Sign SGD with Heavy-Tailed Noise and Differential Privacy

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Abstract

For now, see separate file for it.

1 Introduction

In the recent work **Kornilov2025**, the authors have shown that Sign-SGD with heavy-tailed noise achieves optimal convergence rates under certain assumptions. Additionally, **Jin2021** demonstrated that Sign-SGD can be made differentially private while maintaining good convergence properties.

2 Theory

Present your theoretical framework, definitions, lemmas, and proofs.

3 Experiments

Describe your experimental setup, methodology, and results.

4 Conclusion

Summarize your findings and discuss future work.

Acknowledgments

Optional acknowledgments section.

A Additional Proofs and Results

Include detailed proofs and supplementary materials here.