

# Graph Contrastive Learning Efficiency and Accuracy Under Sparse Interaction Graphs

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## Abstract

This report synthesises findings from 16 peer-reviewed papers addressing the following research question: How does the efficiency and accuracy of graph contrastive learning methods scale with increasing sparsity in interaction graphs, as evaluated by HR and MAP metrics on large-scale datasets. Contrastive learning (CL) has recently been demonstrated critical in improving recommendation performance. The underlying principle of CL-based recommendation models is to ensure the consistency between representations derived from different graph augmentations of the user-item. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: XSimGCL: Towards Extremely Simple Graph Contrastive Learning for Recommendation. Research question: How does the efficiency and accuracy of graph contrastive learning methods scale with increasing sparsity in interaction graphs, as evaluated by HR and MAP metrics on large-scale datasets?.

## 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 3.7/10.

### **3 Results**

16 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.7/10.

### **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/2206.07869v1>
- <http://arxiv.org/abs/2008.10312v2>
- <http://arxiv.org/abs/2209.02544v4>