Group Project for TME6016: Foundations of Deep Learning in Computer Vision

Section-0 Group Formation

Please engage in discussion within the class students with regards to potential projects ideas you have in mind related to TME6016 topics. The idea needs to correlated well with the outline of the course. So please make sure you read the course outline first prior to engaging with a potential group/discussion.

Setup a meeting outside the class and present your project idea in one-slide to the whole class. Each member in the class is required to engage in discussion with each person and understand the problem. Once everyone presents their work-slide, please engage in discussion regarding a possible match based on individual interests.

Section-1 Proposal

Following from your group and topic of choice for the project, please proceed for preparation of a proposal draft 2~3 pages in length. The guidelines are as follows:

- Problem Statement: the problem needs to be introduced and explained. The importance of the problem to computer vision and deep learning as well as the potentials where it can be applied all need to be discussed. Associate challenges and how they can be addressed need to be thoroughly discussed in the proposal.
- Within the context of TME6016, you need to identify the image datasets that will be used for development of the project. All datasets need to be properly introduced with respect to several characteristics associate with the data e.g. size, number of classes for training, number of images, resolution, image size, format, and any relative feature characteristics.
- The group needs to do a comprehensive survey on related datasets and vision model design methodology and how are they employed in AI/ML software products for potential use
- All steps need to be address from (a) dataset selection viewpoint and why the data is a proper fit for such development, (2) describe the strategy of designing CNN model and how it is going to be trained by an optimization algorithm; (3) thoroughly elaborate on training, validation, and testing phases; and (4) target application and potential outcomes
- Identify the milestones and steps of the project and plans for execution. A Gantt chart is required for successful execution of the project. All deliverables are required to be discussed and elaborated for better understanding of the steps of the proposal.
- Discuss the risk mitigations and how you would address them from different view point i.e. labelled dataset, vision model design/revision, evaluation and assessment, etc.