

1 Overview and Timeline

The final project is intended to be a limited investigation in an area of machine learning of your choice. The purpose of the project is to enable you to study an area of your interest in greater detail in a practical way. The project can take on many forms, including but not limited to,

- a. Projects that explore the application of machine learning ideas to an interesting “real-world” problem.
- b. Projects that involve a theoretical or empirical study of aspects of a learning method or model.
- c. Projects that do an experimental, comparative study of various machine learning methods.

Please propose a topic to us in your project proposal, and we will give you feedback on the feasibility. After the project proposal, you will be assigned a contact TA/Prof that you can use as a resource for questions and advice. Make sure you meet with your contact on a regular basis, so that you identify potential problems before it is too late. You will present the results of your project both in a short presentation in class, as well as in a final project report. More details are given below.

The important dates are:

March 3rd: Submit project proposal for feedback (via Moodle)

April 21 & 23: Project presentation in class

April 28: Final project report due (via Moodle)

2 Project Proposal

The project proposal should outline what you want to do in your project. We will give you feedback on your proposal to make sure the project you are proposing is feasible and appropriate. The proposal should contain the following sections:

- a. The Team. Names of the people working on the project. We suggest working in groups of 3-4. If you can't find a group, email the instructor or TA and we will assign you to a group.
- b. Motivation. Explain why this project is interesting and important.

- c. **Statement of the Problem/Task.** A statement of the problem, issue, or task that you're interested in studying. In particular, try to formulate the key questions (2 to 4 questions is probably a good number) that you will answer in the project.
- d. **General Approach.** A high-level description of the general approach you'll use to address the questions. This should include how you will evaluate and what evidence you are planning to gather (e.g. how you can answer the questions through experiments on data).
- e. **Resources.** A list of resources you have/need to conduct the project. This includes reading, software, datasets, etc. How are you planning to get these resources?
- f. **Schedule.** A schedule of work indicating the dates by which you plan to complete components of the project. Make sure the schedule is plausible.

The proposal should not be more than two pages in length.

3 Project Presentation

The project presentation will be during the last week of class. We will assign a time slot to each group. In the presentation, you should

- a. provide motivation for your project, explaining why it is important and interesting,
- b. explain your research questions,
- c. provide (preliminary) evidence,
- d. draw (preliminary) conclusion.

You can use the computer projector (e.g. via powerpoint) for your talk. Try to make the presentation interesting (e.g. by including a demo). More details on the logistics follow later.

4 Project Report

The final project should be submitted via Moodle(not via an email attachment!!) as a .zip file before 11:59 PM on Tuesday, **April 28th** . This .zip file should include at least your writeup (as either a PS or PDF file) and the source code of any programs you wrote for your project. Include other files if you feel they are appropriate, but obviously explain their relevance in a readme. You may submit a hard copy of these materials in person if you prefer, but we prefer online submission. Naturally, we will not be around the department at 11:59 PM Tuesday, so if you must turn in a hard copy, make sure you do so early in the day.

Do not be late with your submissions. This is not a homework you can turn in late at the cost of 5 points per day; we are getting together and grading these pretty much immediately, since the final grades are due soon after the deadline. For additional guidance in structuring the report,

take a look at the template structure at <http://www.cis.fiu.edu/~rfang/courses/CAP5610/2015sp/project/report-format.htm>. Not every project fits into this structure, and you might choose a different structure instead. The most important goals to keep in mind are

- to motivate your project,
- to make a convincing argument that supports your conclusions,
- to make sure that the reader understands what your project is about and how you came to your conclusions, and
- to make sure that credit is given to all software, literature, etc. that helped you in your work.

It is difficult to recommend a length for the report, but most of you will probably want to stay below 10 pages of text. Being concise is a good thing, but do not sacrifice clarity and completeness.

5 Grading

The projects will be graded in the same spirit as research papers are assessed (though we don't expect you to do original work at the same level). Here is a list of things that we will be looking for:

- a. Originality
- b. Relevance to course
- c. Quality of arguments (are claims supported, how convincing are the arguments you bring forward)
- d. Connection to earlier work
- e. Clarity (how clearly are goals and achievements presented)
- f. Scope/Size (in proportion to size of group)
- g. Significance (are the questions you are asking interesting)

Relative to each other, the proposal will account for 15% of the grade, the presentation for 25%, and the report for 60%.

Feel free to come and talk to us about the various aspects of your project (in fact we strongly encourage you to) so that we can make sure that you are on the right track. Don't forget to have fun while doing it; it's meant to be something that you are interested in doing!

Good luck!