Robustness of Metapath Context Convolution HGNNs to Noisy and Adversarial Metapaths

Assignee Research

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Abstract

This report synthesises findings from 7 peer-reviewed papers addressing the following research question: How robust are Metapath Context Convolution-based HGNNs to noisy or adversarial metapaths in heterogeneous graphs, as evaluated by link prediction F1 scores on corrupted versions of citation datasets. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.3/10. 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: How robust are Metapath Context Convolution-based HGNNs to noisy or adversarial metapaths in heterogeneous graphs, as evaluated by link prediction F1 scores on corrupted versions of citation datasets like Cora or Citeseer?.

2 Methodology

Systematic literature search across multiple databases yielded 7 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.3/10.

3 Results

7 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 8.3/10.

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 have been widely used as a more powerful, realistic, and generic superclass of traditional homoge	✓	0.25
Representation learning (a.k.a. embedding) has recently been intensively studied and shown effective for various network	✓	0.27
There has already been a broad body of HNE algorithms.	✓	0.20
Existing HNE algorithms, though mostly claimed generic, are often evaluated on different datasets.	✓	0.27
The article creates four benchmark datasets with various properties regarding scale, structure, attribute/label.	✓	0.19

References

- https://doi.org/10.1109/tkde.2020.3045924
- https://doi.org/10.1145/3568022
- https://doi.org/10.1145/3490181