

Refined Distributed Emotion Vector Representation for Deep Neural Networks to Generate Chinese Emotional Conversation

Yan-Chun Hsing, Chien-Hung Chen, Yung-Chun Chang
Graduate Institute of Data Science, Taipei Medical University, Taiwan

• Introduction

The official training data of short text conversation (STC) task at NTCIR-14 contains 600,000 pairs of post and response from Weibo, from which we remove noisy data and train our model. We construct a sequence-to-sequence-based model, which is commonly used in generation-based methods, to generate responses that contain emotions of our choosing. Besides, we also propose a refined distributed emotion vector (RDEV) representation model, which is an emotion detection method based on valence and arousal, to improve the responses so that they would contain appropriate content as well as adequate emotion. RDEV combines convolutional and recurrent neural networks, and performs remarkably well on the dataset of emotion analysis in Chinese weibo texts task in NLPCC 2014. Our final evaluation results achieve an average score of 0.32 from three annotators. The performance of our system is very promising, although not the best among the competing teams in this challenge.

• Method

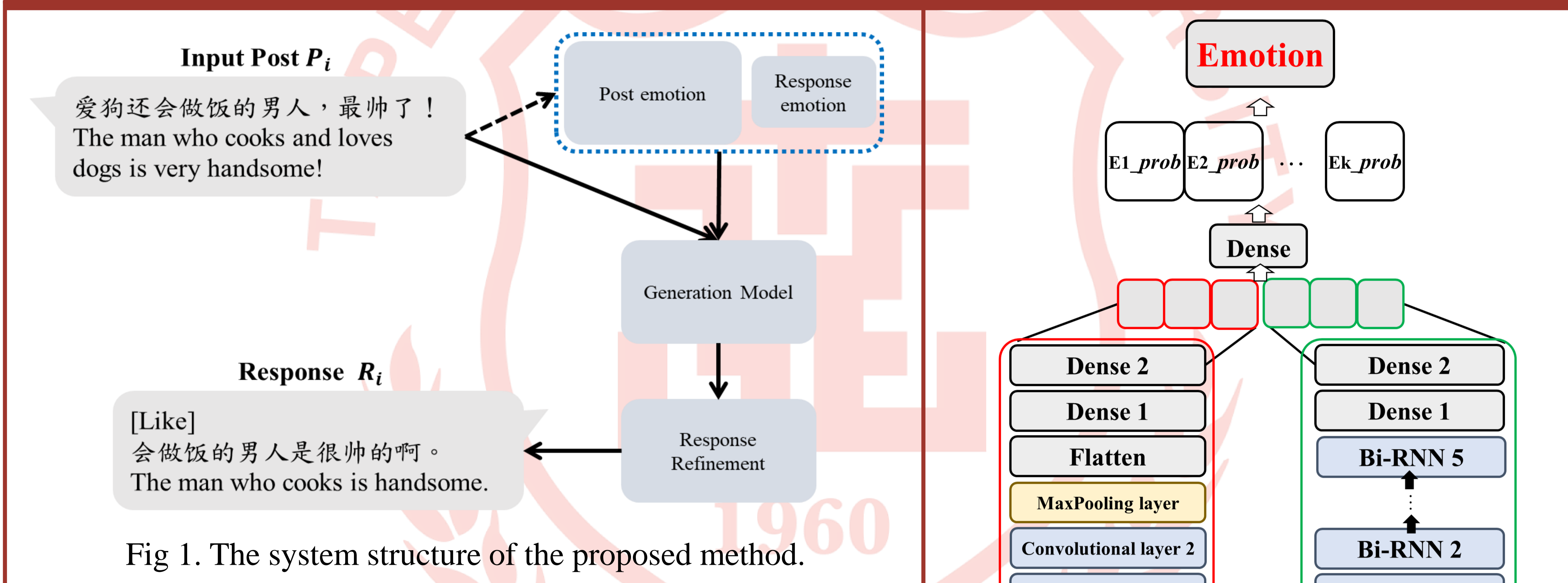


Fig 1. The system structure of the proposed method.

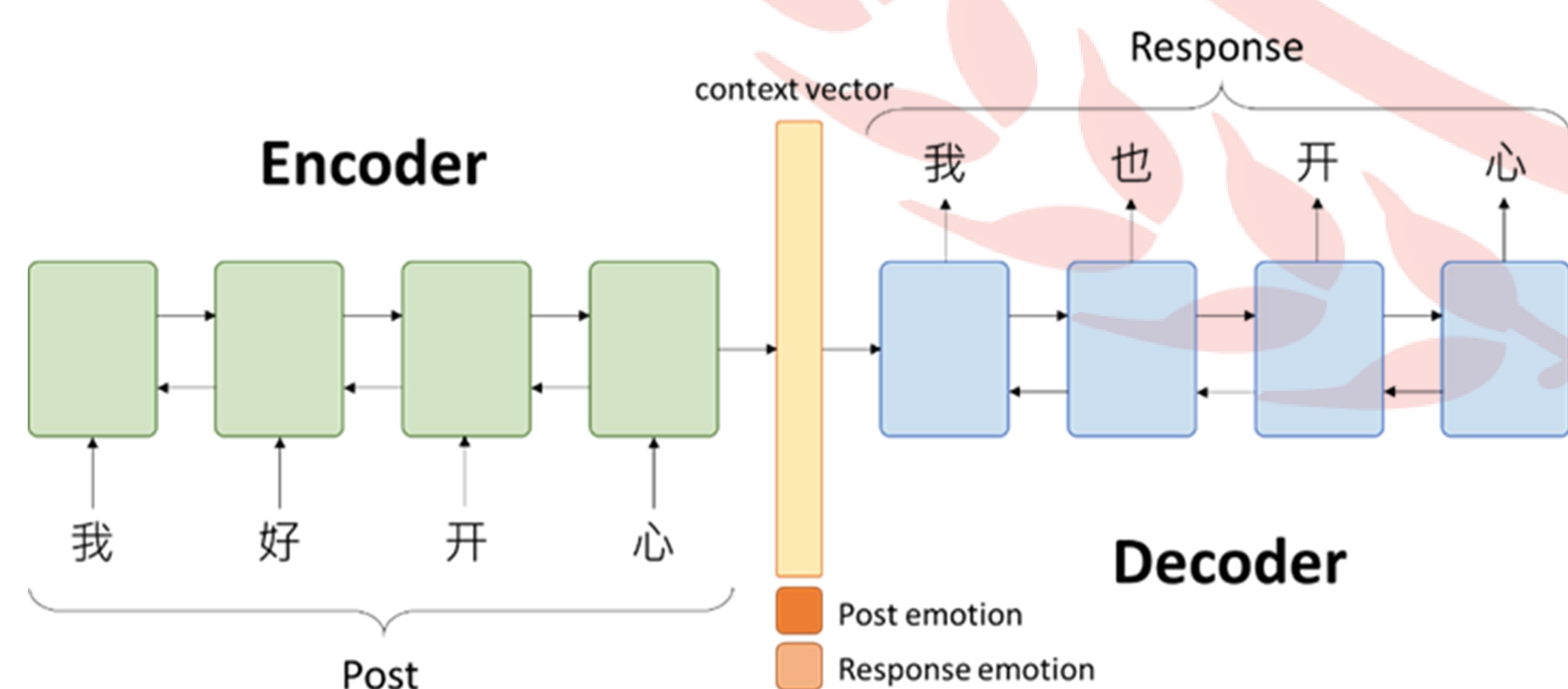


Fig 2. Generation Model for Chinese Emotional Conversation

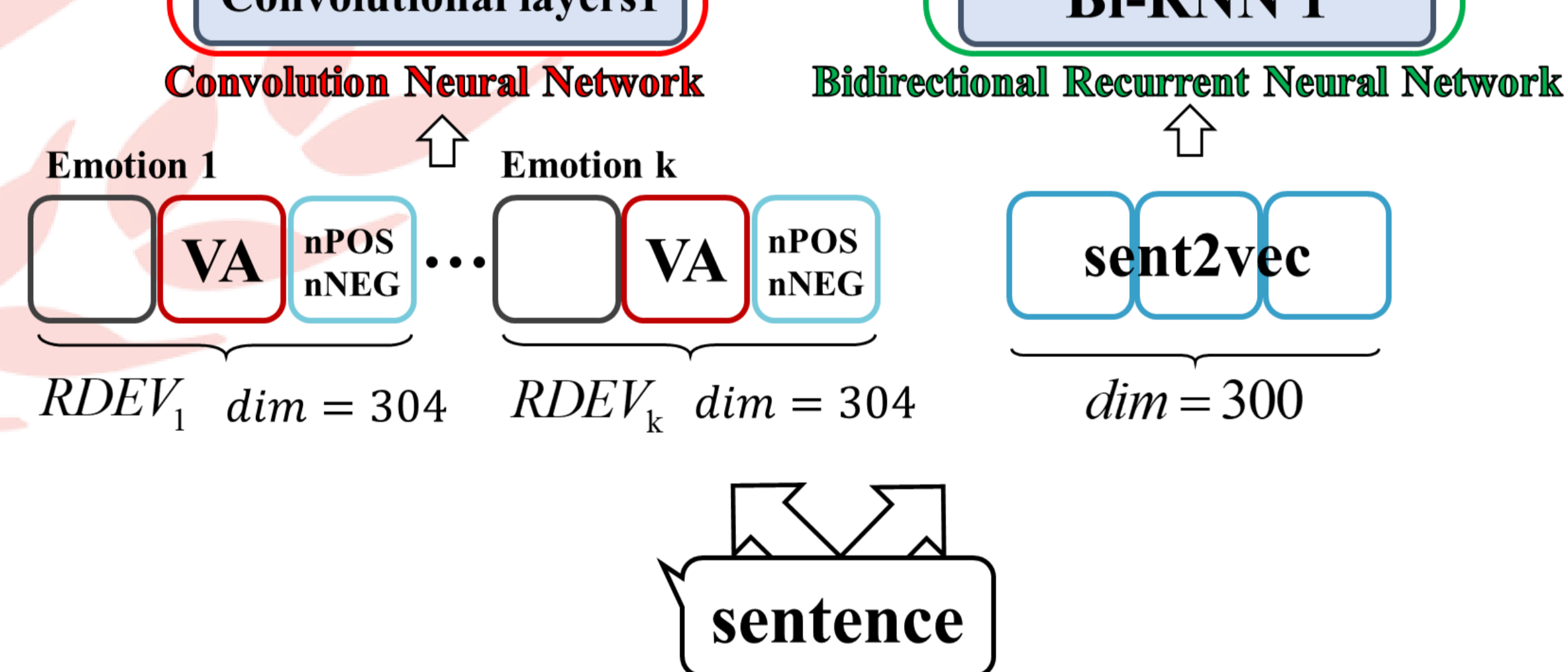


Fig 3. Emotion detection structure

• Experiment Result

post	怪梦一个接一个,睡眠质量差劲![怒][怒][怒][怒][怒]		
	Response1	Response2	Response3
Like	加油哦	你在哪里	[爱你][爱你][爱你]
Sadness	我也不知道[泪][泪]	你是谁啊	你是谁的黑了吗?我还没睡呢。。
Disgust	怎么了?	你是谁啊	你是干嘛的?
Anger	怎么啦?	你是谁啊	你要干嘛去了?
Happiness	[哈哈][哈哈][哈哈]	回家[嘻嘻]	回家里啦