

Random Layer Aggregation Effects on Federated Learning Latency and Edge Device Resource Use

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Abstract

This report synthesises findings from 8 peer-reviewed papers addressing the following research question: How does random layer aggregation in federated learning models affect inference latency and memory usage on edge devices as measured by throughput (FPS) and GPU/CPU utilization metrics. Performance evaluation is essential for assessing the quality of machine learning (ML) models and guiding deployment decisions. In federated learning (FL), assessing the performance is challenging because data are distributed across participants. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.7/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: FLAM: Evaluating Model Performance with Aggregatable Measures in Federated Learning. Research question: How does random layer aggregation in federated learning models affect inference latency and memory usage on edge devices as measured by throughput (FPS) and GPU/CPU utilization metrics?.

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 3.7/10.

3 Results

8 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.7/10.

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.

References

- <http://arxiv.org/abs/2109.05472v2>
- <http://arxiv.org/abs/2605.07962v1>
- <http://arxiv.org/abs/2207.02337v1>