

Project description

The goal of the project is to develop and advance research skills in the area of machine / deep learning. The choice of category depends on your level of research experience:

- graduate students who already have a research project in the area can report and build on it, or choose a complementary project.
- undergraduate students who have not done research may choose to do a report.

Benefits:

- Students have used their project as presentations for graduate school interviews
- Current graduate students can share their work with others, and gain experience with writing up work.

Project Category 1: Topic/Paper report

- Read several recent or high impact deep learning papers. Refer also to secondary sources such as blog posts/Github pages.
- Summarize the paper (abstract) in your own words.
- Define the machine learning problem they are trying to solve.
- Look for math ideas, and try to explain them.

Project Category 2: research project

If you already have a research project

- see if any part of your project can benefit the machine learning theory perspective.
- explain the project in language suitable for non-experts (class members)
- focus on the math/ machine learning problems.

Steps

Groups should be composed of 3 people (less are allowed if there is a reason). Ideally have a complementary strengths in (i) theory (ii) implementations (iii) communication and research (finding references, and writing reports)

Step 1: Choose a topic and group.

Enter in the info in the spreadsheet: <https://docs.google.com/spreadsheets/d/1PDibTdwPGvYOhEurOS4o9RrDrcNlzec8M5Uq1C8vVog/edit?usp=sharing>

Step 2: Write a (1 page) project plan

- Which papers and secondary sources you plan to read
- Project planning:
 - assign the work (finding a topic, research, summary, writing, implementation, interpretation) to group members
 - Schedule the research time/writing time (when each person plans to do the work)

Step 3: Write up

- 8-10 page write up

Step 4: Referee

- Each student needs to volunteer to referee 2 other projects. Choose a referee slot in the spreadsheet. Referee reports. Assign a grade according to the scheme below, and write 1-2 paragraphs of justification.

Deadlines (for both group and individual projects)

- Step 1, Jan 24 <https://docs.google.com/spreadsheets/d/19G41eEQbaMhmX6PIVdxm1YuTteSsWIOQbPitsZNndjY/edit?usp=sharing>
- Step 2, Project plan, Thurs Feb 2nd, in mycourses
- Step 3, Final Submission, Thurs March 9th, mycourses
- Step 4, Referee, Tues March 21st, mycourses

Grading Scheme

- Satisfactory: did the job, but seemed rushed, or incomplete. Is this due to time constraints, or was the project too ambitious? (75/100)
- Good: Acceptable job, worthwhile and informative. (85/100)
- Excellent (top 20% of presentations). Potentially worth re-using for students next year. (95-100/100)
- Unsatisfactory: project is incomplete. (<75/100)

Professor/TA will determine the grade of the projects, taking into account student referee reports.