**DATS 6203 Group Final Project**

Group Proposal: (Due in 04/08 Thursday)

Topic: **Brain Tumor Classification (MRI)**

Network: **CNN**

Dataset Link: <https://www.kaggle.com/sartajbhuvaji/brain-tumor-classification-mri>

脑部肿瘤分类根据MRI（可用CNN）

<https://www.kaggle.com/sartajbhuvaji/brain-tumor-classification-mri>

音乐流派分类根据音频图 （可用CNN）

<https://www.kaggle.com/andradaolteanu/gtzan-dataset-music-genre-classification>

年龄，性别，种族分类根据头像 （可用CNN）

<https://www.kaggle.com/nipunarora8/age-gender-and-ethnicity-face-data-csv>

Question:

1. What problem did you select and why did you select it?
2. What database/dataset will you use? Is it large enough to train a deep network?
3. What deep network will you use? Will it be a standard form of the network, or will you have to customize it?
4. What framework will you use to implement the network? Why?
5. What reference materials will you use to obtain sufficient background on applying the chosen network to the specific problem that you selected?
6. How will you judge the performance of the network? What metrics will you use?
7. Provide a rough schedule for completing the project.

Group Presentation: (Due in 04/27 Tuesday)

15-20 mins

Group Final Report: (Due in 04/27 Tuesday)

1. Introduction. (overview of project and outline of report).
2. Descript of the dataset.
3. Descript of the deep learning network and training algorithm. (Provide some background information on the development of the algorithm and include necessary equations and figures.)
4. Experimental setup.

* Describe how you are going to use the data to train and test the network.
* Explain how you will implement the network in the chosen framework and how you will judge the performance.
* Will you use minibatches? How will you determine the size of the minibatches?
* How will you determine training parameters (e.g., learning rate)?
* How will you detect/prevent overfitting and extrapolation?

1. Results

* Describe the results of your experiments, using figures and tables wherever possible.
* Include all results (including all figures and tables) in the main body of the

report, not in appendices.

* Provide an explanation of each figure and table that you include.
* Your discussions in this section will be the most important part of the report.

1. Summary and conclusions. Summarize the results you obtained, explain what you have learned, and suggest improvements that could be made in the future.
2. References.

* In addition to references used for background information or for the written portion, you should provide the links to the websites or github repos you borrowed code from.

1. A separate appendix should contain documented computer listings (code).

Deliverables:

* Make a folder and name it Group-Proposal.
* Final group proposal (PDF file).
* Make a folder and name it Final-Group-Project-Report.
* Final group project report (PDF file).
* Make a folder and name it Final-Group-Presentation.
* Powerpoint presentation (PDF file).
* Make a new folder and name it Code.
* Save all of your codes for the final project in it.
* For example, if you write code for multiple parts of the project, name them properly and write a README file for it. This README file should explain what order codes need to be run in (e.g., codes to fetch data should be run first, then code to preprocess, and then modeling, etc.) and a short description of what each script does.
* Have one group member create a GitHub repository for the project and name it Final-Project-GroupX where X is your group number (The rest of the group members can be added in as collaborators and fork it, so you only need one repo for the project). Then, push the 4 folders that we discussed above into the repository that you created. You should have a markdown file (README.md) that explains the structure of the repoistory and how it works. Make it as clear as possible.