# Project Information:

The end of the semester is rapidly approaching! As everyone is finishing out their projects, I would like to solidify some of the details about the project, the paper, the presentation and the grading.

This announcement along with the project and grade rubric have been posted under the Project Information folder on Blackboard.

## Important Dates:

**Paper Deadline:** Wednesday, April 15’th. If you get a draft into me sufficiently before this I will comment on before the final due date.

**Presentation Dates:** I would like to do the presentations during finals week. We have roughly 3 – 4 hours of presentations spread out across a span of 18 time zones. My proposal is to do the presentations **5:30 – 7:30 Tuesday, April 21, and 5:30 – 7:30 Wednesday, April 22.**

**If you can’t present during both of these times please let me know ASAP.**

## Other Important Information:

**Grades:** This is a large, long term project. If you have been making sufficient progress you will receive a passing grade. The difference between the A range and the B range will be in how well you took on the parameters of your project, made a solid effort to understand and implement the machine learning applications, and how well you evaluated the performance of your modeling.

That said, my main window into this is your papers, your presentations, and our group meetings. While the paper and presentation grade in the attached rubric are each around 10% you should think of that more as the effort put into communicating your results in addition to the results presented.

I am more than happy to review your presentation/paper beforehand if you would like, but I will need sufficient time to give comments.

**Self-Evaluation:** I would like everyone to fill out a self-evolution after the paper deadline but before the presentations. The self-evaluation is mostly to reflect on the project, think about what went well and what was a challenge, and think about where this project could go. This rubric has been posted under the Project Information folder on Blackboard.

**Group Evaluation:** I would additionally likeeveryone in a group to fill out a group evaluation. The group evaluation will be to help me differentiated who was responsible for what roles in the group. Although the majority of the project grade will be evaluated as a whole, I would like to directly address the contributions of each group member.This rubric has been posted under the Project Information folder on Blackboard.

**Project Gallery:** At the end of the project I will be setting up a class project gallery. If you would like your project included I will host your paper, presentation, and (if you would like) your notebook file/a link to your git-hub. This is so those of you interested in putting something on your resume have a direct, official link to point to. I will also be making comments on your papers. If you would like to use these comments and resubmit any of your work I will happily update your papers on the gallery to make sure your best work is there.

# Paper Outline:

**Introduction:** Clearly state what your project sets out to do, along with any background information.

**Dataset/Problem Description:** Describe the technical details of your dataset, include where you got it from, how you got, it, and how you made any choices involved in compiling it. This section may have taken a lot of work, but you should still only talk about the choices you made. Additionally, describe the nature of the problem you’re working on (segmentation, object detection, sentiment analysis etc).

**Data representation/Processing:** Choices you made in representing and processing your dataset, any data augmentation you performed, any technical details.

**Solving the Problem:** Describe the methods you used to solve your problem. Did you use a CNN? Did you try many CNN’s? Did you use an RNN, how did you set your sequence length, why did you use it, how did you set your hyperparameters/tune your hyperparameters and why.

**Results:** Report your results. Compare your results to other models you tried, any literature you can find on similar results. Provide quantitative evaluations of your results, in the form of train test validation data, or other measures we discussed in class.

**Conclusion:** Concrete conclusions with suggestions for further directions.

A great example to follow is one of the most famous papers in ML, the Alex net paper:

<https://papers.nips.cc/paper/4824-imagenet-classification-with-deep-convolutional-neural-networks.pdf>

# Presentation Outline:

Your presentation should be roughly the same in structure as your paper, with 1-2 slides per topic above. You should plan 10 – 15 minutes for your presentation, and plan to highlight any aspect that might be particularly interesting to the class.

# Some comments on group dynamics:

***I feel like I’m doing all of the work for my group, what can I do?***

If you feel like you’re doing all of the work, reach out to your group and either say you need help or request to delegate part of our work. Be specific about what your issues are, and what group members can do to help you. This is a good time to clarify roles, state specifically what your role and everyone else’s role in the group will be. Figure out whose roles depend on whose others and commit your intellectual resources so that everyone has a job to from now through the end of the project.

***My group is waiting for one of our members to get/process the data, what should we do in the meantime?***

If your group is still waiting to acquire or process data you should think about having more group members (perhaps all) working on that part of the pipeline. Try to get a realistic assessment of what it will take to get the data into a usable form by the weekend and at least temporarily redistribute roles to get that done.

***I feel like one of my group members is not doing any work, what should I do?***

Again, you should think about clarifying roles. It could be that the group member is working, just not in a visible way, or that the group member is waiting for other work to be done before getting started. Either way, having a firm idea of what each members contribution will be is the best way to make sure the work is being divided equally.

***I feel like I’m really over my head and I’m not contributing anything. What should I do?***

Each group inevitably will have some students more skilled with coding, more skilled with statistics, or more knowledgeable about the theoretical side of a large project. If you are feeling overwhelmed talk with your group and myself, and try to find a small piece of the project you can focus on and do well. Don’t be afraid to ask for help!

Every member of the group should contribute something technical, but you can try to find a low stakes piece to look at. For example:

* You have data, and you have an ML pipeline. Consider looking at a novel way to augment the data that fits into the current pipeline. That way the rest of the project can still proceed while you work out an import piece (never underestimate data augmentation in the success of machine learning).
* Evaluating alternative models. Once you get data processed and ready to train, consider having a group member whose struggling evaluate alternative models to your groups main model. Benchmarking is very important, and any comparison models are useful for showing the value of your results.

Discuss your specific situation with your group, or with me. It is better to contribute something small but well done than to not get any work done because you are overwhelmed.

***What if there only seems like there’s enough work for one person to do?***

First, try to break the task up so that multiple people can do it. Second, consider offering help or reaching out the person responsible for the process, it could be that the y will appreciate the help. However, if you are truly just waiting, consider starting on the next steps with synthetic data. Take the time to create a robust pipeline with synthetic/random data, so that when the time comes to do the analysis you will be ready.

Additionally, always feel free to contact me. I am more than happy to talk with you one-on-one, help you think about distribute group roles, give you technical advise or talk with your group.