**BST 261 Final Project**

For your final assignment in this course you will work on a deep learning project. The goal of the project is to build an appropriate deep model for a specific task e.g. classification, image recognition, etc. You will acquire the data, design a model, tune hyperparameters and communicate the results.

You may work individually or in a team. If part of a team, you will work closely with other classmates (a maximum of 4 students per team) on this project. You can come up with your own teams and use Canvas or Slack to find prospective team members. If you can’t find partners we can help you find a team. In general, we do not anticipate that the grades for each group member will be different. However, we reserve the right to assign different grades to each group member based on peer assessments (see below).

**Project Milestones**

There are a few milestones for your final project. **It is critical to note that no extensions will be given for any of the project due dates for any reason. Late days may not be used.** Projects submitted after the final due date will not be graded. If you anticipate any issues (e.g., due to business travel) you need to send an email to the teaching staff **at least one week in advance**.

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| **Date** | **Description** |
| Monday April 16 | Form a team and submit a project proposal |
| Wednesday May 9 | Group presentation |
| Monday May 14 | Project Jupyter Notebook due |
| Monday May 14 | Peer assessment due |

**Deliverables**

1. Team Proposal

You start by filling out this google form to define your teams and project proposal. [This form](https://docs.google.com/forms/d/e/1FAIpQLScmb7AZoPsguxjHTW4IePt7nhh0O3mehJtM0mqT4esvjstnVg/viewform?usp=sf_link) should be filled out by Monday April 16, 2018 at 11:59pm. Each team (or individual if working alone) will only need to submit one form.

1. Group Presentation

Each group will present the data set they used, model architecture, and results. Each group member will be limited to 2 minutes of speaking time. You may show slides or your Jupyter notebook for the presentation. Presentations will take place in class on May 9.

1. Group Jupyter Notebook

Each group will need to submit one Jupyter notebook on Canvas. A group assignment will be created and groups will be able to upload files there. You may include other files besides the Jupyter notebook if necessary. The Jupyter notebook must be submitted by Monday May 14 at 11:59pm.

1. Peer assessment

Each group member will fill out the peer assessment found [here](https://docs.google.com/forms/d/e/1FAIpQLSeF2fOhI62rTXtKb1pdKKem60Jz8ZJ5-w4IU45xG8KT6rakLA/viewform?usp=sf_link). Assessments must be submitted by Monday May 14 at 11:59pm. You do not need to fill out an assessment if you worked alone.

**Code**

We expect you to write high-quality and readable Python code in your Jupyter notebook. You should strive for doing things the right way and think about aspects such as reproducibility, efficiency, data cleaning, etc. We also expect you to document your code with appropriate comments and to justify your choice of hyperparameters. For example, explain why you chose certain activation function(s), the number or layers and units in those layers, the number of epochs, etc.

**Jupyter Notebook**

Include the following topics in your Jupyter notebook. Depending on your project type, the amount of discussion you devote to each of them will vary:

* **Overview and Motivation**: Provide an overview of the project goals (computer task) and the motivation for it. Consider that this will be read by people who did not see your project proposal.
* **Related Work**: Anything that inspired you, such as a paper, a web site, or something we discussed in class.
* **Data**: Source, scraping method, cleanup, etc.
* **Model Architecture**: How did you build your deep model? How did you tune the hyperparameters? Each choice should be justified by at least one sentence.
* **Final Analysis**: What did you learn about your model? Be sure to compare performance of the training, validation and test sets. Also discuss any limitations or future work for this project.

As this will be your only chance to describe your project in detail, make sure that your Jupyter notebook is a standalone document that fully describes your process and results.

**Grading**

The final project is worth 30% of your final grade. The deliverables will be graded separately:

1. Team proposal: 3% of total grade
2. Group presentation: 10% of total grade
3. Jupyter notebook: 15% of total grade
4. Peer Assessment: 2% of total grade