Guideline for Final Project

Welcome to the final project of the deep learning course. The goal for the final project is to experience various deep learning techniques, which can help you in practice. As announced in the spreadsheet attached, the students are assigned into several teams, four members each. Each team **should select a one topic** among the three topics below:

- Image classification
- Sentence classification
- Graph classification

Please, *have a* **sufficient discussion** with your team members to pick one of these. In this final project, your team will participate in a *Kaggle challenge* to evaluate the performance of your deep neural network models.

Instructions

(Note: All the kaggle links will be available on May 3rd.)

Topic 1: Image Classification (TA: MinGuk Kang)

- You are asked to classify images from the DL20 dataset.
- The DL20 consists of a total 10,000 images; 20 classes, 6,687 for the training, 1,688 for the validation, and 1,688 for the test.
- We provide a simple backbone network, Small-Resnet18. However, you can use any other backbone networks.
- See Kaggle link: https://www.kaggle.com/t/cf3f4d712da8450b82fe10d324b26431

Topic 2: Sentence Classification (TA: Sehyun Hwang)

- You are asked to solve a fine-grained sentiment classification on a given movie review dataset.
- The label consists of 5 sentiment classes: 0 - negative, 1 - somewhat negative, 2 - neutral, 3 - somewhat positive, and 4 - positive.
- The data consists of 11k training sentences and 4k test sentences.
- See Kaggle link: https://www.kaggle.com/t/799b77970fa94c3f94e577f5066e96a9

Topic 3: Graph Classification (TA: Yoonwoo Jeong)

- You are supposed to classify the graphs into three labels.
- The data consist of 5000 graphs; precisely, 4400 train graphs and 600 test graphs.
- See Kaggle link: https://www.kaggle.com/t/3b967f98ffe243f89a60063e5de675b3

Things To Do (Due date: 05-06)

- Fill out the interim report on the later part of this document. It must be **up to 2 pages**. Please have a discussion with your team members prior to write the report.
- Invite TAs in your team's GitHub repository. GitHub will be used to monitor your project. (**Invite jyw12382@naver.com (Deep Learning Bot) in your repo**)
- Submit the interim report to the PLMS. **Do not submit the report via e-mail**.

Interim Report for the Final Project

(Due: at 11:59PM, on 6th May, 2021. No email submission.)

Team Name

E-CAT(**E**lectronic **C**omputer and **A**rtificial Intelligence collaboration **T**eam) 

Team Members

Name	Department	Student ID	Role (Write down specifically)
Kim ChoongHan	Artificial Intelligence	20202478	Project Manager
Yoon Byungjun	Computer Science and Engineering	20190766	Github Version Control
Park Chanho	Electrical Engineering	20202986	Researching Theoretical Background
Kim Chiwon	Artificial Intelligence	20202254	Data Preprocessing

Topic

- Image Classification

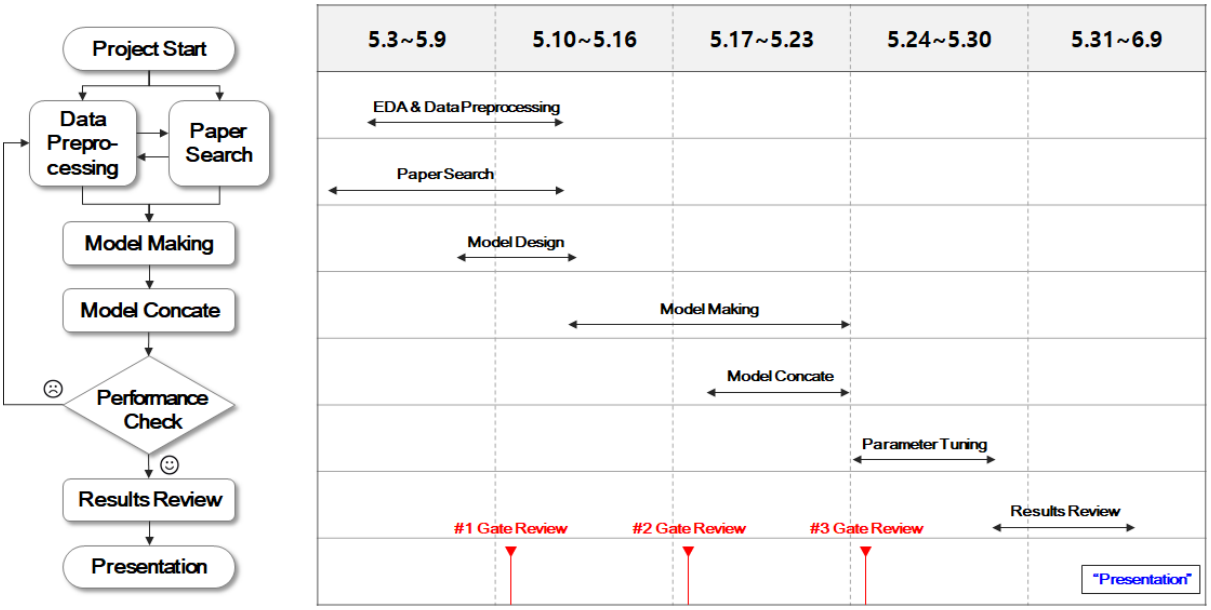
Abstract

- Finding optimal model and training setting for given DL20 dataset
- Experimenting effect of ensembling different models
- Show the effect of initializing a model from pre-trained weights v.s. other initialization method
  e.g, K-Fold, Ensemble, transfer learning from (CIFAR10, CIFAR100, ImageNet)

Method

1. Search a benchmark dataset similar to DL20, e.g ‘CIFAR-10’, then follow up a state of art model of that data.
2. Each member creates variations of the SOTA model. Variations means data augmentation, initializing parameters, changing optimizers, etc.
3. Put each model together by ‘K-fold’ and ‘Ensemble’
4. Tuning hyperparameters, maximize the performance of the model.

Timetable



GitHub Link:

- https://github.com/happyhappy-ai/CSED538-final-project