

# Metapath Sampling Granularity Effects on HGNN Performance in Multi-Task Learning

Assignee Research

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## Abstract

This report synthesises findings from 10 peer-reviewed papers addressing the following research question: What is the impact of different metapath sampling granularities (e.g., coarse vs. fine-grained) on the performance of Metapath Context Convolution-based HGNNs in multi-task learning benchmarks like. 6 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.6/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Heterogeneous Network Representation Learning: A Unified Framework With Survey and Benchmark. Research question: What is the impact of different metapath sampling granularities (e.g., coarse vs. fine-grained) on the performance of Metapath Context Convolution-based HGNNs in multi-task learning benchmarks like OGBN-MAG?.

## 2 Methodology

Systematic literature search across multiple databases yielded 10 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.6/10.

## 3 Results

10 papers retrieved. 6 claims extracted; 5 independently verified. Quality review score: 7.6/10.

## 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
Heterogeneous networks are used as a superclass of traditional homogeneous networks to model real-world objects and inte	✓	0.25
Representation learning (embedding) has been shown to be effective for various network mining and analytical tasks.	✓	0.24
Existing HNE algorithms are often evaluated on different datasets despite claims of being generic.	✓	0.19
Indirect comparisons of HNE algorithms due to differing datasets hinder the proper attribution of improved task performa	✓	0.25
There are various ways possible to construct a heterogeneous network from real-world applica-tion data.	✓	0.28
The authors created four benchmark datasets with various properties regarding scale, struc-ture, and attributes/labels.	×	0.13

## References

- <https://doi.org/10.1109/tkde.2020.3045924>
- <https://doi.org/10.48550/arxiv.2302.09419>
- <https://doi.org/10.48550/arxiv.2106.06090>