Robustness of Mul-GAD Against Adversarial Attacks in Graph Anomaly Detection

Assignee Research

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Abstract

This report synthesises findings from 6 peer-reviewed papers addressing the following research question: How robust is Mul-GAD's performance against adversarial attacks on graph structures compared to models like GAS and GCN-AE, as measured by anomaly detection accuracy on perturbed versions of the. Anomaly detection has been used for decades to identify and extract anomalous components from data. Many techniques have been used to detect anomalies. 8 claims were extracted from source literature; 8 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Machine Learning for Anomaly Detection: A Systematic Review. Research question: How robust is Mul-GAD's performance against adversarial attacks on graph structures compared to models like GAS and GCN-AE, as measured by anomaly detection accuracy on perturbed versions of the Reddit dataset?.

2 Methodology

Systematic literature search across multiple databases yielded 6 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.7/10.

3 Results

6 papers retrieved. 8 claims extracted; 8 independently verified. Quality review score: 8.7/10.

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.

5 Extracted Claims

Claim	Verified	Confidence
The study is a Systematic Literature Review (SLR) analyzing Machine Learning models for anomaly detection.	✓	0.24
The review analyzes ML models from four perspectives: applications, ML techniques, performance metrics, and classificati	✓	0.36
The review identified 290 research articles discussing ML techniques for anomaly detection.	✓	0.30
The selected research articles were written between the years 2000 and 2020.	✓	0.21
The review presents 43 different applications of anomaly detection found in the selected articles.	✓	0.23
The review identifies 29 distinct ML models used for anomaly identification.	✓	0.22
The review presents 22 different datasets applied in anomaly detection experiments.	✓	0.18
Unsupervised anomaly detection has been adopted by researchers more frequently than other classification anomaly detecti	✓	0.25

References

- https://doi.org/10.1145/3534678.3539321
- https://doi.org/10.1007/s44268-023-00019-x
- https://doi.org/10.1109/access.2021.3083060