

CS5680/CS6680 – Fall Semester 2017

Final Project

Due 11:59 p.m. Sunday, December 10, 2017

Total Points: 90 points

Please carefully follow the project contract and project schedule discussed during our one-on-one meeting and submit your weekly progress via Canvas by the deadline of each phase. There are no points associated with the first two phases. However, they will help me to evaluate your effort towards the final project.

Phase I: Due before 11:59 p.m. of Nov. 25

CS5680 students: Submit your document, which summarizes at least one major research component (e.g., input and output and its algorithmic view) based on your understanding. Please do not copy sentences and mathematical equations from the paper.

CS6680 students: Submit your source code and a ReadMe file, which summarizes what you have accomplished to date and the information on the data set you will be working on.

Phase II: Due before 11:59 p.m. of Dec. 2

CS5680 students: Submit your document, which summarizes at least one new major research component (e.g., input and output and its algorithmic view) based on your understanding. Please do not copy sentences and mathematical equations from the paper.

CS6680 students: Submit your ReadMe file, which summarizes the changes you made on the components submitted in the first week and the new components you have accomplished in the second week.

Phase III: Due before 11:59 p.m. of Dec. 10

CS5680 students: Submit your document, which summarizes all the research components (e.g., input and output and their algorithmic views) based on the project contract agreed between you and me. Please do not copy sentences and mathematical equations from the paper. **[20 points]**

Submit the presentation file, which should contain at least the following: **[50 points]**

- 1) Introduction: Briefly introduce the problem to be solved. (1 slide)
- 2) Categories of the current techniques to solve the target problem. (1 to 2 slides)
- 3) The proposed approach: Please clearly list all the steps proposed in the paper and the corresponding processing results of each step.
- 4) The shortcomings of the proposed approach mentioned in the paper and **the shortcoming of the proposed approach identified by you.**
- 5) Your suggested improvement on the proposed approach.
- 6) Experimental results: Systematically summarize all experimental results using pictures and tables.

- 7) Conclusion: Summarize what you have learned from the research paper.
- 8) Future work: Summarize the future work which may enhance the current system and the possibility to employ the proposed technique in the other applications.

The final score assigned to the presentation file is based on the following factors: the organization of the file, the clarity of explaining each research component, the understanding of the experimental results and statistical analysis, and the identified shortcomings and proposed improvement.

Final in-Class Presentation [20 points]

CS6680 students: Please submit the zipped file containing your commented source code, README file (.DOCX or .DOC), the presentation file (.PPT or .PPTX), and all the images used in the experiments and the plots/images generated in the experiments (i.e., training and testing images, and the input images and the output plots/images for each experiment).

The Check List for the Final Documentation [15 points]

The README.DOCX or README.DOC file should document at least the following information in **no more than two pages**:

- The step(s) to run your code.
- The approximate time to execute your code.
- **[10 points] A detailed documentation for each of the components of your system.** Specifically, you need to document at least the following for each component (function): 1) the input; 2) the output; 3) the basic operations performed and the reason(s) for some choices of the parameters if any; 4) measures used to evaluate its efficiency, performance, and correctness; 5) its shortcomings; and 6) the use of any external package, the website to download the external package, the instructions to use this external package, and the limitation of the external package.
- Any **improvement** you made on the original approach proposed in the paper (Please write a short paragraph to analyze such improvement).
- Any **change** you made on the original approach proposed in the paper (Please write a short paragraph to analyze such changes).
- Any special data structure that you have designed for solving the problem.
- Any difficult issues you have encountered during implementation and the approaches you have tried to solve the problems.
- The comparison between your modified approach and the original approach proposed in the paper.
- Summary of your experimental results:
Part 1: The experimental results comparable with the results published in the paper. Please add some statements to explain how to run the program to produce these results and the meaning of the results.

Part 2: The other experimental results you have tested to show the effectiveness of your system. Please add some statements to explain how to run the program to produce

these results and the meaning of the results. Please indicate the reason why these results are important to evaluate the system.

- Any other issues you would like to share with me.

Self-commented Source Code [55 points]

The self-commented source code should contain all the necessary comments for the readers to understand the basic functionality of each module. **Please follow the good programming practice and coding standards learned in other CS classes. Make sure to add comments to clearly explain each parameter of the functions and the major functionality of the functions.** In addition, the comment should contain the improvement, the changes, the special data structures, and other necessary statements for the readers to understand your code.

The final score assigned to the source code is based on the following factors: the efficiency of your code, the structure of your code (i.e., the lousy coding will get fewer points), the difficulty of your techniques, the readability of your code, etc.

Final Presentation File [10 points] + Final in Class Presentation [10 points]

The presentation file should contain at least the following:

- 1) Introduction: Briefly introduce the problem to be solved. (1 slide)
- 2) Categories of the current techniques to solve the target problem. (1 to 2 slides)
- 3) The proposed approach: Please clearly list all the steps proposed in the paper and the corresponding processing results of each step.
- 4) The shortcomings of the proposed approach: Illustrate these shortcomings using the intermediate results.
- 5) Your improvement on the proposed approach: Please clearly list all the improvement and the corresponding results of each improvement.
- 6) Experimental results: Systematically summarize all experimental results. Pictures and tables may be used to show the effectiveness of your implementation.
- 7) Conclusion: Summarize your achievement on the final project.
- 8) Future work: Summarize the future work which may improve the current system.

The final score assigned to the presentation file is based on the following factors: the clarity and the organization of the file, and the completeness of the experimental results and statistical analysis.

The Images (Data)

Please send the images used in your experiments or the links to download the images. In addition, please send the input images and the output images/plots for each experiment. If training process is involved in the final project, please send the trained results together with the training images.