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**Re: Resubmission of Manuscript NCOMMS-25-23244-T**

Dear Dr. Walters:

Please find attached our revised manuscript entitled “Modular strategies for spatial mapping of multi-modal mouse brain data” submitted for consideration for publication in Nature Communications.

The feedback we received from the reviewers was insightful and enabled us to improve the content and quality of our manuscript for potential readership. In a separate document are our responses and acknowledgement of each of the comments point-by-point. In summary, we appreciated the reviewers’ enthusiasm for our work in raising important points for developing a software framework for mouse brain mapping. In line with the very helpful feedback that we received to improve clarity, methodological depth, and accessibility, we have significantly revised the manuscript to clarify its aims, strengthen evaluation of the proposed novel methods, and improve both biological interpretability and user guidance. Our revision also includes significantly reducing the word count to conform with manuscript guidelines. Furthermore, we have expanded code documentation and updated terminology to ensure broader accessibility across disciplines. As a result of these extensive revisions, virtually the entire manuscript has been edited, so for readability, we have not marked up the manuscript text and instead have indicated all major changes by their page and line number in the point-by-point response to reviewers’ comments.

We hope that our revisions and accompanying responses will be sufficient for our manuscript to be suitable for publication in Nature Communications.

Sincerely,



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