IEEE Transactions on Artificial Intelligence

Decision Letter (TAI-2023-May-A-00417)

From: ieee.tai.eic@gmail.com

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Subject: IEEE Transactions on Artificial Intelligence - Major Revision Decision on Manuscript ID TAI-2023-May-A-00417

Body: 16-Jul-2023

Dear Mr. Nguyen:

I have now reviewed the recommendation of the associate editor and reviewer comments on your manuscript TAI-2023-May-A-00417 entitled "Federated Learning for distribution skewed data
using sample weights" which you submitted to the IEEE Transactions on Artificial Intelligence.

On the basis of this information, your manuscript cannot be accepted in its current form for publication in the IEEE Transactions on Artificial Intelligence.

The associate editor and reviewer comments identified the key issues that require your attention when revising the manuscript. These comments are included at the bottom of this letter.

A thorough revision of your work could result in a manuscript meriting further evaluation by the Journal. Thus I encourage you to submit a revision.

To revise your manuscript, log into https://mc.manuscriptcentral.com/tai-ieee and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or colored text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the IEEE Transactions on Artificial Intelligence, your revised manuscript should be submitted by 15-Aug-2023. If it is not possible for you to submit your revision by this date, we may have to consider your paper as a new submission.

Important note: After a manuscript has been accepted for publication, the author's company or institution will be requested to pay an optional $110 per page to cover part of the cost of publication. These page charges are not obligatory, nor is their payment a prerequisite for publication as long as the main paper does not exceed the page limit (10 pages for a regular paper, 15 pages for a survey paper, and 6 pages for a letter). Papers that exceed this page limit will be requested to pay a mandatory over-length page charge of $200 per page, for every page over these limits. The maximum manuscript length (excluding supplementary materials) with over-length page charge is 15 pages for a regular paper, 21 pages for a survey paper, and 9 pages for a letter. Supplementary materials are not included in determining over-length pages, and get published online with the manuscript. Authors are strongly advised to read the up-to-date instructions at https://cis.ieee.org/publications/ieee-transactions-on-artificial-intelligence/information-for-authors-tai

Once again, thank you for submitting your manuscript to the IEEE Transactions on Artificial Intelligence and I look forward to receiving your revision.

Sincerely,

Prof. Hussein Abbass, Fellow IEEE
Editor-in-Chief, IEEE Transactions on Artificial Intelligence
ieee.tai.eic@gmail.com, h.abbass@unsw.edu.au

Associate Editor Comments to Author:

Associate Editor
Comments to the Author:

An important work of FL method to tackle the problem of data distribution skewness. The technique utilizes an FL
framework and a neural network-based density estimation model to derive training sample weights. This helps to adjust the
individual distribution without revealing clients' raw data.
-A section of Related Works is needed.
-A section of the Problem Statement is needed.
-Comparative results with literature state-of-the-art approaches are needed.

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author
See attached.

Reviewer: 2

Comments to the Author
This paper focuses on improving federated learning performance for skewed data distribution
across clients by adjusting the client distribution closer to the global distribution using sample weights. The considered
problem is meaningful and the proposed method through leveraging data distribution is interesting. In summary, I think this
work makes a contribution to this area. However, I have several comments shown as follows.
1. The introduction is too long and complicated, which includes the part of related work actually. You should separate the
Introduction and Related Work into two different sections.
2. In the introduction, please emphasize your contribution and innovation by using simple language, not to list a lot of
references.
3. Please give enough recent references related to heterogeneous FL in the related work, such as
(1) Wang, Mingjie, Jianxiong Guo, and Weijia Jia. "FedCL: Federated Multi-Phase Curriculum Learning to Synchronously
Correlate User Heterogeneity." arXiv preprint arXiv:2211.07248 (2022).
(2) Zhu, Zhuangdi, Junyuan Hong, and Jiayu Zhou. "Data-free knowledge distillation for heterogeneous federated learning."
International conference on machine learning. PMLR, 2021.
(3) Luo, M., Chen, F., Hu, D., Zhang, Y., Liang, J., & Feng, J. (2021). No fear of heterogeneity: Classifier calibration for
federated learning with non-iid data. Advances in Neural Information Processing Systems, 34, 5972-5984.
Especially for (3), it is very similar to your proposed method.
4. The problem definition and method are not clear. It is better to combine Section II and Section III, and give a formalized
definition of your problem, such as optimization goal.
5. It is better to give a detailed description of your training method, such as "algorithm" structure. This is imperative to
thoroughly understand your idea.
6. In the experiment part, this is not enough ablation experiment to verify your proposed module. In addition, it is better to
compare with the more recent development in this area.
7. For the reader to reproduce your work, please open your datasets and source code. In this area, if you cannot prove
reproducibility, this is meaningless.

Date Sent: 16-Jul-2023

File 1: - Comments on TAI-2023.pdf

Files attached

Comments on TAI-2023.pdf

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