**Project instruction for 159.738**

1. There are two projects in the course 159.738.
2. Project 1 focuses on using deep learning techniques to analyse large-scale datasets.
   1. Each group should select at least 2 deep learning techniques which can be the techniques discussed in the class or the techniques in the literature.
   2. Each group should select at least two shallow learning techniques for this project which can be the techniques discussed in the class or the techniques in the literature.
   3. Each group should select two large-scale datasets (e.g., sample size should be large than 10,000) for two projects.
   4. Each group should compare the selected techniques at the selected datasets firstly, and then analyse the experimental results.
   5. Each group should write the report by following the format of a research paper (Please see a format example in next pages) and save the codes as well as the experimental results in Jupyter notebook.
   6. Each group should submit a report by a PDF file and the corresponding codes by Jupyter notebook on Stream by May 04, 2019.
   7. Each group should conduct a 30-minute presentation on your result of Project 1 (such as reporting your analysis with slides and running your codes in Jupyter notebook) and your possible idea of Project 2 on May 04, 2019.
3. Project 2 pays attention on designing new techniques by combining deep learning techniques with shallow learning techniques.
   1. Each group should implement one technique combing a deep learning technique with a shallow learning technique at the datasets used in Project 1.
   2. Each group should added the part of Project 2 into Project 1.
   3. Each group should submit the report by a PDF file and the corresponding codes by Jupyter notebook on Stream by May 31, 2019.

Project 1 format

Insert the title of your project

Insert author name and email

Abstract: (within 150 words)

Key words: (at least four key words)

Introduction

Give a brief introduction on your research topic.

Give a brief introduction on your selected techniques (Do not copy from other places, which will be judged as a plagiarism) so that readers may understand these techniques after reading your introduction.

Deep learning technique 1

Deep learning technique 2

…

Shallow learning technique 1

Shallow learning technique 2

…

Implementation

Give a brief introduction on your used datasets

Dataset 1

Dataset 1

List your experimental results

Conclusion

List your analysis of your experimental results.

Reference

…

Project 2 format

Insert the title of your project

Insert author name and email

Abstract: (within 150 words) change your abstract due to new techniques of Project 2

Key words: (at least four key words)

Introduction

Give a brief introduction on your research topic

Give a brief introduction on your selected techniques (Do not copy from other places, which will be judged as a plagiarism) so that readers may understand the techniques after reading your introduction.

Deep learning technique 1

Deep learning technique 2

…

Shallow learning technique 1

Shallow learning technique 2

…

Insert Hybrid technique 1 into your Project 1

…

Implementation

Give a brief introduction on your used datasets

Dataset 1

Dataset 2

…

List your experimental results

Insert the results of Project 2 into your Project 1

Conclusion

Give your new analysis of your experimental results by considering both Project 1 and Project 2.

Reference

…