CS3244 Machine Learning: Project Final Report Guidelines (v190805). Refinements to these guidelines are expected. Please ensure you have the latest copy. Accessible at http://bit.ly/cs3244-project-final-report. You may delete this header to gain main document body space, if so desired.

XX - Project Final Report

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You should clone this document first. Have all of your team members collaborate on your document and submit by the deadline. Your team may deviate from this project report template, as this document is is just a suggestive format. The final project report must be no longer than 6 pages for the main body of the report, and submitted as an A4 sized, PDF file. Replace the 'XX' in the project title with the team identifier assigned to you by the staff. The final project report is worth 5% of each students' final marks for the course. You may want to refer again to the *Project Guidelines* as previously communicated. Project Final Reports are due in the **Coursemology** by 15 Nov 2019 23:59 SGT. Not following directions will result in a small team penalty, due to staff overhead. You should remove this header (this one column section) to save space in your actual interim report.

Abstract

The abstract should give a 1-2 sentence summary of the project goals, followed by 2-4 sentences on the overall goals of the project. With the final 1-2 sentences, it also should call out specific highlights of the project. It is formatted with slightly different margins to assist in visual recognition.

1 Formatting

Your project report may follow the reporting style in this document, but you may change it as you wish (i.e., in case you want to use a different authoring environment such as LaTeX), keeping the following required formatting:

- Body text no smaller than 9 pt (Serif or Sans Serif fonts both ok).
- Double columned.
- All document margins and column gutter no smaller than 1 cm.
- 6 page body text limit, inclusive of this page (strictly enforced).
    - Inclusive of figures and captions.
    - Exclusive of any number of additional pages of bibliographic references, footnotes and appendices.
- Centered Project Title, Author List (affiliations optional, and email addresses).
- Figure captions to be centered, and no smaller than 7 pt. See Fig. 1.
- References to be made with numbered squared format (e.g., [1]). Bibliographic references preferentially formatted such that first author surnames are ordered lexicographically ascending.

Note the grading of your project will largely be based on your project report main body document; the staff is **not obligated** to review all documents submitted to determine your grade, such as Github code repositories[1]. If you feel that the supplementary material is of vital importance, please **do** suggest this in the main body of the report ("*Detailed claims and error analyses that support these conclusions are made in Appendix A, with the accompanying code in directory/subdir/analysis.ipynb").*

If you submit multiple files (most groups), the .zip file should include your writeup and the source code of any programs you wrote for your project (don't just include a link to your repository). Include other files if you feel they are appropriate, but obviously explain their relevance in a README. All submissions must be via CMT[2].

[1] http://github.com/wing-nus

[2] https://cmt3.research.microsoft.com

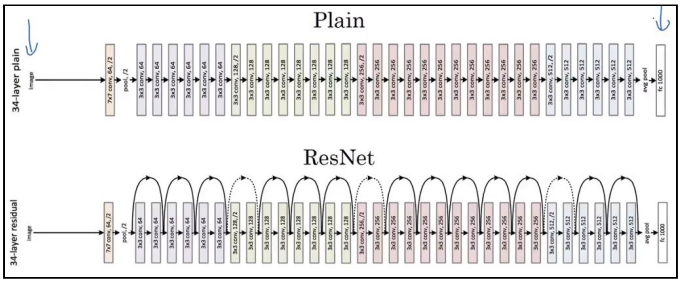

Fig 1: Sample figure. ResNet displaying residual connections (bottom) versus a plain convolution NN architecture (top). Figures should be self-explanatory with its accompanying caption. Diagram credit: RaghavPrabhu @ Medium.

For additional guidance in structuring the report, take a look at the template structure here. 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.
- Being concise is a good thing, but do not sacrifice clarity and completeness.

2 Structure

As each project may have different criteria that the team has proposed to be assessed on, we do not have *prescriptive* guidelines for how your final report should be structured.

However, you can consider the *indicative* structure of a regular scientific article for your report, using it as a basis for modification for communicating your project and its contributions. A computer science article usually follows a 6 part format (we've included an indicative page/column length given the budget of 6 pages):

0. Title, Authors, Abstract (¼ page)
1. Introduction: (½ - 1 page):
    a. Motivation and Importance of the project
    b. Guidelines
2. Related Work (½ - 1 page): Relevant related work that gives background knowledge. It edifies the need for the project and further motivates the project's approach. Its goal is to impress the reviewer that you are a subject expert, AND that what you are doing is novel and necessary to address the weaknesses in the prior work.
3. Method (½ - 2 pages)

4. Evaluation (1 - 2 pages)
    a. Dataset
    b. Baselines. Show why the baselines are legitimate targets for comparison.
    c. Macroscopic: Main experimental results. Accuracy / Precision / Recall / F1 or similar methods.
5. Discussion (1 - 2 pages)
    a. Microscopic: Subsections for each of the interesting highlighted research questions with their supporting evidence.
6. Conclusion (¼ to ½ pages): This does not repeat the abstract or the introduction, but recaps the contributions with details admitted that draw from the details of the report. It contextualises your findings and connects back to the "big picture" of your report's motivation.
    a. Summary of your work, relating your specific contributions
    b. Shortcomings of your work (all work has limitations)
    c. Future work.

3 Updates from the Poster Presentation

Project reports are assumed to be a summative report of the poster presentations done at STePS or in Week 12. Especially for non-STePS teams, projects may have changed substantially since the oral poster presentation. In such cases, please highlight the significant changes from your team's presentation selectively in yellow highlight, so that the staff can check how you have addressed any concerns expressed by any part of the reviewing process.

4 Grading Rubric

The projects will be graded in the same spirit as research papers are assessed (though we do not expect you to do original work at the same level). Your project in total accounts for 30% of your CS 3244 final grade. Here is a list of things that we will be looking for in your Project Report:

- Originality
- Significance (are the questions you are asking interesting)
- Relevance to course
- Quality of arguments (are claims supported, how convincing are the arguments you bring forward)
- Connection to earlier work (scientific literature or lecture materials)
- Clarity of writing (how clearly are goals and achievements presented)
- Scope/Size (in proportion to size of group, member expertise mix)

Acknowledgements

(Optional) If you want to thank anyone you can place these here. This section will not be included in your page length limit.

References

(Required). These do not count against your page limit. You may include an unlimited amount of reference pages. We build on the shoulders of giants.

[1] Abu-Mostafa, Yaser M., Magdon-Ismail, Malik and Lin, Hsuan-Tien. (2012) *Learning From Data*, AMLBook.
[2] Bishop, Christopher M. (2006) *Pattern Recognition and Machine Learning*. Springer.

Appendix A

(Optional) Comes after the references.