Manarat International University

Department of Computer Science and Engineering
Neural Networks and Fuzzy Systems (CSE-433) &
Computer Vision & Robotics (CSE-437)
Instructions for Lab Project (Fall 2019)

"Are those who know equal to those who do not know?" (39:9)

Problem Tile: CIFAR-10 - Object Recognition in Images

Problem Descriptions:
The CIFAR-10 dataset is a collection of images that are commonly used to train computer vision algorithms. It is one of the most widely used datasets for deep learning research. The CIFAR-10 dataset contains 60,000 32x32 color images in 10 different classes which are airplanes, cars, birds, cats, deer, dogs, frogs, horses, ships, and trucks. There are 6,000 images of each class.

This lab project offers a Kaggle competition on this dataset for the MIU students to implement deep learning algorithms which have been taught on both courses in a cool real-world project. The competition challenges you to predict the labels of total 300,000 images on this dataset using only 60,000 labeled images for training.

Team Formation
Team can be formed up within 1 to 3 students. **No mix-gender group is allowed**.

Time Line
- Competition starts: 26-10-2019
- Last date of accepted submission: 30-11-2019
- Duration: 5 weeks

Assignment Milestone
Your assignment milestone report should be between 1-2 pages. The following is a suggested structure for your report:

1) Title Page
   I. Name of the Team
   II. Contestants Name, Student ID
   III. Kaggle Account (same name with the team-name)
   IV. Git Repository for the source code with documentation
2) Problem statement: Describe your problem precisely specifying the dataset to be used
3) Technical Approach:
   I. Mention your preferred data preprocessing techniques
   II. Mention the algorithms you intend to apply to solve the given problem
   III. Mention your implementation details (Development Platform, Coding language, libraries)
4) Results (# of expected submission, accuracy, position in the leaderboard)
5) Discussion

Submission: Please submit your team milestone in PDF format on here within 05-11-2019 11:59pm.

Notes:
1. Each team should participate into the competition using one Kaggle account.
2. Source code should be uploaded and maintained in one Git Repository.
3. **Submission files are not permitted to share**. Please delete you submission files before committing the code into the git repository.

Honor Code
Please respect the spirit of the competition and do not cheat.

Please do not

I. Copy other groups' code or incorporate their code into your project.
II. Train your model on the test set
III. Change manually your submission file by seeing test set images
IV. Submit other people submission file.

You can consult with Kaggle Kernels, or other publicly available implementations.

Grading Policy
1. Each group should have to present their result into the class after the competition.
2. Assignment is graded based on
   I. Leaderboard position
   II. Algorithms tried
   III. Results achieved
   IV. Project Report
   V. Presentation
3. Solving other peoples' issues, writing kernels & blogs, making video tutorial will be considered for earning extra credit.

Prizes
The winning team will be rewarded by a *special prize*

Tips for Better Results:
1. Read the winner blog
2. Try to implement the state-of-the-arts approaches.

Notes
- Please do not ask questions about project on my social or telecommunications media
- For any questions ask: here