Related Work

Convolutional Neural Networks (CNN) has been well studied in recent years and has recently shown great improvements over existing approaches in sentiment analysis (Zhang, Chen, Liu, & Wang, 2017). We reviewed some past works closely related to our study.

The CNN is designed to take advantage of the 2D structure of an input image, and (Johnson & Zhang, 2015) suggested that using only 1D structure (word order) of text data for CNN would also result a feasible prediction. For this model, the authors directly applied CNN to small text regions, and combined various types of embedding to improve accuracy. From their experiments on sentiment classification, their models were able to surpass the baseline and achieved a result with 7.67% error rates.

In addition, (Kalchbrenner, Grefenstette, & Blunsom, 2014) have adopted an easy applicable model for sentiment modelling of sentences by using a global pooling operation over linear sequence. Thus, it enables the networks to handle sentences of varying length and different languages. According to their results, the error rate was greater than 25% on positive/negative reviews prediction.

# Reference

Johnson, R., & Zhang, T. (2015). *Effective Use of Word Order for Text Categorization with Convolutional Neural Networks.*

Zhang, Y., Chen, M., Liu, L., & Wang, Y. (2017). *An effective convolutional neural network.*

Kalchbrenner, N., Grefenstette, E., & Blunsom, P. (2014). *A Convolutional Neural Network for Modelling Sentences.*