ECSE 6965 - Introduction to Deep Learning

Programming Homework 05

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Test Accuracy: ~84.12 % → (84% +)

Validation Script: Works

Screenshot:

```
Loss: 0.31638238
Training Accuracy: 87.19999790191650
Test Accuracy: 84.118002653121948

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Optimization Finished
Time Elapsed: 2239.1494510173798
usama@usama-desktop:~/assign_05_new$ python validation_script.py my_model
Not validating, but checking network compatibility...
Loading model from file 'my_model'...
Trying random batch...
Batch of shape (1000, 25)
Network seems good. Go ahead and submit.
usama@usama-desktop:~/assign_05_new$
```
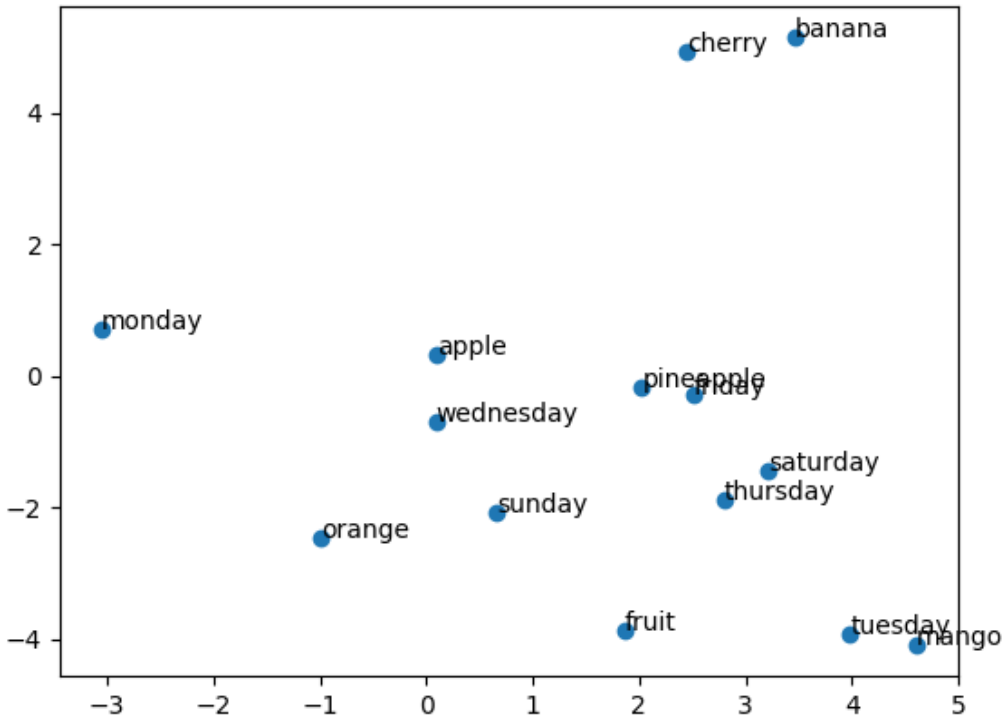

Visualization: Fruits and Days linearly separable with a 4^{th} degree polynomial transform.

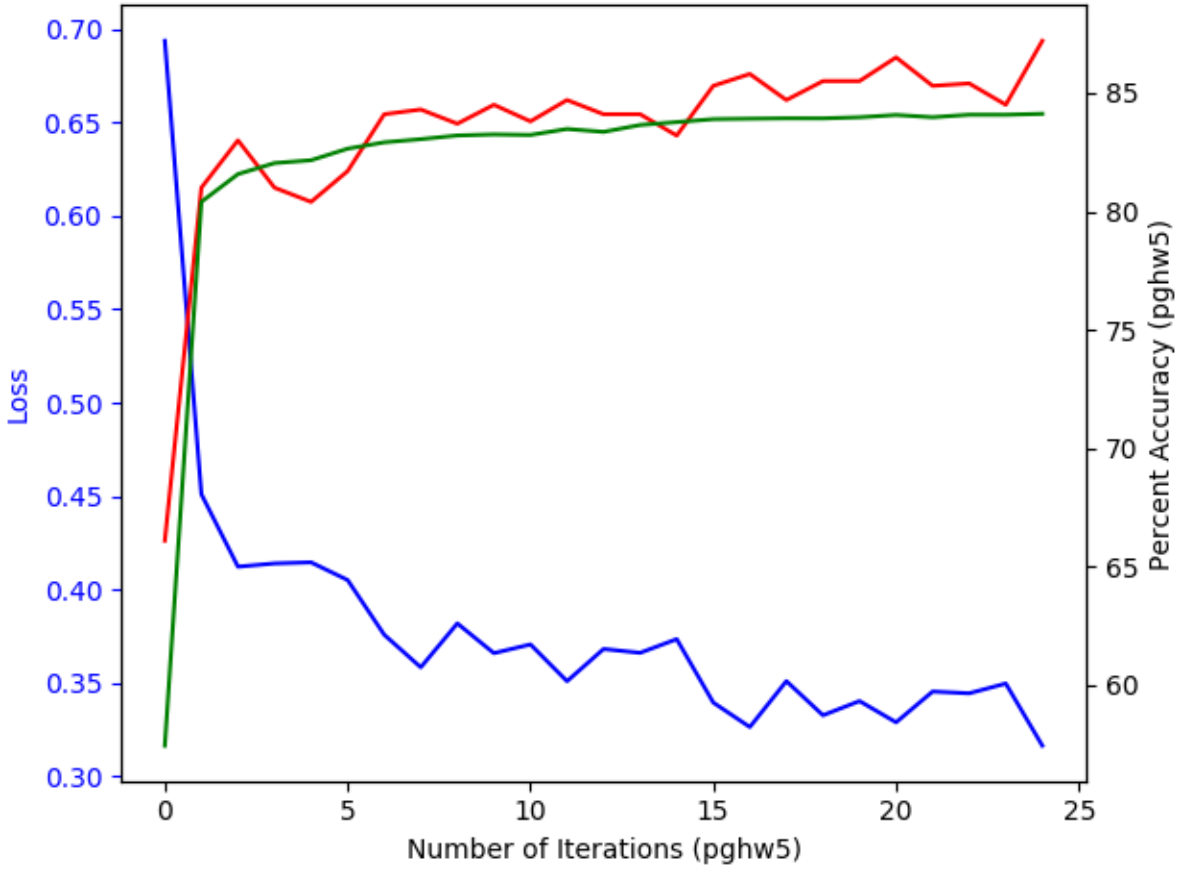


Model uses embedding Layer: Yes. Word Embedding Size → 300

Model uses TensorFlow RNN Cell with dynamic rnn: Yes. LSTM Cell Size → 128

Model uses classifier weights with appropriate loss function: Yes. Cross Entropy used tf.nn.sigmoid_cross_entropy_with_logits

Plots: **Blue → Loss/Cost**, **Green → Validation Set Accuracy**, **Red → Training Accuracy**, **x-axis** is Number of Iterations ÷ 50



Memory Calculation:

vocabulary_size = 500,000

embedding_size = 300

From Wikipedia (Dated 4/20/2017 12:37pm): "**Double-precision floating-point format** is a computer number format that occupies 8 bytes (64 bits) in computer memory"

Total Memory for Matrix of Size [vocabulary_size, embedding_size]:

= 8 x 500,000 x 300 bytes

$= 1{,}200{,}000{,}000$ bytes

$= \frac{1{,}200{,}000{,}000}{1024 \text{ x } 1024 \text{ x } 1024}$ Giga Bytes

$= 1.1176$ Giga Bytes

~ 1.12 GB

Code: (Attached → 'pghw05_5.py')

Commented: Yes

Not Plagiarized

Model Files: (Attached)