

1 We thank the reviewers for the supportive scoring and very helpful suggestions.
2 The typos were corrected with your suggestions above, and the new version was sent to a professional English Editor.
3 Below are detailed answers.

4 **Reviewer 1:**

- 5 • Q: To the best of my knowledge, the paper is the first to introduce an *exact* coresets/sketch construction for
6 linear regression problems.
7 A: Indeed. We thank the reviewer for emphasizing this in the review.
- 8 • Q: "ordered finite set" is strange. A tuple notation (p_1, \dots, p_n) is clearer.
9 Q: "How about "rows of C ... are linear combinations"
10 Q: "It's not a weighted subset. Its rows coincide with a certain subset of rows"
11 Q: "it seems [27] explains Theorem 2.2 as well"
12 Q: "that can be computed.." -> "that is computed.."
13 Q: The explicit remark in line 141 seems unnecessary
14 Q: The font size used in the figures in Figure 2 are way too tiny.
15 A: We thank the reviewer for the useful suggestions. We accepted all of them and updated the notation
16 accordingly.
- 17 • Q: "linear in the input $O(nd)$ for asymptotically large n " is a weird way of ignoring the dependency on d
18 A: It was changed to the precise computation time, as in the main claim.
- 19 • Q: Provide actual code to reproduce the results.
20 A: As promised, full open code will be published upon acceptance. It can also be sent now to the reviewers if
21 necessary.

22 **Reviewer 2:**

- 23 • Q: This is a groundbreaking result in the area of sketch and coresets. The new algorithm is elegant yet very
24 interesting. I will fight for accepting this paper.
25 A: We thank the reviewer for the high scoring and the supportive feedback.
- 26 • Q: It might be worth mentioning that a coresets of size $\Omega(d^2)$ is in fact the best one can hope for.
27 A: Indeed. A formal lower bound was added following this comment.
- 28 • Q: Add full proof for Caratheodorys Theorem and more details to Algorithm 8.
29 A: Added full proof and intuition.
- 30 • Q: which lower bound in [13] are you referring to?
31 A: This was a typo. We referred to the paper "Low Rank Approximation Lower Bounds in Row-Update
32 Streams" by D. Woodruff.

33 **Reviewer 3:**

- 34 • Q: The submission is very well written and organized. The review and motivation is clear and helpful. Proofs
35 are well written. This work has practical importance. Practitioners are likely to easily implement suggested
36 method to improve existing tools.
37 A: We thank the reviewer for the supportive review.
- 38 • Q: "Section 1.3 is not formal. I Did not understand what type of input to expect"
39 A: Section 1.3 was re-written per reviewer suggestion.
- 40 • Q: How the parameter k affects the accuracy of Algorithm 2.
41 A: As stated, the algorithm is accurate for every value of k in theory. Indeed, in practice, the numerical error is
42 smaller for high values of k . This is because in this case the size of each sketch is smaller.
- 43 • Q: Add analysis to the optimal value of k .
44 A: An interesting analysis was added. We thank the reviewer for this good suggestion.
- 45 • Q: Few Typos were found.
46 A: We thank the reviewer for the very careful reading and fixed the mentioned typos.