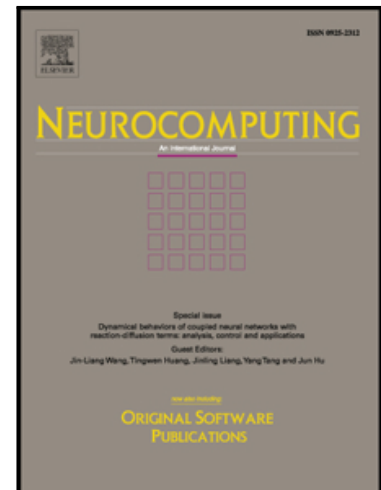


Accepted Manuscript

Joint Entity and Relation Extraction Based on A Hybrid Neural Network

Suncong Zheng, Yuexing Hao, Dongyuan Lu, Hongyun Bao, Jiaming Xu, Hongwei Hao, Bo Xu

PII: S0925-2312(17)30161-3
DOI: [10.1016/j.neucom.2016.12.075](https://doi.org/10.1016/j.neucom.2016.12.075)
Reference: NEUCOM 17973



To appear in: *Neurocomputing*

Received date: 15 July 2016
Revised date: 20 December 2016
Accepted date: 25 December 2016

Please cite this article as: Suncong Zheng, Yuexing Hao, Dongyuan Lu, Hongyun Bao, Jiaming Xu, Hongwei Hao, Bo Xu, Joint Entity and Relation Extraction Based on A Hybrid Neural Network, *Neurocomputing* (2017), doi: [10.1016/j.neucom.2016.12.075](https://doi.org/10.1016/j.neucom.2016.12.075)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Joint Entity and Relation Extraction Based on A Hybrid Neural Network

Suncong Zheng^a, Yuexing Hao^a, Dongyuan Lu^b, Hongyun Bao^{a,*}, Jiaming Xu^a, Hongwei Hao^a, Bo Xu^{a,c}

^a*Institute of Automation, Chinese Academy of Sciences*

^b*University of International Business and Economics*

^c*Center for Excellence in Brain Science and Intelligence Technology, CAS, China*

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 through 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.

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

*Corresponding author: hongyun.bao@ia.ac.cn

Download English Version:

<https://daneshyari.com/en/article/4947282>

Download Persian Version:

<https://daneshyari.com/article/4947282>

[Daneshyari.com](https://daneshyari.com)