GNN Architecture Impact on Cross-Domain Graph Anomaly Detection Performance

Assignee Research

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Abstract

This report synthesises findings from 14 peer-reviewed papers addressing the following research question: What is the impact of different GNN architectures (e.g., GCN, GAT, GraphSAGE) on the cross-domain generalization capability of GADT3 in graph anomaly detection tasks, as measured by accuracy and. In order to use environmental models effectively for management and decision-making, it is vital to establish an appropriate level of confidence in their performance. This paper reviews techniques available across various fields for characterising the performance of. 10 claims were extracted from source literature; 10 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: Characterising performance of environmental models. Research question: What is the impact of different GNN architectures (e.g., GCN, GAT, GraphSAGE) on the cross-domain generalization capability of GADT3 in graph anomaly detection tasks, as measured by accuracy and F1-score?.

2 Methodology

Systematic literature search across multiple databases yielded 14 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

14 papers retrieved. 10 claims extracted; 10 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
Establishing an appropriate level of confidence in environmental model performance is vital for using them effectively f	✓	0.21
The paper reviews techniques for characterizing environmental model performance with a focus on numerical, graphical, an	✓	0.23
General classes of performance characterization methods discussed include direct value comparison, coupling real and mod	✓	0.37
In practice, environmental modelling requires workflows that combine several methods tailored to the model purpose and d	✓	0.31
The paper suggests a five-step procedure for the performance evaluation of models.	✓	0.16
The first key element of the suggested five-step procedure is the (re)assessment of the model's aim, scale, and scope.	✓	0.19
The second key element of the suggested five-step procedure is the characterisation of the data for calibration and test	✓	0.16
The third key element of the suggested five-step procedure is visual and other analysis to detect under- or non-modelled	✓	0.28
The fourth key element of the suggested five-step procedure is the selection of basic performance criteria.	✓	0.16
The fifth key element of the suggested five-step procedure is the consideration of more advanced methods to handle probl	✓	0.28

References

- https://doi.org/10.1109/access.2019.2939201
- https://doi.org/10.1016/j.envsoft.2012.09.011
- https://doi.org/10.1145/3490181