EECS432 Potential Final Projects

The purpose of the final projects, which are open research projects, is to let you excise what we have learned in class, and more importantly to explore this research field by yourself. The following are some guidelines for final projects, but leaving spaces for your imagination, as they are open-ended research projects. If you are interested in a topic but not sure, please talk to me in advance. Actually, I hope to see many different final projects. So, be creative.

Group projects are acceptable. Each group should not have more than 2 students. The final grades depends on the talk and report of the final project. Each group gives one talk, but each student must submit an individual final report.

1 A Literature Survey Project

Computer vision and pattern recognition is a new and ever-growing research field. Given a quarter, we only cover a subset of research problems and techniques. In our lectures, we went through technical details on some techniques, but were also sketchy on others. Therefore, it is beneficial to you (and the rest of the class) to perform a literature survey (or a tutorial) kind of final project, to cover some interesting topics that are not covered in class. You can choose you own topics. Don't cover too broadly. It is a good idea to focus on a specific research topic.

One requirement is that you need to survey at least 50 technical papers.

2 A Technical Project

Many students find it very beneficial to apply computer vision and pattern recognition techniques to their own research problems. I also encourage it. Therefore, another type of final project is a technical project. One can either apply computer vision and pattern recognition to solve a real research problem in your discipline, or one can focus on more in-depth study on any pattern recognition methods themselves.

The requirement is that you need to compare the baseline method and your new method, and analyze their performances. What is valued most is your innovation. Having a new idea and validating it is more important than simply reporting some kind of "good" results.

3 Your Talk and Report

Each group should present a 8 minutes talk, and each student should submit an **individual** 20-page (double space) report on the project you've done.

- **The Presentation**: All the presentations will be scheduled at 3/13/2018 and 3/15/2018 during class. Please bring your own laptop and our classroom has a data projector. Each talk will have about 8 minutes. What you must talk about are:

  1. The goal you want to achieve;
  2. Your approach and your design, or your literature survey;
  3. Your results (showing the result sequences);
  4. How to improve your result if you have one more month.

- **The Report**: Each student should hand in an **individual** 20-page report (double-space). The due date is 3/21/2018. Late submissions are not acceptable.

  For a survey or tutorial project, you need to write:

  - Introduction: what motivates you for this survey?
  - Topic and its applications.
  - Classification of various methods
  - Comparison of these methods
  - Conclusion.
  - Course feedback.

  For a technical project, you need to write:

  - Introduction: what motivates you for this project?
  - Problem description.
  - Baseline method
  - New method and your innovation
  - Experiment comparison
  - Conclusion
  - Course feedback