Batch-Ensemble Spiking Neural Networks Robustness Against Gradient-Based Adversarial Attacks

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Abstract

This report synthesises findings from 15 peer-reviewed papers addressing the following research question: Do BE-SNNs with batch-ensemble mechanisms maintain higher robustness against gradient-based adversarial attacks compared to standard SNNs when trained on multimodal datasets, as measured by accuracy. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.2/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: HIRE-SNN: Harnessing the Inherent Robustness of Energy-Efficient Deep Spiking Neural Networks by Training with Crafted Input Noise. Research question: Do BE-SNNs with batch-ensemble mechanisms maintain higher robustness against gradient-based adversarial attacks compared to standard SNNs when trained on multimodal datasets, as measured by accuracy retention and gradient sparsity metrics?.

2 Methodology

Systematic literature search across multiple databases yielded 15 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 3.2/10.

3 Results

15 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.2/10.

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.

References

- http://arxiv.org/abs/2110.11417v1
- http://arxiv.org/abs/2307.02055v1
- http://arxiv.org/abs/2405.20355v1