

Reply to editorial comments

Changes to be made by the author(s) regarding the manuscript:

1. Please take this opportunity to thoroughly proofread the manuscript to ensure that there are no spelling or grammar issues.

We thank the editor for the detailed comments. We have thoroughly proofread the manuscript.

2. Please obtain explicit copyright permission to reuse any figures from a previous publication. Explicit permission can be expressed in the form of a letter from the editor or a link to the editorial policy that allows re-prints. Please upload this information as a .doc or .docx file to your Editorial Manager account. The Figure must be cited appropriately in the Figure Legend, i.e. "This figure has been modified from [citation]."

We have obtained explicit copyright permission for to reuse the figures and uploaded this information.

3. Figure 1: Please remove commercial language (Eyelink, Neuralynx) and replace them with generic terms.

We have removed these and replaced them with generic terms.

4. Figure 3: Please change the time unit "sec" to "s".

We have changed this in the figure.

5. Table of Equipment and Materials: Please sort the items in alphabetical order according to the name of material/equipment.

We have sorted these items in alphabetical order.

6. Please number the figures in the sequence in which you refer to them in the manuscript text. Currently, Figure 3 is introduced before Figure 1 and Figure 2.

We have modified this in the revised manuscript.

7. Please provide an email address for each author.

We have provided an email address for each author.

8. Keywords: Please provide at least 6 keywords or phrases.

We have provided two additional keywords (i.e., Medial temporal lobe, Target detection).

9. JoVE cannot publish manuscripts containing commercial language. This includes trademark symbols (™), registered symbols (®), and company names before an instrument or reagent. Please remove all commercial language from your manuscript and use generic terms instead. All commercial products should be sufficiently referenced in the Table of Materials and Reagents. You may use the generic term followed by “(see table of materials)” to draw the readers’ attention to specific commercial names. Examples of commercial sounding language in your manuscript are: Cedrus Inc, Neuralynx, Eyelink, MATLAB, SR Research, etc.

We have changed this throughout the manuscript.

10. Please include an ethics statement before the numbered protocol steps, indicating that the protocol follows the guidelines of your institution’s human research ethics committee.

We have included the following ethics statement “All participants provided written informed consent according to protocols approved by the institutional review boards of the Cedars-Sinai Medical Center and the California Institute of Technology.”

11. Please revise the protocol text to avoid the use of any personal pronouns (e.g., "we", "you", "our" etc.).

We have revised this throughout the protocol.

12. Please revise the protocol to contain only action items that direct the reader to do something (e.g., “Do this,” “Ensure that,” etc.). The actions should be described in the imperative tense in complete sentences wherever possible. Avoid usage of phrases such as “could be,” “should be,” and “would be” throughout the Protocol. Any text that cannot be written in the imperative tense may be added as a “Note.” Please include all safety procedures and use of hoods, etc. However, notes should be used sparingly and actions should be described in the imperative tense wherever possible. Please move the discussion about the protocol to the Discussion.

We have revised this throughout the protocol.

13. The Protocol should be made up almost entirely of discrete steps without large paragraphs of text between sections. Please simplify the Protocol so that individual steps contain only 2-3 actions per step and a maximum of 4 sentences per step. Use sub-steps as necessary. Please move the discussion about the protocol to the Discussion.

We have revised this throughout the protocol.

14. Please add more details to your protocol steps. There should be enough detail in each step to supplement the actions seen in the video so that viewers can easily replicate the protocol. Please ensure you answer the “how” question, i.e., how is the step performed? Alternatively, add references to published material specifying how to perform the protocol action. See examples below.

We have revised this accordingly.

15. 2.1-2.3: Are these performed by using a computer program? Please describe how to randomly assign array items and select trials.

We refer this to published material specifying how to create stimuli.

16. 2.4: How is the target cue presented?

We have clarified this in the revised manuscript.

17. Please order the steps properly so that the protocol can be followed in chronological order.

We have adjusted the order of protocol actions.

18. After you have made all the recommended changes to your protocol (listed above), please highlight 2.75 pages or less of the Protocol (including headings and spacing) that identifies the essential steps of the protocol for the video, i.e., the steps that should be visualized to tell the most cohesive story of the Protocol.

We have highlighted the essential steps.

19. Please highlight complete sentences (not parts of sentences). Please ensure that the highlighted part of the step includes at least one action that is written in imperative tense. Notes cannot usually be filmed and should be excluded from the highlighting.

We have ensured that the highlighted part of the step includes at least one action that is written in imperative tense and there are no notes.

20. Please include all relevant details that are required to perform the step in the highlighting. For example: If step 2.5 is highlighted for filming and the details of how to perform the step are given in steps 2.5.1 and 2.5.2, then the sub-steps where the details are provided must be highlighted.

We have included all relevant details that are required to perform the step in the highlighting.

21. Discussion: Please describe critical steps within the protocol.

We have included discussion of critical steps.

22. For in-text references, the corresponding reference numbers should appear as superscripts after the appropriate statement(s) in the text (before punctuation but after closed parenthesis). The references should be numbered in order of appearance.

We have ensured that the in-text references follow the suggested format.

23. Please ensure that the references appear as the following: [Lastname, F.I., LastName, F.I., LastName, F.I. Article Title. Source. Volume (Issue), FirstPage – LastPage (YEAR).] For more than 6 authors, list only the first author then et al. Please do not abbreviate journal titles. See the example below:

Bedford, C.D., Harris, R.N., Howd, R.A., Goff, D.A., Koolpe, G.A. Quaternary salts of 2-[(hydroxyimino)methyl]imidazole. Journal of Medicinal Chemistry. 32 (2), 493-503 (1998).

We have ensured that the references follow the suggested format.

Reply to comments from Reviewer 1

In this manuscript, Rutishauser and colleagues present a universal approach to allow simultaneous acquisition of neural data and eye motion tracking in human patients. This is a particularly useful method as it enables direct comparison and cross validation of data between non-human primate animal models and human patient data. Additionally, they validated their method using eye tracking in a memory-guided visual search task and described a new class of neurons called target neurons, whose response was reflective of top-down attention to the current search target.

The manuscript figures are very clean and illustrative. I believe that this method will be interesting to a wide range of researchers in systems neuroscience.

Figure 1a: since the authors provided illustrative figures showing the setup arrangement, it would be more informative if they rearrange the schematic to show the signal flow as opposed to the physical location of the modules.

We thank the reviewer for the constructive comments. We have updated Figure 1A to show signal flow.

Reply to comments from Reviewer 2

Major Concerns:

None.

Minor Concerns:

(1) From looking at Fig. 3 it seems that panels C and E show the same neuron. Wouldn't it make sense to show the same neuron in F that was shown in D?

We thank the reviewer for the suggestion. We have now shown the same neurons for button-press-aligned and fixation-aligned examples.

Typos and other stuff.

Copy-editing by a native speaker would be helpful, particularly for the Introduction.

l.60: "gaze position and eye movements (saccades and fixations)" should be "gaze position and eye movements (fixations and saccades)".

l.106 and others: "array stimulus" should be "stimulus array".

l.123: "can not respond" should be "does not respond".

We have corrected these typos.