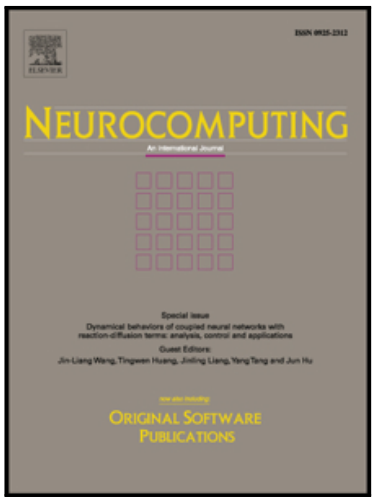

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Recurrent Convolutional Neural Network for Answer Selection in Community Question Answering

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Abstract

In this paper, we propose a Recurrent Convolutional Neural Network (RCNN) for answer selection in community question answering (CQA). It combines convolutional neural network (CNN) with recurrent neural network (RNN) to capture both the semantic matching between question and answer and the semantic correlations embedded in the sequence of answers. Firstly, the representations of question and answer are learnt separately via CNNs. Then a fully connected neural network is used to generate the fixed length representation for each question-answer (QA) pair. The sequence of QA pair representations are then fed into the RNNs to model the semantic correlations among answers. Finally, the softmax classifier is used to identify the matching quality of answers for a given question. In order to further improve the sequence learning capability, a two-phrases learning strategy is designed to train the model, which fine-tunes the RNNs with the learnt context-dependent representations. Results show that, RCNN can improve the Macro-F1 by 2.75% over the baseline model that is based on two parallel CNNs. By integrating thread-level features into QA matching, our model achieves the best performance of Macro-F1 58.77%, which is 1.6% higher than the best submitted system of the answer selection task in SemEval2015. The results prove the effectiveness of the proposed model on the task of answer selection in CQA.

Keywords: Answer Selection, Recurrent Convolutional Neural Network, Question

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