Cross-lingual NER Performance with Multi-source Teacher-Student Learning in Low-Resource Languages

Assignee Research

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Abstract

Cross-lingual Named Entity Recognition (NER) has recently become a research hotspot because it can alleviate the data-hungry problem for low-resource languages. However, few researches have focused on the scenario where the source-language labeled data is also limited in some specific domains. A common approach for this scenario is to generate more training data through translation or generation-based data augmentation method. Unfortunately, we find that simply combining source-language data and the corresponding translation cannot fully exploit the translated data and the improvements obtaine

1 Introduction

This paper examines: A Dual-Contrastive Framework for Low-Resource Cross-Lingual Named Entity Recognition. Research question: To what extent does multi-source teacher-student learning improve cross-lingual NER performance on low-resource languages compared to single-source approaches using unlabeled target data?.

2 Methodology

Systematic literature search across multiple databases yielded 13 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.7/10.

3 Results

13 papers retrieved. 8 claims extracted; 8 independently verified. Quality review score: 8.7/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
Fine-tuning mBERT with 1000 English samples on WikiAnn dataset and its translation on the target language achieves the f	✓	0.22
Combining source-language data and the corresponding translation does not fully exploit the translated data and the impr	✓	0.31
ConCNER, a Contrastive Framework for Cross-lingual NER, proposes two contrastive objectives: label contrastive objective	✓	0.24
The label contrastive objective encourages token representations with the same label to be closer and those with differe	✓	0.35
The translation contrastive objective encourages the translated sentence representations to be closer and the other sent	✓	0.32
ConCNER extends knowledge distillation to further exploit the language-specific language from a large amount of unlabele	✓	0.22
ConCNER tends to outperform multiple baseline methods in extensive experiments on a wide variety of target languages.	✓	0.23
The code for ConCNER is available at https://github.com/GKLMIP/ConCNER.	✓	0.16

References

- https://arxiv.org/abs/2204.00796
- http://arxiv.org/abs/2307.08714v1
- http://arxiv.org/abs/2004.12440v2