

Abstract

Relation Classification as a foundational task with regard to many other natural language processing (NLP) tasks, has caught many attentions in recent years. In this paper, we take improved BLSTM that makes the utmost of sequential context information and word information in order to obtain temporal features and high-level contextual representation. Besides, attention mechanism is applied to improved BLSTM making it focus on the segments of a sentence related to the relation automatically. Finally, we take advantage of CNN to capture the local important features for relation classification.

Objectives

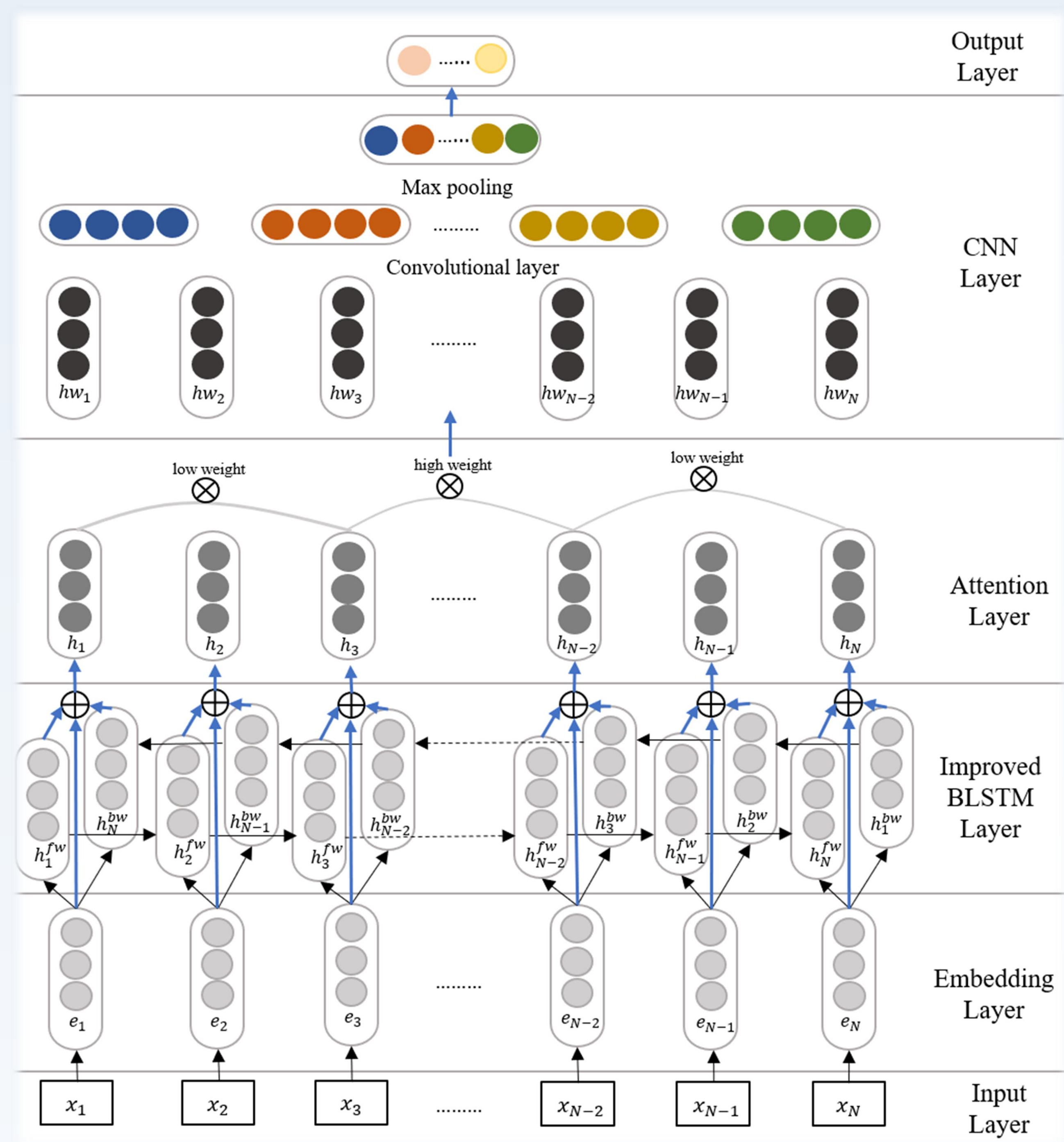
- Problem1: Existing methods treat each word in a sentence equally.
- Problem2: Most existing methods use static word vectors and need more better word representation.
- Objective1: Attention mechanism makes model focus on the words between entities.
- Objective2: Improved BLSTM makes model get better word representation.

Datasets

We evaluate our model on two different datasets. The first one is the dataset provided by SemEval-2010 Task 8. The second dataset is KBP37, provided by Angeli et al.

Dataset	Context length			Proportion of long context (≥ 11)
	≤ 10	11-15	≥ 16	
SemEval-2010	6658	3725	334	0.379
KBP37	6618	11647	15546	0.804

Method



Results

To prove the feasibility of our model, we conduct a series of experiments, comparing with other existing methods of relation classification.

Model	SemEval-2010 Task 8	KBP37
CNN+WV+PF	78.9%	52.3%
RNN+WV+PI	77.4%	54.3%
SDP-LSTM+WV	81.3%	55.7%
BLSTM+WV+PI	82.7%	58.8%
Att-BLSTM+WV+PI	84.0%	61.2%
BLSTM-CNN+WV+PF+PI	83.2%	60.1%
I-BLSTM-CNN+WV+PF+PI*	84.3%	63.4%
AI-BLSTM-CNN+WV+PF+PI*	84.8%	63.7%

Conclusion

- Our model can make full use of Improved BLSTM-CNN with word embedding, position features and position indicators without any extra lexical information to get better word representation.
- Meanwhile, attention mechanism is applied to make the model pay more attention on the words between two marked entities.