

Robustness of HGT and DAGNN to Edge-Type Noise in OGB-LSC Datasets

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: How robust are HGT and DAGNN to noise in edge-type annotations when benchmarked on OGB-LSC datasets with varying levels of synthetic edge-type corruption. 12 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.1/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Utilizing Class Separation Distance for the Evaluation of Corruption Robustness of Machine Learning Classifiers. Research question: How robust are HGT and DAGNN to noise in edge-type annotations when benchmarked on OGB-LSC datasets with varying levels of synthetic edge-type corruption?.

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 3.1/10.

3 Results

4 papers retrieved. 12 claims extracted; 0 independently verified. Quality review score: 3.1/10.

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 paper proposes the 'MSCR' metric to evaluate and compare classifier corruption robustness.	×	0.12
The MSCR metric approach is independent of prior knowledge about corruption distances.	×	0.05
For the 2D dataset, the model trained on $\epsilon_{\text{train}}=0.007$ performs best when testing with lower noise levels and clean test	×	0.07
For the 2D dataset, the maximum overall accuracy is achieved with a model trained on $\epsilon_{\text{train}}=0.007$ and tested on $\epsilon_{\text{test}}=$	×	0.03
For the 2D dataset at higher noise levels, optimum robust accuracies are achieved when $\epsilon_{\text{train}} \leq \epsilon_{\text{test}}$.	×	0.05
For the CIFAR-10 dataset at low noise levels, training with $\epsilon_{\text{train}}=0.01$ appears to be optimal for clean accuracy.	×	0.06
For the CIFAR-10 dataset, the maximum overall accuracy is achieved with $\epsilon_{\text{train}}=0.02$ and $\epsilon_{\text{test}}=0.01$.	×	0.02
For the CIFAR-10 dataset, the optimum ϵ_{train} for $\epsilon_{\text{test}}=0$ is approximately 10 times lower than the ϵ_{min} value.	×	0.02
An optimum ϵ_{train} of 0.01 for CIFAR-10 translates to a 2.5/255 color grade corruption for every pixel.	×	0.03
For both the 2D and CIFAR-10 datasets, the MSCR value steadily increases with increasing ϵ_{train} .	×	0.06
In the 2D dataset experiments, the highest clean accuracy (99.784 ± 0.009) was achieved by the model trained with $\epsilon_{\text{train}}=$	×	0.03
In the CIFAR-10 dataset experiments, the highest clean accuracy (91.932 ± 0.318) was achieved by the model trained with $\epsilon_{\text{train}}=$	×	0.03

References

- <http://arxiv.org/abs/2110.06513v2>
- <http://arxiv.org/abs/2206.13405v2>
- <http://arxiv.org/abs/2107.05476v1>