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*We thank the reviewers and editors for their thoughtful evaluations and positive assessment of our revised manuscript. Below we address the remaining minor points raised in this round of reviews.*

**Reviewer #1**

**Remarks to the Author:**

The revised manuscript adresses all my comments. The focus of the manuscript and its novel contributions are now clearly delineated. The additional discussion on evaluation choices is appreciated, and terminology is now very clear. With this revision, the manuscript will be a valuable resource for researches using the ANTsX ecosystem to map mouse brain data.

Below my response to the authors response:

Major comments:

1. The revised abstract and introduction greatly clarify the focus of the manuscript.

2. I understand that adding a general guidance section is out of scope with the current focus of the manuscript on detailling for mapping strategies using ANTsX.

3.+4. Evaluations: Thank you for the clarification. The segmentation method is indeed evaluated on an external dataset. However, the other pipelines (as far as I understand) are mostly qualitatively evaluated. I appreciate the extended comments in the discussion to this effect and think that the evaluation suffices in the context of this paper. However, I believe that investing efforts into building benchmarking datasets and advanced metrics will greatly benefit the community, as solely relying on qualitative expert evaluations of pipelines makes comparisons across pipelines very difficult.

Benchmark comparisons: I appreciate the effort the authors took to make a comparison with existing tools for the MERFISH mapping pipeline.

5. My concerns about terminology are adressed in the revised manuscript.

Minor comments: All my minor comments are adressed.

I do agree with the authors that providing code details in github repositories is crucial for reproducibility, however omitting any model details in the paper makes it hard for readers to understand the approaches from the paper alone. I appreciate the added details about model and training parameters in the manuscript for this purpose.

**Remarks on code availability:**

The README’s of both repositories are now much clearer and will greatly aid researches aiming to use the pipelines presented in the manuscript.

*We appreciate the reviewer’s positive feedback.*

**Reviewer #2**

**Remarks to the Author:**

The authors revisions have made it significantly easier to understand the relationship between the alignment methods that are a more detailed presentation of technical components from prior work and novel computational methods (temporal warping and segmentation). The methods appear sound and of general interest. Though no individual component is of major novelty collectively, they cover a nice range of case studies in things you might want to do.

The documentation of the source code appears much improved, and I think would be sufficient to reproduce results without excessive forensic examination of the source code.

I do feel that revisions haven't addressed my concerns about the centrality of modularity claims to the title and abstract, when in fact modularity is not addressed. Minimially to support this claim at least the four applications covered in this work should be discussed in terms of shared modules (within ANTsX, and ideally in terms of the scripts themselves which might/should share levels of abstraction above ANTsX to support this claim). The emphasis should be on the shared (algorithmic and software) components of these tasks. The MS seems to have the opposite emphasis, on the diversity of ANTsX functionality utilized to achieve these quite diverse pipelines. This is a worthy goal but it feels like the real emphasis of the MS could be better reflected in an alternate title if more substantial handling of modularity is out of scope.

*We revised the title to “The ANTsX ecosystem for mapping the mouse brain” to better reflect the manuscript’s focus on reproducible ANTsX-based workflows rather than conceptual modularity. Corresponding minor edits were made to ensure consistency.*

**Remarks on code availability**:

I re reviewed the documentation for all 4 pipelines and spot checked a few of the scripts, though I did not try to build out an environment and actually run them. Revised documentation seems like it will be helpful in guiding users through the scripts

*We appreciate the reviewer’s positive feedback.*

**Reviewer #3**

**Remarks to the Author:**

The authors did a thorough job of reworking their manuscript and adding the necessary content to address my comments and I have no other comments.

I beilive this is a usefull and weel written contribution that will help the community to use complew registration pipeline.

*We appreciate the reviewer’s positive feedback.*

**Remarks on code availability:**

I have not reviewed the code again.

**Reviewer #4**

**Remarks to the Author:**

The authors have addressed my concerns/comments.

*We appreciate the reviewer for confirming that no further revisions were needed.*