Carnegie Mellon University

17-644: Applied Deep Learning

Assignment #3

Assigned: **Tuesday, April 1st**
Due: **Tuesday, April 8th**

Assignment Description

Select one of the following:

- Use the dataset that you selected for Assignment 2, along with your trained model
- Choose a new dataset and train a new model. For example, you could use the data that you're planning to use for your semester project, or you could select an entirely different dataset.

(1 POINTS): Briefly describe your selected dataset.

(1 POINTS): Describe your trained model, including its architecture, number of learnable parameters, hyperparameters, performance on the training and validation data. Is there any evidence of over-fitting?

(1 POINTS): Plot a histogram of the model weight values (all the weight values on one histogram). Document any observations.

(2 POINTS): For each layer, plot a histogram of the model weight values (one histogram for each layer). You may include multiple histograms on one figure if you would like. Does the distribution of weight values change across each layer? Document any other observations.

(3 POINTS): Apply regularization and re-train your model. Plot a histogram of the model weight values (all of the weight values on one histogram). How did regularization affect your model weight values? Document any other observations.

(3 POINTS): Apply some type of hyperparameter tuning (grid search, random search, etc.). Compare the performance of your un-tuned model with your tuned model. Document any observations.

(2 POINTS): Select and describe the dataset that you'll use for your semester project. Document your research question and your analysis plan.

Deliverable

(2 POINTS): Turn in a clean, well-formatted short report describing your process and results, along with code snippets for important steps, and your own interpretations of the modeling exercise.