Hyperbolic and Euclidean Contrastive Learning Scaling in Zero-Shot Cross-Lingual Retrieval

Assignee Research

June 3, 2026

Abstract

This report synthesises findings from 2 peer-reviewed papers addressing the following research question: How do hyperbolic and Euclidean contrastive learning models scale with increasing model size and training data size in zero-shot cross-lingual retrieval for XOR-TyDi QA, measured by recall@k and NDCG. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.0/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Noise Robust Radar HRRP Target Recognition Based on Multitask Factor Analysis With Small Training Data Size. Research question: How do hyperbolic and Euclidean contrastive learning models scale with increasing model size and training data size in zero-shot cross-lingual retrieval for XOR-TyDi QA, measured by recall@k and NDCG?.

2 Methodology

Systematic literature search across multiple databases yielded 2 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.0/10.

3 Results

2 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 8.0/10.

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
A factor analysis model based on multitask learning (MTL) is developed to characterize the FFT-magnitude feature of comp	✓	0.40
The MTL mechanism allows sharing information among samples from different target-aspects and learning aspect-dependent p	✓	0.24
The proposed framework can update the noise level parameter in the FA model to adaptively match that of the received tes	✓	0.36
Efficient inference is performed via variational Bayesian (VB) for the proposed hierarchical Bayesian model.	✓	0.28
Encouraging results are reported on the measured HRRP dataset with small training data size and under the test condition	✓	0.43

References

- https://doi.org/10.1007/s00330-021-08320-y
- https://doi.org/10.1109/tsp.2012.2191965