

Geodesic Distance vs. Cosine Similarity in Dense Retrievers for Adversarial Robustness on BEIR

Assignee Research

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Abstract

This report synthesises findings from 12 peer-reviewed papers addressing the following research question: Does replacing cosine similarity with geodesic distance in dense retrievers improve adversarial robustness on BEIR out-of-distribution subsets compared to standard contrastive learning baselines. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 6.8/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Analysing the Robustness of Dual Encoders for Dense Retrieval Against Misspellings. Research question: Does replacing cosine similarity with geodesic distance in dense retrievers improve adversarial robustness on BEIR out-of-distribution subsets compared to standard contrastive learning baselines?.

2 Methodology

Systematic literature search across multiple databases yielded 12 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 6.8/10.

3 Results

12 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 6.8/10.

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/2104.08663v4>
- <http://arxiv.org/abs/2205.02303v1>
- <http://arxiv.org/abs/2505.21439v1>