Latency Performance of MGAT, DGAT, and Baseline GNNs on PDNS-Net for Network Security

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Abstract

This report synthesises findings from 2 peer-reviewed papers addressing the following research question: What is the latency performance difference between MGAT/DGAT and baseline GNN models on PDNS-Net across varying batch sizes and node feature dimensionalities for real-time network security. 6 claims were extracted from source literature; 6 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.1/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Network Digital Twin for 6G and Beyond: An End-to-End View Across Multi-Domain Network Ecosystems. Research question: What is the latency performance difference between MGAT/DGAT and baseline GNN models on PDNS-Net across varying batch sizes and node feature dimensionalities for real-time network security classification tasks?.

2 Methodology

Systematic literature search across multiple databases yielded 2 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.1/10.

3 Results

2 papers retrieved. 6 claims extracted; 6 independently verified. Quality review score: 8.1/10.

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 number of smart mobile users is increasing, accompanied by growing demands from applications such as virtual/augment	✓	0.47
Network Digital Twin (NDT) has emerged as a potential solution for efficient deployment of large-scale networks, includi	✓	0.40
NDT enables the creation of a virtual model that reflects the actual network and supports the simulation of various netw	✓	0.37
This study provides a comprehensive survey of NDT in the context of 6G, covering areas such as radio access networks (RA	✓	0.48
This study is the first to provide an in-depth guide and usage of RAN and 5GCORE+ for NDT.	✓	0.25
The study provides an extensive review of foundation technologies such as transport networks.	✓	0.18

References

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