Deep Learning models for Sentence Classification, Assingment 1, course CE7455

Adam Barla
n2308836j@e.ntu.edu.sg
NTU, Singapore

1 Configuration Optimization

Implement the "pack padded sequence" function in PyTorch's RNN library. Report results under the default setting and discuss the benefits of this function.

Experiment with different configurations (optimizers, learning rates, batch sizes, sizes of hidden embedding) and report the best configuration's performance on the validation and test sets.

Implement regularization techniques, describe them, and report accuracy results after application.

2 Input Embedding

Switch from randomly initialized input word embeddings to pre-trained word2vec embeddings. Report accuracy on the validation set and compare performance.

Gensim installation and pretrained word2vec models: [Gensim](https://radimrehurek.com/gensim/intro.html#installation), [Pretrained models](https://radimrehurek.com/gensim/models/word2vec.html#pretrained-models).

3 Output Embedding

Explore options for computing sentence embedding beyond the final hidden representation. Implement the best option(s) and report accuracy on the validation set, comparing it to the performance in Task 2.

4 Architecture Optimization

Experiment with more complex RNN architectures (GRU, LSTM, Bidirectional simple RNN, simple RNN with 2 hidden layers) and report accuracy on the validation set.

5 Critical Thinking

Propose and implement a modification to further improve performance. Conduct experiments and report accuracy on the validation set.

References