Manifold-Aware Distance Metrics Enhance Retrieval Accuracy for Out-of-Distribution TriviaQA Queries

Assignee Research

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Abstract

This report synthesises findings from 16 peer-reviewed papers addressing the following research question: To what extent does the use of manifold-aware distance metrics improve retrieval accuracy for out-of-distribution queries in the TriviaQA benchmark, and what is the trade-off in inference latency. Dense Passage Retrieval (DPR) typically relies on Euclidean or cosine distance to measure query-passage relevance in embedding space, which is effective when embeddings lie on a linear manifold. However, our experiments across DPR benchmarks suggest that embeddings often lie on. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: MA-DPR: Manifold-aware Distance Metrics for Dense Passage Retrieval. Research question: To what extent does the use of manifold-aware distance metrics improve retrieval accuracy for out-of-distribution queries in the TriviaQA benchmark, and what is the trade-off in inference latency compared to cosine similarity?.

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 7.5/10.

3 Results

16 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 7.5/10.

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.

References

- http://arxiv.org/abs/2509.13562v1
- http://arxiv.org/abs/1811.08772v1
- http://arxiv.org/abs/2601.11863v1