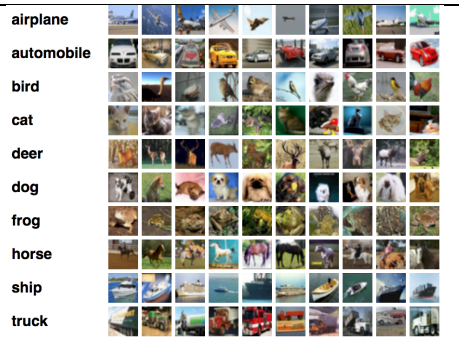
EE258 PROJECT
FALL 2018 DUE: Nov 9th, 2018

CLASSIFICATION OF CIFAR-10 dataset



In this project we are going to implement neural networks to classify the 10 classes in the CIFAR-10 dataset: airplane, automobile, bird, cat, deer, dog, frog, horse, ship, truck. You can find some interesting papers related to CIFAR-10 dataset in this link [1].

IMPLEMENT and COMPARE the performance of different fully-connected feedforward neural networks on the dataset[2]. All the programming should be done in Python. **If you are working with a team member, each student should write their own report even though plots and code might be the same.**

TO BE SUBMITTED:

1. Code [**20% of the Grade**]: Well documented code with a ReadMe file. I should be able to run the code, and obtain the results provided in the report.

2. Report (4-5 pages) [**80% of the Grade**]:

- Methodology (describe classifiers used, cross-validation method used etc).
- Data (describe the dataset)
- Simulations (change parameters (number of epochs, activation functions, training set size etc) and observe the effect on the performance, provide plots & tables for both test and training classification errors , confusion matrices, etc)
- Results (Discuss your observations, do performance comparison of different classifiers)

REFERENCES:

[1]http://rodrigob.github.io/are_we_there_yet/build/classification_datasets_results.html
[2] https://www.cs.toronto.edu/~kriz/cifar.html
[3] Chapter 3 in Hands-On Machine Learning with Scikit-Learn and TensorFlow Concepts, Tools, and Techniques to Build Intelligent Systems By Aurélien Géron