ICS 663: Pattern Recognition (Fall 2015)

Guidelines for Projects

Due: End of Term

The aim of the final project is to demonstrate your ability to use the material we explored in class on real world problems. Of course, you can go beyond it either via novel applications, theoretical development or new techniques.
Unlike the assignments, for the projects no fixed set of problems will be given. Rather, you are free to pick a topic and direction that you find motivating. Your project can be in your current research area but make sure to show what novel work you have done for it for this course. You cannot just submit previous work.

The final project will constitute 40% of the total grade.

1. Project Proposal and Presentation (15%) – proposal due on Wednesday, **September 23**

Project proposal is 1 ~ 2 page description of your project.
The proposal should contain:

- Your name and project title
- A brief description of the problem that you plan to work on
- Bibliography (papers, books, etc.)
- Schedule of work: rough milestones for accomplishing the project
- Anything else that helps understanding your plan and feasibility of the project in the limited amount of time available

2. Interim Presentation (10%) – around week 11 and week 12

Up to 20 minute presentation about the progress of your project which should include:

- Short introduction of the problem that you have been working on
- Main technical approach
- Summary of what you have accomplished
- Revised schedule of work for the rest of the semester

3. Final Project Report and Presentation (20%) – report due on Wednesday**, December 9**

The final report should be in a two-column conference paper-style (e.g. IEEE conference format). Keep your total write-up no longer than 6 pages. Your report should be well-organized and clearly presented as a research paper.
Below is an example of the contents of the report.

- Abstract describing project goal and short summary of your work.
- Introduction:
  - Backgrounds and motivation
  - Problem description

- Technical Approaches / Methods
- Results
  - Brief description of experimental setup (procedures, datasets, input and output formats, visualization, etc.) including programming language or environment of your choice
  - Experimental results and analysis
  - Discussion on strength and weakness of current approach
- Summary and Conclusions
  - Include what you have learned from your work
- Future work
- References

A list of journals and conferences for your reference

As a starting point, you may consult previous research efforts published in the following journals and conference. (Please do not be limited by the list below. Feel free to check out other journals/conferences that are related to your own research area.) You can either consider implementing the algorithms in a paper and using them on unusual datasets of your choice or consider extending the techniques in creative ways (i.e. note some of their limitations and show how to overcome them).

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- International Journal of Pattern Recognition and Artificial Intelligence
- Pattern Recognition
- Pattern Recognition Letters
- Pattern Analysis and Applications
- IEEE Transactions on Neural Networks
- Neural Networks
- Neural Computation
- Intelligent Data Analysis
- Machine Learning
- Journal of Machine Learning Research

- International Conference on Pattern Recognition, ICPR
- International Conference on Machine Learning, ICML
- Neural Information Processing Systems, NIPS
- Computer Vision and Pattern Recognition, CVPR
- Conference on Learning Theory, COLT
- Uncertainty in Artificial Intelligence, UAI
- International Conference on Robotics and Automation, ICRA