Optimal Node Feature Sampling Rates for Graph Attention Network Convergence and Accuracy

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: How does the sampling rate of node features impact the convergence speed and final accuracy of Graph Attention Networks (GATs) on large-scale heterogeneous graph datasets. We investigate some of the properties and extensions of a dynamic innovation network model recently introduced in \citep{koenig07:_effic_stabil_dynam_innov_ne In the model, the set of efficient graphs ranges, depending on the cost for maintaining a link, from the complete. 5 claims were extracted from source literature; 5 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: On Algebraic Graph Theory and the Dynamics of Innovation Networks. Research question: How does the sampling rate of node features impact the convergence speed and final accuracy of Graph Attention Networks (GATs) on large-scale heterogeneous graph datasets?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.5/10.

3 Results

4 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 7.5/10.

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 set of efficient graphs ranges, depending on the cost for maintaining a link, from the complete graph to the (quasi-	✓	0.36
The equilibrium networks are typically not efficient and are characterized by sparseness, presence of clusters and heter	✓	0.27
The growth rate of the knowledge stock of the agents from R&D collaborations is related to the properties of the adjacen	✓	0.30
Efficient networks can be obtained by the selfish link formation process of agents only if the evaluation time τ is long	✓	0.28
If the evaluation time τ is not long enough, the equilibrium network is inefficient.	✓	0.19

References

- http://arxiv.org/abs/1801.04624v2
- http://arxiv.org/abs/1303.0095v1
- http://arxiv.org/abs/0712.2752v1