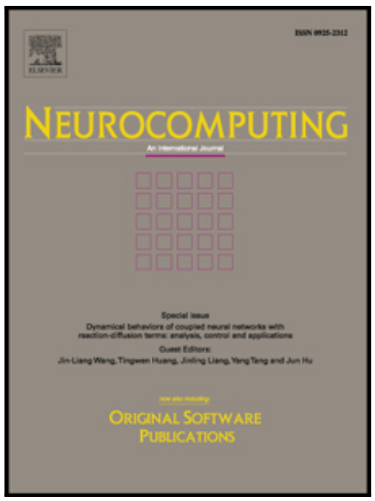

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Joint Entity and Relation Extraction Based on A Hybrid Neural Network

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Abstract

Entity and relation extraction is a task that combines detecting entity mentions and recognizing entities' semantic relationships from unstructured text. We propose a hybrid neural network model to extract entities and their relationships without any handcrafted features. The hybrid neural network contains a novel bidirectional encoder-decoder LSTM module (BiLSTM-ED) for entity extraction and a CNN module for relation classification. The contextual information of entities obtained in BiLSTM-ED further pass though to CNN module to improve the relation classification. We conduct experiments on the public dataset ACE05 (Automatic Content Extraction program) to verify the effectiveness of our method. The method we proposed achieves the state-of-the-art results on entity and relation extraction task.

Keywords: Neural Network, Information extraction, Tagging, Classification

1. Introduction

Entity and relation extraction is to detect entity mentions and recognize their semantic relationships from text. It is an important issue in knowledge extraction and plays a vital role in automatic construction of knowledge base.

Traditional systems treat this task as a pipeline of two separated tasks, i.e.,

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