5512, Spring-2019
Project description

Requirements

1. Projects can be done alone or in groups of two (ask me if you want to have more and the project in question).

2. Your projects need needs to be one of the following types:
    *   a literature review, which give a representative view of the current research on a topic and compare and contrast the current known algorithms/methods,
    *   run an experiment, which will contain a light literature review and then show your data and analysis
    *   a theoretical paper, which will have a light literature review and then prove an interesting result

3. The final project is due **May 14**. The report should be around 10 pages, (15 pages for group of 2) written in latex.

A "literature review" should include:
*   Title, authors, date, short abstract (i.e. brief description of main ideas).
*   (1-2 pages) An introduction describing your problem abstractly and why it is interesting.
*   (4-5 pages) A review of related work about this topic, discussing existing solutions in the literature.
*   (2-3 pages) Your own analysis of how the current research (organization, comparison, what needs to be investigated).
*   (0.5-1 page) Conclusion/summary and future work.
*   Bibliography.
*   For group projects, indicate the contributions of the team members.

An "experimental paper" should include:
*   Title, authors, date, short abstract (i.e. brief description of main ideas).
*   (1-2 pages) An introduction describing your problem abstractly and why it is interesting.
*   (2-3 pages) A brief review of related work about this problem, discussing existing solutions in the literature.
*   (1-2 pages) A concise description of your approach to solve the problem, including algorithms details.
*   (2-3 pages) Description of the experiment design and results.
*   (1-2 pages) Analysis of the results.
*   (0.5-1 page) Conclusion/summary and future work.
*   Bibliography.
*   For group projects, indicate the contributions of the team members.

A "theoretical paper" should include:
*   Title, authors, date, short abstract (i.e. brief description of main ideas).
*   (1-2 pages) An introduction describing your problem abstractly and why it is interesting.
*   (2-3 pages) A brief review of related work about this problem, discussing existing solutions in the literature.
*   (1-2 pages) A concise description of your approach to solve the problem, background or algorithm
*   (1-4 pages) Proof of your result. (This page length is a very rough estimate... It should be as

long as it needs to be to prove your result.)
- (0.5-1 page) Conclusion/summary and future work.
- Bibliography.
- For group projects, indicate the contributions of the team members.

5. The project is supposed to be approximately 50 hours, including the initial research, programming, evaluation and writing. This can mean either a fairly simple topic very well analyzed or a hard project covered in much less depth.

6. You do not need to include the source code of the program used for your results. The evaluation will be based solely on the written report, but if you use publicly available code, describe and cite the source of this.

Grading
The project is worth 20% of the total class. Points will be distributed as such:
- 25% Writing
  - 10% quality of writing
  - 10% organization and structure
  - 5% Latex
- 15% Literature search - coverage and analysis
- 30% Problem and solution
  - 15% complexity of problem/solution
  - 15% quality and complexity of programming or development of novel methods
- 30% Paper specific: Coverage of literature/Experimental results/Theoretical results
  - 15% design and extensiveness of section
  - 15% analysis of results/literature or strength of proof