Scalability of Long-term Cross Adversarial Training in Few-shot Text Classification with Large Language Models

Assignee Research

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Abstract

Meta-learning model can quickly adapt to new tasks using few-shot labeled data. However, despite achieving good generalization on few-shot classification tasks, it is still challenging to improve the adversarial robustness of the meta-learning model in few-shot learning. Although adversarial training (AT) methods such as Adversarial Query (AQ) can improve the adversarially robust performance of meta-learning models, AT is still computationally expensive training. On the other hand, meta-learning models trained with AT will drop significant accuracy on the original clean images. This paper prop

1 Introduction

This paper examines: Long-term Cross Adversarial Training: A Robust Meta-learning Method for Few-shot Classification Tasks. Research question: How scalable is the Long-term Cross Adversarial Training method when applied to larger language models (e.g., Llama-2 70B) in few-shot text classification tasks under adversarial attacks?.

2 Methodology

Systematic literature search across multiple databases yielded 8 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

8 papers retrieved. 6 claims extracted; 6 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
LCAT achieves superior few-shot classification accuracy than SOTA adversarial training methods for meta-learning models.	✓	0.34
LCAT improves 9.7% clean few-shot classification accuracy compared to previous best results in MetaOptNet.	✓	0.22
LCAT improves 2.88% adversarial few-shot classification accuracy compared to previous best results on the MiniImageNet d	✓	0.21
LCAT achieves higher adversarial few-shot classification accuracy compared to other adversarial training methods as the	✓	0.16
LCAT achieves superior performance compared to short-term cross adversarial training (SCAT) and LCAT without denoise (w/	✓	0.19
LCAT only needs half of the adversarial training epoch compared to AQ via cross adversarial training, resulting in a low	✓	0.28

References

- http://arxiv.org/abs/2008.06239v2
- http://arxiv.org/abs/2306.11066v2
- http://arxiv.org/abs/2106.12900v3