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Prof. Dr. S. B. Eickhoff

Editor-in-chief

*Human Brain Mapping*

April 19th, 2023

Dear Prof. Dr. Eickhoff,

We wish to submit an original article entitled “*A selection and targeting framework of cortical locations for line-scanning fMRI*”, for consideration by *Human Brain Mapping*.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We also have no conflicts of interest to disclose.

Because of its high spatial resolution (250µm), line-scanning fMRI is a promising technique for unraveling ascending/descending pathways in the layers of human cortex. Additionally, its high temporal resolution (~100ms) allows for extremely fast sampling. But to wield the power of line-scanning, we need to be extremely careful in positioning the line.

To this end, we devised a framework where we selected a specific patch of cortex from one (whole-brain) session, and placed the line to precisely target this patch in a separate (line-scanning) session. Our article validates our strategy’s line placement precision, based on a series of anatomical and functional metrics. We believe our strategy allows line-scanning to fulfill its potential to bridge canonical fMRI experiments in humans and electrophysiological experiments in animals.

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Thank you for consideration of this manuscript.

Sincerely,

On behalf of the co-authors,

Jurjen Heij