

Assignment 2:
Intro to Natural Language Processing

1 Programming: Text Classification with RNNs

1.1 Programming: Text Classification with RNNs

Hyperparameters:

Choice of nonlinearity = tahn

Word embedding dimension size = 16

Hidden Dimension size = 64

Dropout rate = 0.5

Choice of Optimization method = adam

Learning rate = 10^{-3}

Training Batch Size = 32

Number of Training Epochs = 20

- *Solution.*

TRAINING DATA RESULTS

	Loss	Accuracy
Epoch 1	0.6691	0.5796
Epoch 2	0.5723	0.7025
Epoch 3	0.3721	0.8251
Epoch 4	0.2221	0.9069
Epoch 5	0.1271	0.9519
Epoch 6	0.0783	0.9711
Epoch 7	0.0608	0.9793
Epoch 8	0.0652	0.9770
Epoch 9	0.0712	0.9745
Epoch 10	0.0388	0.9866
Epoch 11	0.0360	0.9877
Epoch 12	0.0301	0.9896
Epoch 13	0.0376	0.9868
Epoch 14	0.0345	0.9878
Epoch 15	0.0328	0.9884
Epoch 16	0.0251	0.9916
Epoch 17	0.0288	0.9908
Epoch 18	0.0380	0.9867
Epoch 19	0.0408	0.9861
Epoch 20	0.0271	0.9911

TEST DATA RESULTS

	Loss	Accuracy
Epoch 1	0.6987	0.5084
Epoch 2	0.5178	0.7405
Epoch 3	0.2342	0.9047
Epoch 4	0.1398	0.9449
Epoch 5	0.1040	0.9608
Epoch 6	0.0785	0.9708
Epoch 7	0.0674	0.9753
Epoch 8	0.0570	0.9796
Epoch 9	0.0513	0.9812
Epoch 10	0.0484	0.9828
Epoch 11	0.0456	0.9837
Epoch 12	0.0460	0.9836
Epoch 13	0.0450	0.9844
Epoch 14	0.0362	0.9869
Epoch 15	0.0412	0.9854
Epoch 16	0.0396	0.9863
Epoch 17	0.0315	0.9896
Epoch 18	0.0311	0.9895
Epoch 19	0.0276	0.9914
Epoch 20	0.0214	0.9928

1.2 Programming: Text Classification with LSTMs

Hyperparameters:

- Choice of nonlinearity = tahn
- Word embedding dimension size = 16
- Hidden Dimension size = 64
- Dropout rate = 0.5
- Choice of Optimization method = adam
- Learning rate = 10^{-3}
- Training Batch Size = 32
- Number of Training Epochs = 20

Solution.