

Responsible NLP Checklist

Paper title: *Universally Empowering Zeroth-Order Optimization via Adaptive Layer-wise Sampling*

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How to read the checklist symbols:

- the authors responded 'yes'
- the authors responded 'no'
- the authors indicated that the question does not apply to their work
- the authors did not respond to the checkbox question

For background on the checklist and guidance provided to the authors, see the [Responsible NLP Checklist](#) page at ACL Rolling Review.

A. Questions mandatory for all submissions.

- A1. Did you describe the limitations of your work?

This paper has a Limitations section.

- A2. Did you discuss any potential risks of your work?

Our work focuses on the optimization efficiency of mathematical algorithms for LLM fine-tuning. It does not introduce new social, ethical, or environmental risks beyond those inherent in the base models themselves.

B. Did you use or create scientific artifacts? (e.g. code, datasets, models)

- B4. Did you discuss the steps taken to check whether the data that was collected/used contains any information that names or uniquely identifies individual people or offensive content, and the steps taken to protect/anonymize it?

We utilized standard, publicly available NLP benchmark datasets (e.g., SST-2, SuperGLUE) and pre-trained models which do not contain personally identifying information.

- B6. Did you report relevant statistics like the number of examples, details of train/test/dev splits, etc. for the data that you used/created?

Relevant statistics and details regarding the evaluation datasets are provided in the main experiments (Section 5) and Appendix A.

C. Did you run computational experiments?

- C2. Did you discuss the experimental setup, including hyperparameter search and best-found hyperparameter values?

Section 5 and Appendix A explicitly detail our experimental setup, hardware configurations, and hyperparameter settings.

- C3. Did you report descriptive statistics about your results (e.g., error bars around results, summary statistics from sets of experiments), and is it transparent whether you are reporting the max, mean, etc. or just a single run?

We report the main evaluation results in Section 5. Furthermore, we provide detailed statistics, including standard deviations, in Appendix B (e.g., Table 4).

The Responsible NLP Checklist used at ACL Rolling Review is adopted from NAACL 2022, with the addition of ACL 2023 question on AI writing assistance and further refinements based on ARR practice. ACL 2026 used a subset of ARR checklist form.

D. Did you use human annotators (e.g., crowdworkers) or research with human subjects?

D1. Did you report the full text of instructions given to participants, including e.g., screenshots, disclaimers of any risks to participants or annotators, etc.?

Our research strictly involves computational experiments on existing datasets and models; it does not involve human subjects, annotators, or crowd-workers.

D2. Did you report information about how you recruited (e.g., crowdsourcing platform, students) and paid participants, and discuss if such payment is adequate given the participants' demographic (e.g., country of residence)?

Our research strictly involves computational experiments on existing datasets and models; it does not involve human subjects, annotators, or crowd-workers.

D3. Did you discuss whether and how consent was obtained from people whose data you're using/curating (e.g., did your instructions explain how the data would be used)?

Our research strictly involves computational experiments on existing datasets and models; it does not involve human subjects, annotators, or crowd-workers.

D4. Was the data collection protocol approved (or determined exempt) by an ethics review board?

Our research strictly involves computational experiments on existing datasets and models; it does not involve human subjects, annotators, or crowd-workers.

E. Did you use AI assistants (e.g., ChatGPT, Copilot) in your research, coding, or writing?

E1. If you used AI assistants, did you include information about their use?

We include the elaboration directly here: We used AI language models solely for proofreading and polishing the English phrasing. All core research, ideas, and experiments are entirely produced by the human authors.