**Dear editor:**

Happy Chinese new year. We are grateful for reviewers’ insightful comments on the previous version of our manuscript. Those comments are valuable and very helpful. We have provided a revised version of the paper with the changes marked in detail. We have made minor adjustments to the formatting or spelling of the words where the text is underlined. We have made significant changes or added content where there is a yellow background. To facilitate comparison with the previous version of the paper, we have also added detailed revision notes to some of the changes. The responses to the reviewer's comments are presented following.

**Response to Reviewer 1**

**Question1:** Please write the titles with a capital first letter.

**Response1:** We have checked all the titles and made modifications as required.

**Question2:** The citation of "A practical guide to splines" is wrong. There is only one author and not two authors of the same name.

**Response2:** We apologize for the wrong format of the reference in the original manuscript. We have rechecked and adjusted the citation format of all references. The reference format was improved in this paper.

**Question3:** Please be consistent with the namig. For example, sometimes it is refered to figures as Figure, othertimes as Fig.

**Response3:** We have checked and adjusted all table names and figure names. We also corrected all the problems in the article, such as "figure" and "figure".

**Question4:** There are so many results, and with the simulation experiment, there is a very large set of resulting data. Why not conduct a proper statistical analysis to support the claim of the superiority of the proposed AMLI method in comparison to other similar interpolation approaches? As you have independent samples (as simulation runs are independent), you can perform one-way ANOVA/Kruskal-Wallis with proper posthoc tests. This would add another proof of the validity and effectiveness of your approach.

**Response4:** Thanks for your major comment. We initially considered using ANOVA/Kruskal-Wallis, but we did not use these methods, mainly because:

1. One-way ANOVA should satisfy the assumption that each aggregate follows a normal distribution. Although the noise we add is subject to a normal distribution, we cannot determine whether the noise of the original data is also normally distributed after being processed by the AMLI method.
2. One-way ANOVA requires the same variance for each aggregate, however, the variance is changed after the AMLI method, so that the variance of each aggregate is not the same.
3. Although Kruskal-Wallis does not require the overall population to follow a specific distribution, the main purpose of the method is to test whether more than two samples come from the same distribution. Even though we reject the original hypothesis, we do not believe that we can verify the validity of the AMLI method for sample optimization, because we only verify that the data simply belong to a different distribution before and after processing.

**Question5:** Table 3 needs to include information on when the proposed AM LI method is used and when not.

**Response5:** We are sorry for this error and have made changes as required.

**Response to Reviewer 2**

**Question1:** I cannot find source code to reproduce your results. Please provide a link to the repository.

**Response1:** We have compiled the code for the AMLI method and uploaded it to github along with the data, the link to the code is: <https://github.com/duduu12/Amli-method.git>.

**Question2:** Provide (and motivate) the baseline method(s) and provide comparison results.

**Response2:** Due to our oversight, the original version of Table 3 had some errors. We believe that our main purpose is to demonstrate the optimization effect of the AMLI method for various machine learning predictions. The results provided in Table III of the current paper have initially reflected the idea of the baseline method(s), we have used four machine learning methods, KNN, FNN, GBDT and RF, they are all machine learning models of varying complexity and provide comparative results of the prediction results before and after processing by the AMLI method.

In addition to the above issues, we have also taken into account the other changes you have given us and have revised the content of the paper in other areas:

1. According to the comments of the editor, we deleted the last paragraph of the introduction section.
2. We have improved the literature review, added a section with recent technical findings and background knowledge about small sample (Few-shot).
3. We have rechecked the spelling of the words in the whole text and corrected some of the misspellings
4. We have made changes to some formatting issues.

**Question3:** Section 4 should be expanded to include additional datasets from different domains.

**Response3:** We have supplemented the data set and performed a predictive analysis using AMLI with machine learning methods, as detailed in 4.2.2. In addition, the structure of Chapter 4 has been briefly adjusted due to the addition of an additional dataset.