

FINAL PROJECT AND PRESENTATION

3/22/2020

1 Summary

This document outlines the final project which will have at least the artifact an *individual* presentation. We begin with some general expectation and time boxing in **2 General Expectations and Important Dates**. A final project can go a number of directions and possibilities are discussed in **3 Project Ideas and ingredients**.

2 General Expectation and Important Dates

1. *You should choose a project that interests you and explores some aspect of deep reinforcement learning. This could be any of the following:*
 - Present a paper or a collection of papers on an idea
 - Train an agent to perform a task we have not done and present details of how to do it.
 - Explore training methods or other software considerations that allow for faster/more efficient training.
2. *You may work in a group, but there should be enough material to make individual presentations. This might be done with:*
 - Presenting a number of related works on a topic (e.g. centralized training decentralized execution, soft actor-critic, etc.)
 - Training an number of agents to do related tasks for comparison (e.g. roboschool, etc. comes to mind)
3. *The following table proposes some dates to keep things on track, these will be adjusted as needed.*

Date	What
27 March 2020	Fill out the following
1 April 2020	Write a summary/abstract for your project presentation and work plan
3 April 2020	Feedback from instructor
8 April 2020	Progress report on work plan (instructor feedback as necessary)
15 April 2020	Progress report on work plan (instructor feedback as necessary)
15 April 2020	Progress report on work plan (instructor feedback as necessary)
22 April 2020	Draft of slides or other artifacts
24 April 2020	Final instructor feedback

3 Project Ideas and Ingredients

The follow give some example projects. This list should be much longer, but it's a start.

- Compare training with with APPO and APEX vs. PPO and DQN
- Train an agent for Mujoco or roboschool task
- Present the evolution strategies approach to deep RL
- Train an agent to play othello
- Train an agent to play go
- Train an agent for vizdoom
- Present work on distributional RL
- Present work on model based learning
- Present work on max entropy RL
- Present work monte carlo tree search
- Train atari games in minutes using evolution strategies
- Develop a new environment for a practical application (e.g. smart meters)