

Low-Resource Language Diversity in Intermediate-Task Training for Zero-Shot Cross-Lingual Transfer on XTREME-R

Assignee Research

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Abstract

Pre-trained multilingual language encoders, such as multilingual BERT and XLM-R, show great potential for zero-shot cross-lingual transfer. However, these multilingual encoders do not precisely align words and phrases across languages. Especially, learning alignments in the multilingual embedding space usually requires sentence-level or word-level parallel corpora, which are expensive to be obtained for low-resource languages. An alternative is to make the multilingual encoders more robust; when fine-tuning the encoder using downstream task, we train the encoder to tolerate noise in the context

1 Introduction

This paper examines: Improving Zero-Shot Cross-Lingual Transfer Learning via Robust Training. Research question: What is the effect of incorporating low-resource languages from diverse language families into intermediate-task training on zero-shot cross-lingual transfer performance in XTREME-R, and how does this compare to training exclusively on high-resource languages?.

2 Methodology

Systematic literature search across multiple databases yielded 16 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.3/10.

3 Results

16 papers retrieved. 10 claims extracted; 7 independently verified. Quality review score: 7.3/10.

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
The proposed robust training method improves zero-shot cross-lingual transfer performance by an average of 2.1 points on	✓	0.15
The proposed robust training method improves zero-shot cross-lingual transfer performance by an average of 1.6 points on	×	0.14
PAWS-X is a classification benchmark used for evaluating zero-shot cross-lingual transfer.	×	0.12
XNLI is a classification benchmark used for evaluating zero-shot cross-lingual transfer.	×	0.12
Generalized cross-lingual transfer involves text classification tasks where the pair of input sentences belong to two di	✓	0.26
Multilingual BERT, XLM, and XLM-R are pre-trained multilingual language models proposed for zero-shot cross-lingual tran	✓	0.22
XTREME and XGLUE provide benchmarks for zero-shot cross-lingual transfer learning.	✓	0.17
Many approaches to align contextual word embedding spaces require additional supervision signals such as parallel senten	✓	0.20
Some research addresses embedding misalignment by incorporating syntactic features such as part-of-speech tags and depen	✓	0.17
The code for the Robust-XLT method is available at https://github.com/uclanlp/Robust-XLT .	✓	0.17

References

- <http://arxiv.org/abs/2412.10008v1>

- <http://arxiv.org/abs/2104.08645v2>
- <http://arxiv.org/abs/2005.13013v2>