COMP9444 – Neural Networks and Deep Learning

Assignment 2 – Report

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In preprocess part, First I set all words to lower case. Then I remove all the <'s> in comments because the Embeddings pickle file doesn't include this symbol as a word. As the same reason, I drop all punctuations except <->, which connect several words into one word. Finally, I split string by space and reverse the list I got.

I set weight and bias for both 'in' and 'out' of the RNN training and I use two LSTM cell in my program to increase the accuracy (with size of 25 and 50). To compute loss, I choose softmax cross entropy and set the program with reduce_mean to get as less loss as possible. As the number of iterations has been set to 100,000, It is more appropriate to set the learning rate to a low level (0.001).

The training progress can easily approach 1.0 within 10,000 iterations but the evaluation accuracy stays very low (under 70%). This means the program may overfit training data. Thus I set the drop rate to both input and output of RNN using rnn.DropoutWrapper.

I have tried several different combinations of parameters and get an accuracy of 82% for the evaluation. My final choice is below:
BATCH_SIZE = 64
MAX_WORDS_IN_REVIEW = 100
EMBEDDING_SIZE = 50
HIDDEN_SIZE (LSTM cell) = 50
LEARNING_RATE = 0.001
INPUT_KEEP_PROB =0.8
OUTPUT_KEEP_PROB=0.8