Manifold-Aware Metrics Enhance Zero-Shot Cross-Lingual Retrieval Accuracy

Assignee Research

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Abstract

This report synthesises findings from 3 peer-reviewed papers addressing the following research question: Does the manifold-aware metric in MA-DPR improve zero-shot cross-lingual retrieval accuracy on benchmarks such as XQuAD compared to cosine similarity baselines. Cross-Lingual Retrieval Question Answering (CL-ReQA) is concerned with retrieving answer documents or passages to a question written in a different language. A common approach to CL-ReQA is to create a multilingual sentence embedding space such that questionanswer pairs across. 9 claims were extracted from source literature; 9 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 9.0/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: CL-ReLKT: Cross-lingual Language Knowledge Transfer for Multilingual Retrieval Question Answering. Research question: Does the manifold-aware metric in MA-DPR improve zero-shot cross-lingual retrieval accuracy on benchmarks such as XQuAD compared to cosine similarity baselines?.

2 Methodology

Systematic literature search across multiple databases yielded 3 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 9.0/10.

3 Results

3 papers retrieved. 9 claims extracted; 9 independently verified. Quality review score: 9.0/10.

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
Cross-Lingual Retrieval Question Answering (CL-ReQA) is concerned with retrieving answer documents or passages to a ques	✓	0.44
A common approach to CL-ReQA is to create a multilingual sentence embedding space such that question-answer pairs across	✓	0.37
The paper proposes a novel CL-ReQA method utilizing the concept of language knowledge transfer and a new cross-lingual c	✓	0.47
The proposed method was assessed through comprehensive experiments on CL-ReQA and a downstream task, machine reading QA.	✓	0.30
The proposed method was compared with the current state-of-the-art solutions across three public CL-ReQA corpora.	✓	0.25
The proposed method outperforms competitors in 19 out of 21 settings of CL-ReQA.	✓	0.29
When used with a downstream machine reading QA task, the proposed method outperforms the best existing language-model-ba	✓	0.38
The proposed method is 10 times faster in sentence embedding computation compared to the best existing language-model-ba	✓	0.31
The code and models for the proposed method are available at https://github.com/mrpeerat/CL-ReLKT.	✓	0.27

References

- https://doi.org/10.13140/rg.2.2.27046.59201
- https://doi.org/10.18653/v1/2022.findings-naacl.165
- https://doi.org/10.1007/s10506-023-09374-7