

# DL Lab 2 Solution

April 23, 2018

## Implementing text classification:

**Text file:** Machine learning is a field of computer science that uses statistical techniques to give computer systems the ability to "learn" (i.e., progressively improve performance on a specific task) with data, without being explicitly programmed.

## Output:

```
Run CNN
C:\Users\Mihran\Anaconda3\python.exe "U:\UMKC\Semester 8_Spring_2018\Python DL\Labs\DL Labs\lab 2\Lab2\CNN.py"
Loaded training data...
2018-04-23 23:38:57.700263: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use SSE instruction
2018-04-23 23:38:57.700649: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use SSE2 instruction
2018-04-23 23:38:57.700943: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use SSE3 instruction
2018-04-23 23:38:57.701244: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use SSE4.1 instructio
2018-04-23 23:38:57.701498: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use SSE4.2 instructio
2018-04-23 23:38:57.701802: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use AVX2 instruction
2018-04-23 23:38:57.702383: W c:\l\tensorflow_1501918863922\work\tensorflow-1.2.1\tensorflow\core\platform\cpu_feature_guard.cc:45] The TensorFlow library wasn't compiled to use FMA instruction
Iter= 1000, Average Loss= 2.151473, Average Accuracy= 34.80%
['learning', 'is', 'a'] - [field] vs [science]
Iter= 2000, Average Loss= 1.108614, Average Accuracy= 58.80%
['performance', 'on', 'a'] - [specific] vs [specific]
Optimization Finished!
Elapsed time: 59.968178510665894 sec
Run on command line.
3 words: systems the ability
systems the ability to "learn" computer systems computer systems computer systems computer systems computer systems computer systems computer systems computer systems computer systems computer
3 words:
```

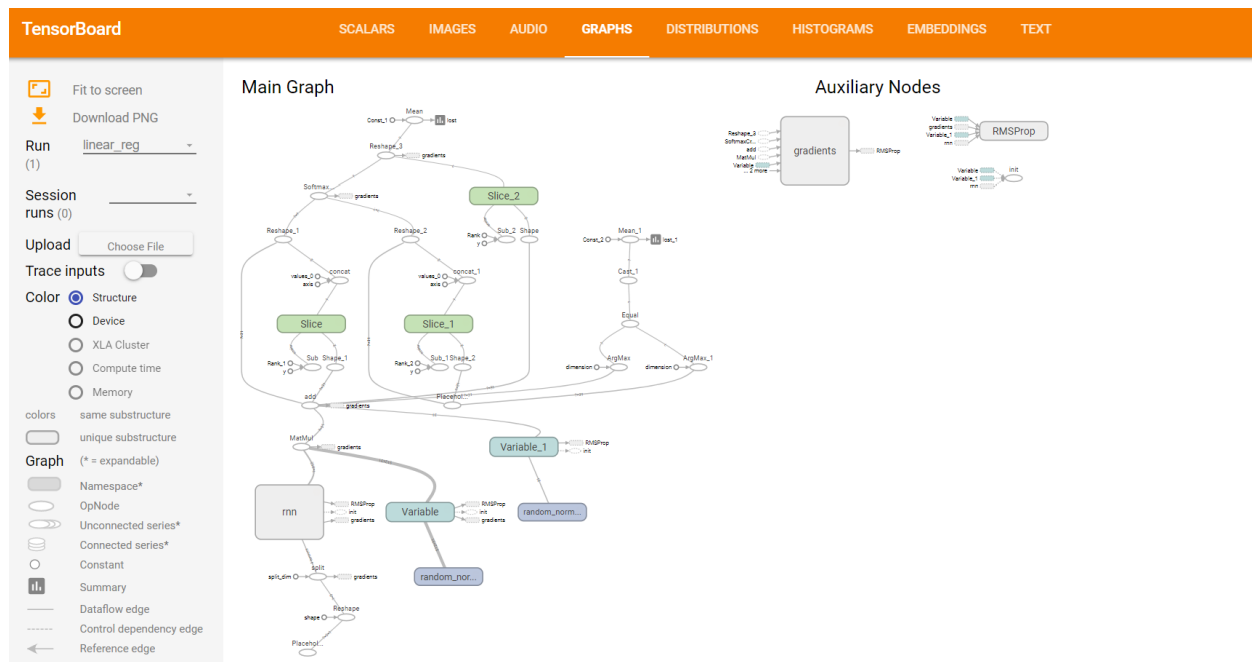
## Graph in TensorBoard

```
Terminal
+ Microsoft Windows [Version 10.0.16299.371]
(c) 2017 Microsoft Corporation. All rights reserved.

U:\UMKC\Semester 8_Spring_2018\Python DL\Labs\DL Labs\lab 2\Lab2>c:

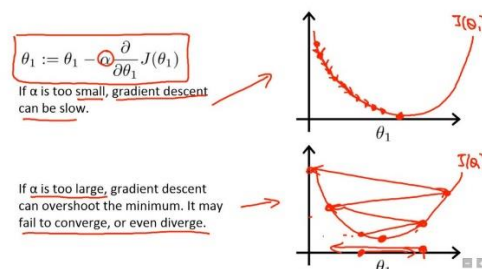
C:\>cd C:\Users\Mihran\Anaconda3\Scripts

C:\Users\Mihran\Anaconda3\Scripts>tensorboard --logdir="./graphs" --port 6006
WARNING:tensorflow:Found more than one graph event per run, or there was a metagraph containing a
graph_def, as well as one or more graph events. Overwriting the graph with the newest event.
WARNING:tensorflow:Found more than one metagraph event per run. Overwriting the metagraph with the
newest event.
Starting TensorBoard b'54' at http://DESKTOP-TT0T59N:6006
(Press CTRL+C to quit)
```



## Change the hyperparameter:

- Learning Rate is inversely proportional to accuracy.



[link: <https://towardsdatascience.com/estimating-optimal-learning-rate-for-a-deep-neural-network-ce32f2556ce0>]

- Iteration should increase accuracy but according to the data set. if data set is big accuracy will be better with more iteration, but it will take long time.
- More input will be more accurate but it also depends on the data set.