTube (if you do not wish the video to be public, you can upload it as “unlisted”), that gives a overview of your project. We will watch these videos together as a class during the normal final exam time.
3 Tips and guidelines

• The best projects are creative and original. These qualities are more important than simply doing intensive technical work, so spend time thinking about a good problem.

• Don’t worry if you don’t obtain positive results; it’s okay if you try an interesting approach and it doesn’t work. We care most about your ideas, your effort, and what you learned over the course of working on the project.

• Projects should be somehow related to topics covered in class. So, for example, an application of reinforcement learning would not be a good project, since this topic was never discussed in a lecture.

• Projects can be related to work that you are already doing as part of your graduate research. However, you should have some new direction or approach that is specific to this course, and not merely a submission of the exact research you are already doing. Graduate research typically involves significant input from your advisor, and we are looking for something that is more your own.

• In some previous years, many projects simply applied deep learning to various problems. Deep learning is an acceptable topic (as it was indeed covered in class), but since these projects are fairly straightforward and often don’t require much creativity, we will be setting a high bar for projects focused on deep learning applications.

• The instructors (Zico and Nihar) are happy to discuss your project ideas with you. Do not hesitate to reach out by email, either to check whether an idea looks valid and/or promising, or to schedule a meeting for more in-depth discussions.