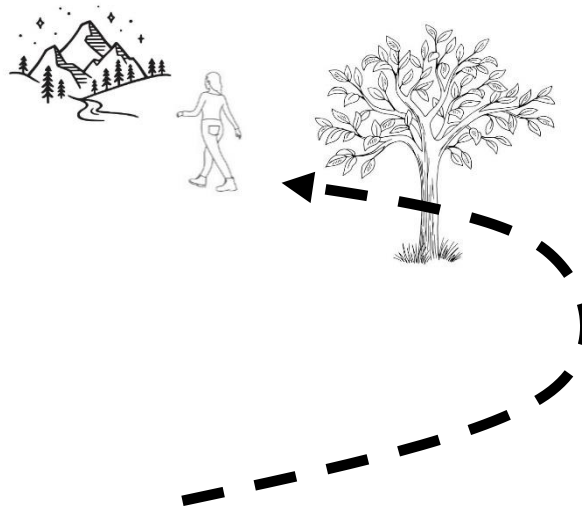
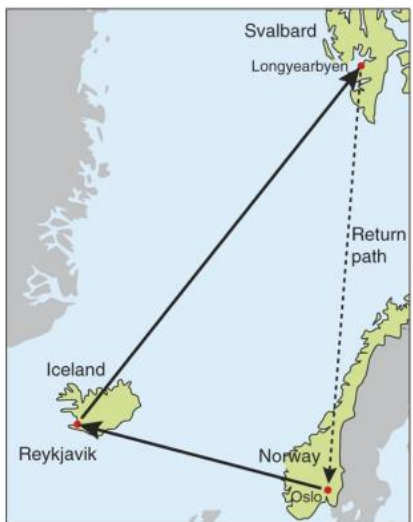


Human theta dynamics of real-world and imagined navigation

Martin Seeber



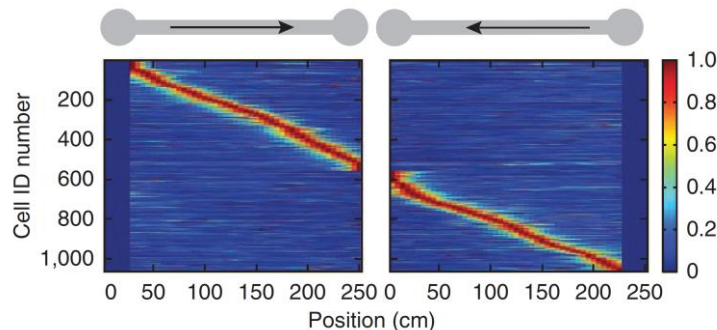
Spatial navigation



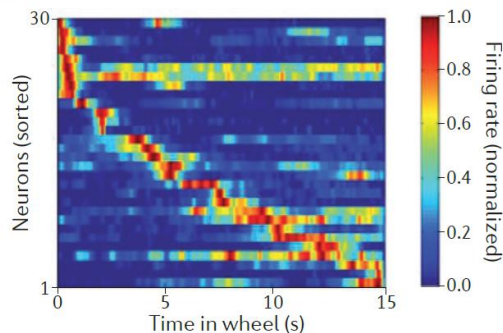
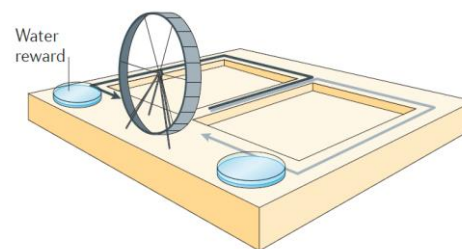
Episodic memory



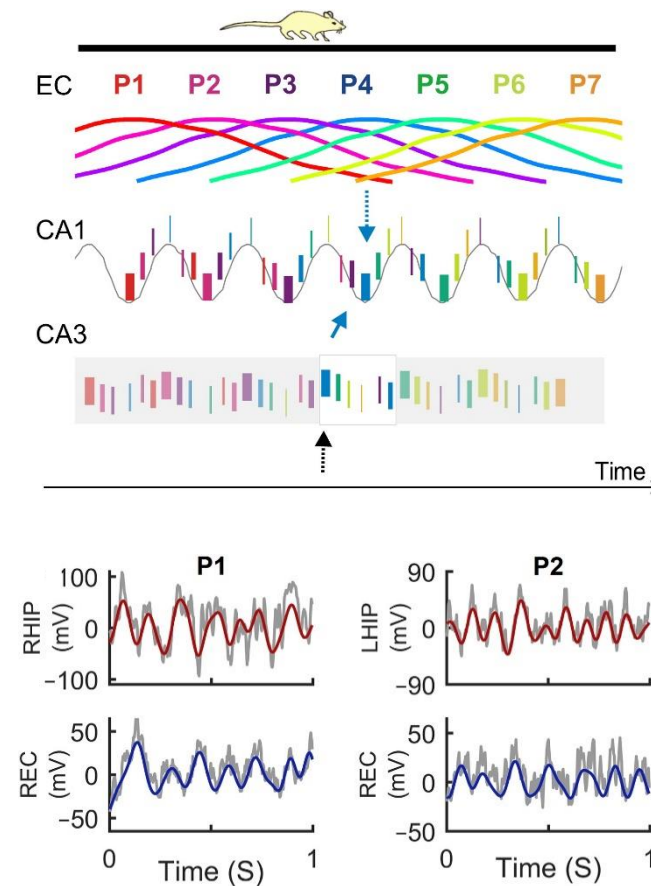
Spatially-tuned neurons

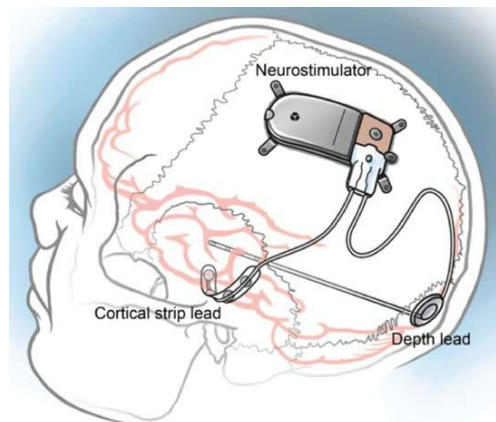


Internally generated sequences



Theta oscillations





NeuroPace RNS® System

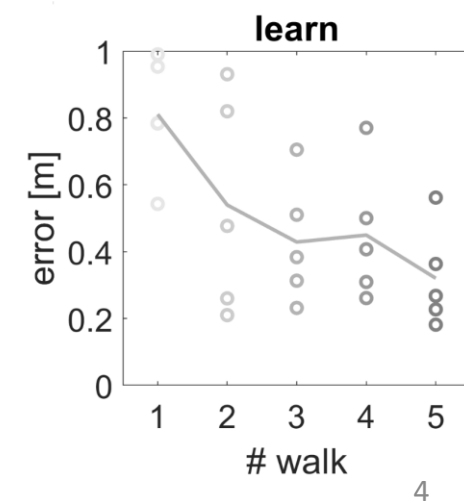
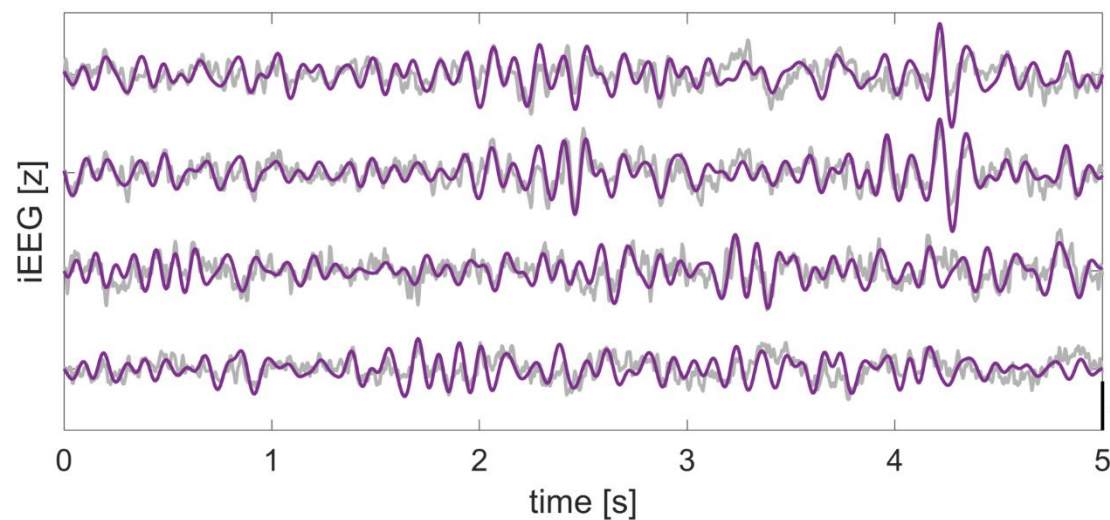
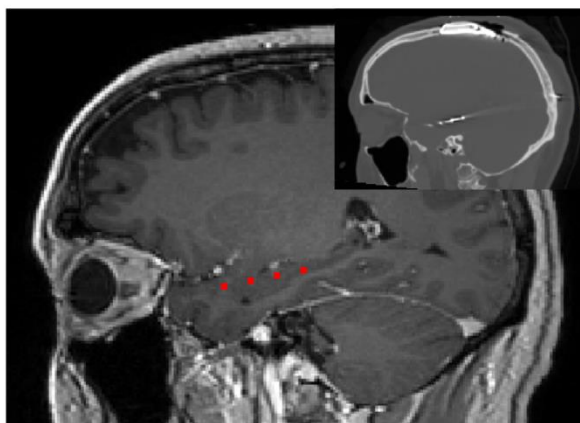
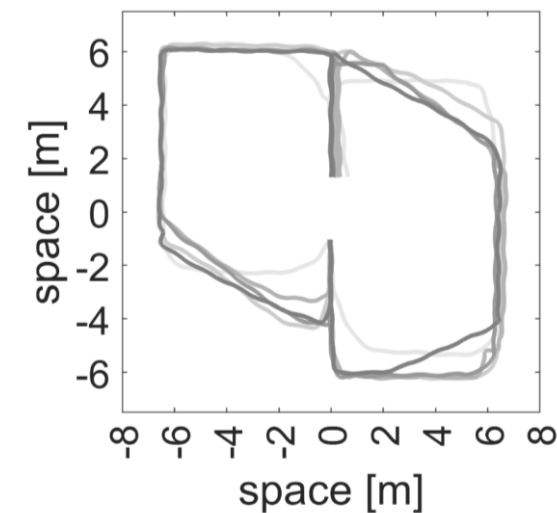
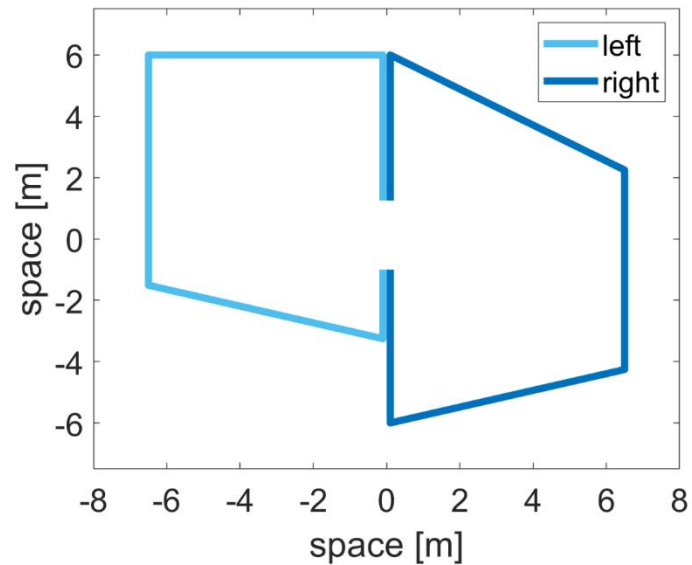


Motion Tracking

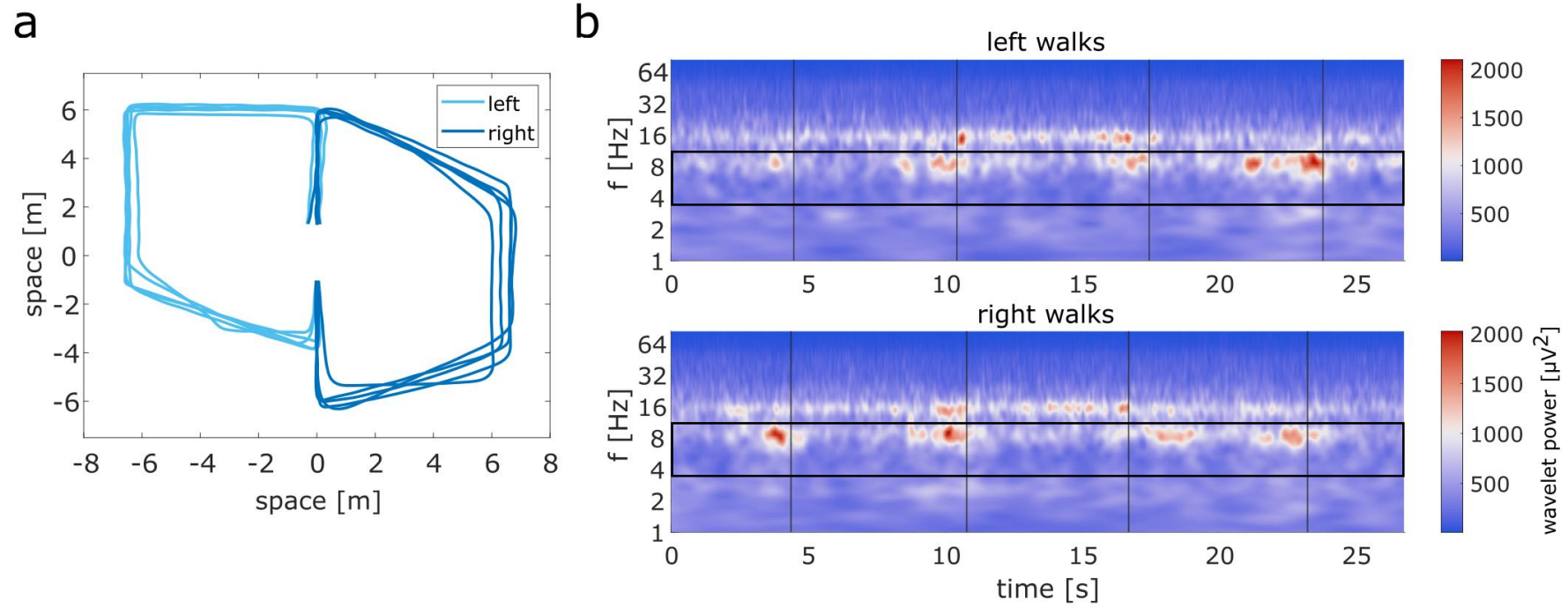
Eye Tracking

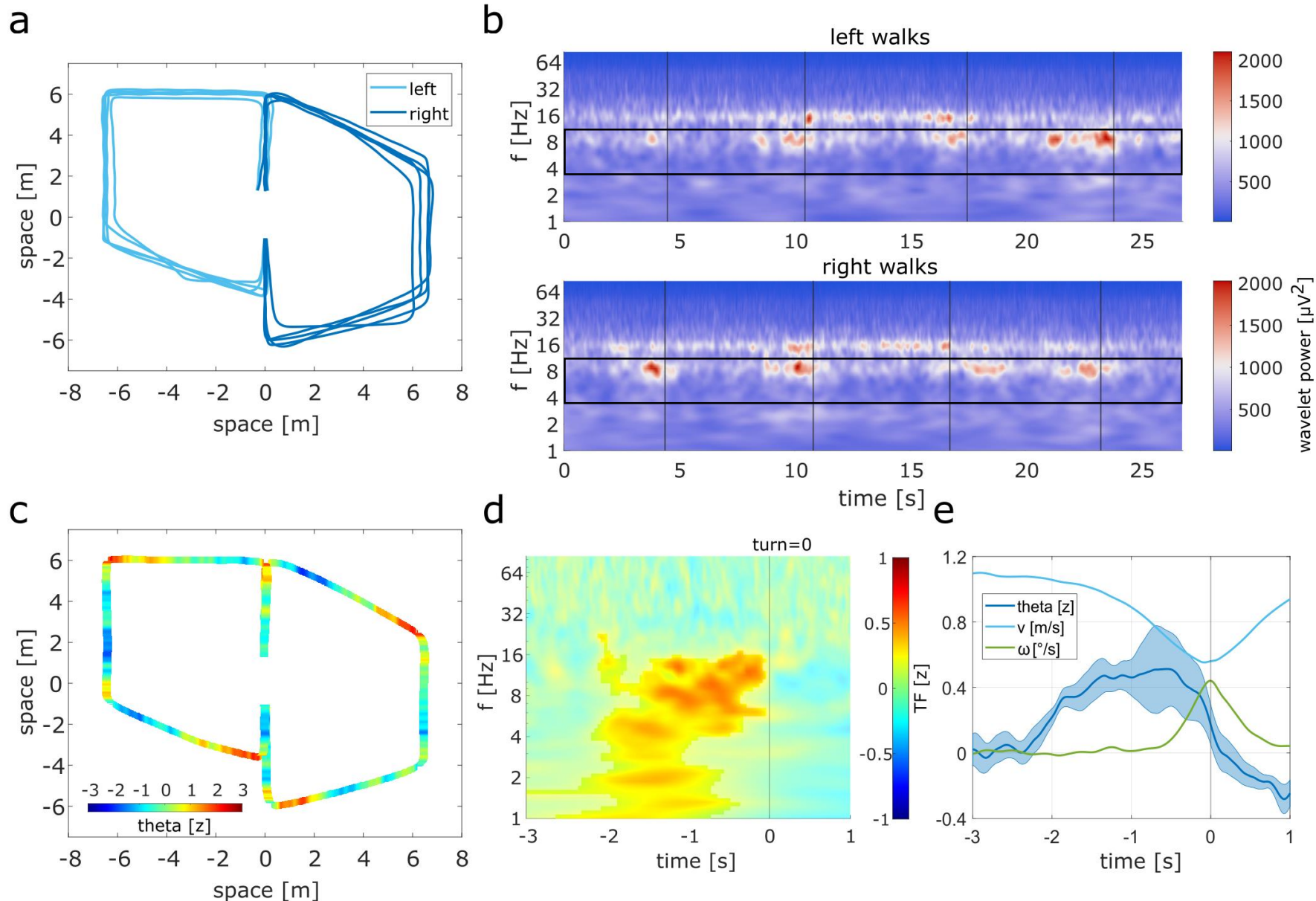
Room

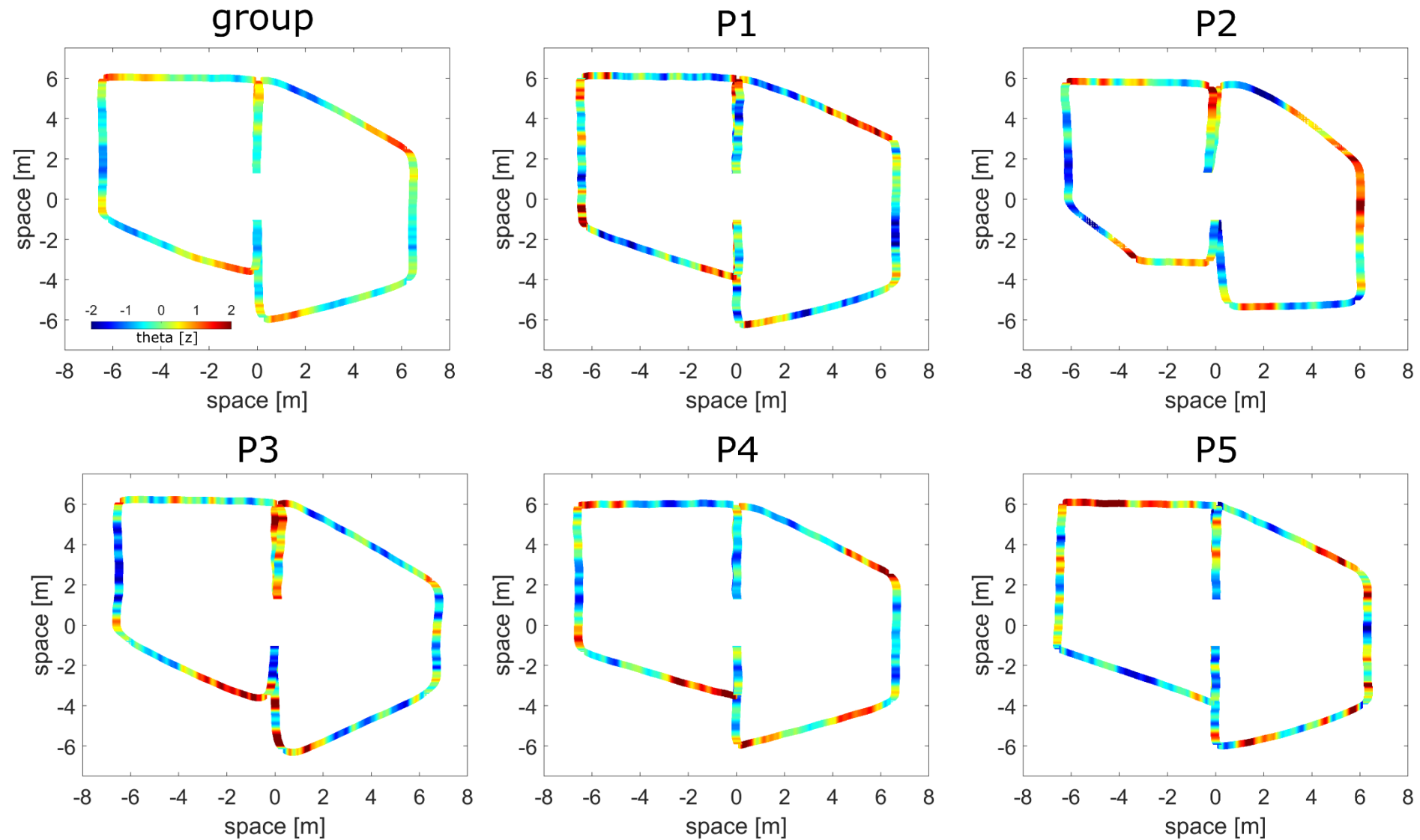
Intracranial EEG

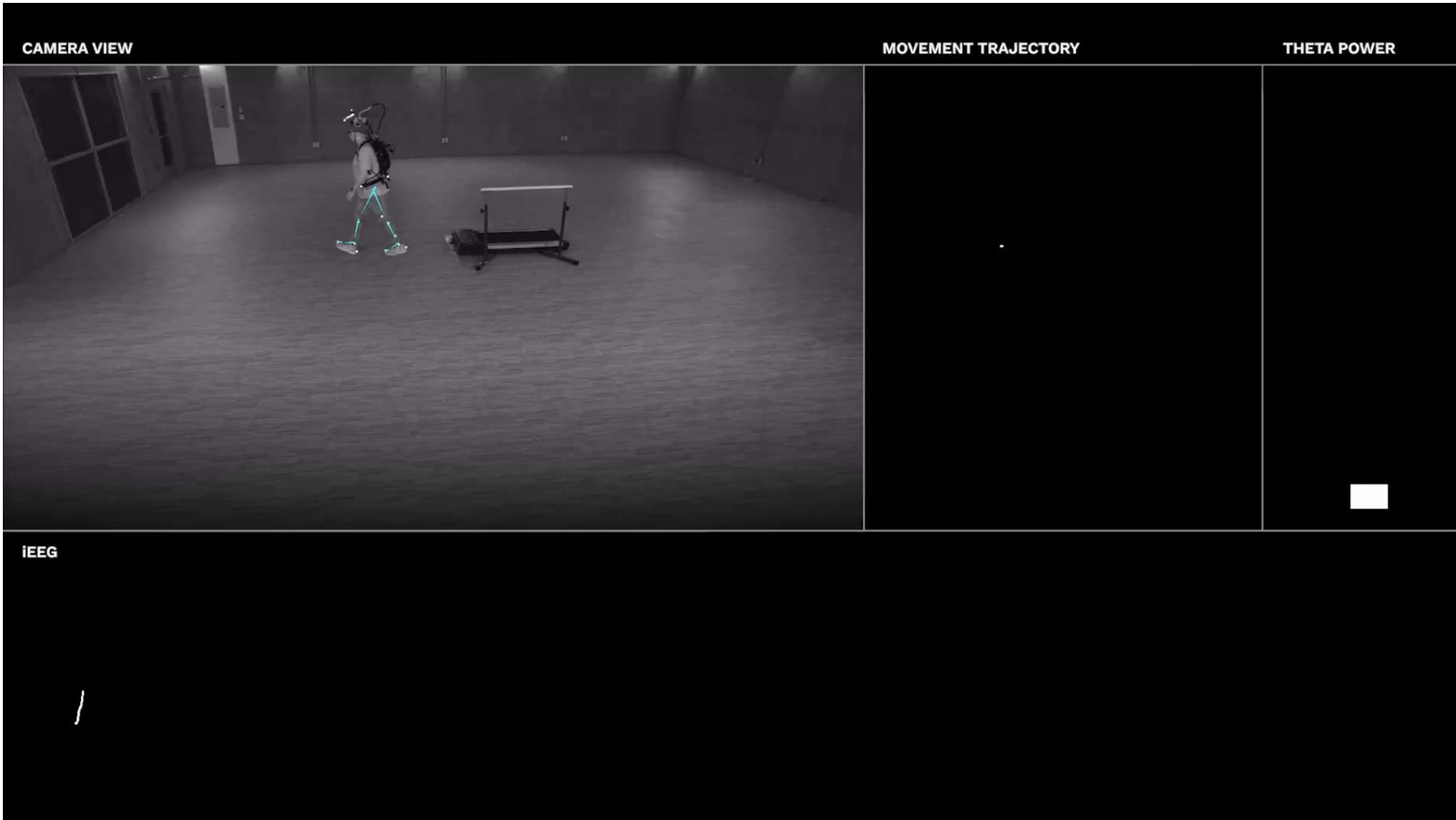


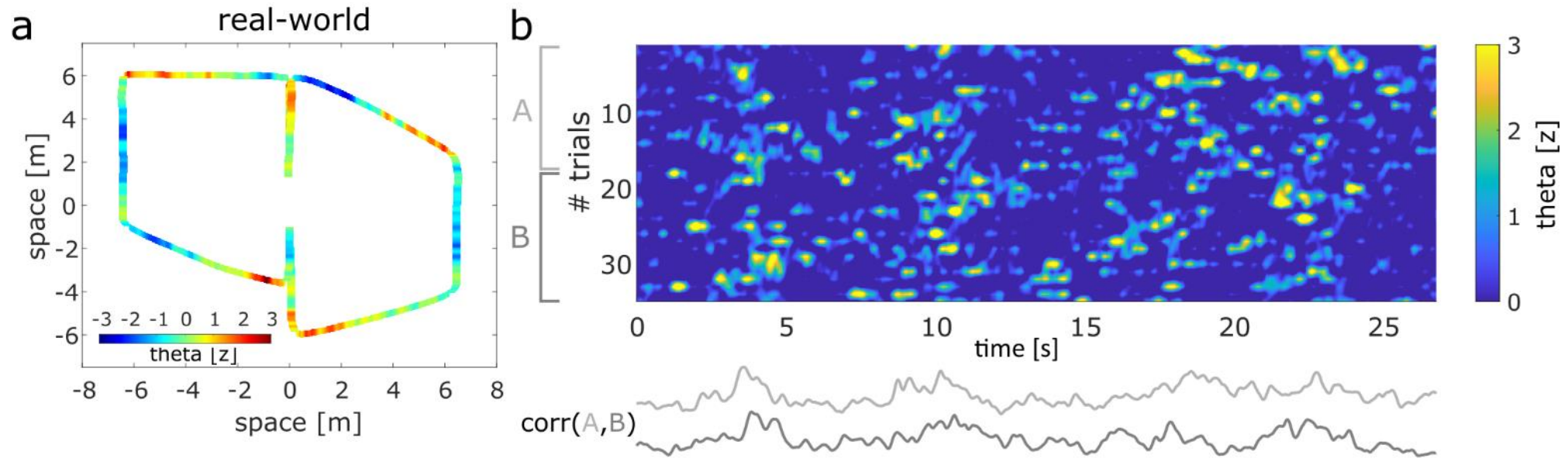
Theta bouts are temporally structured

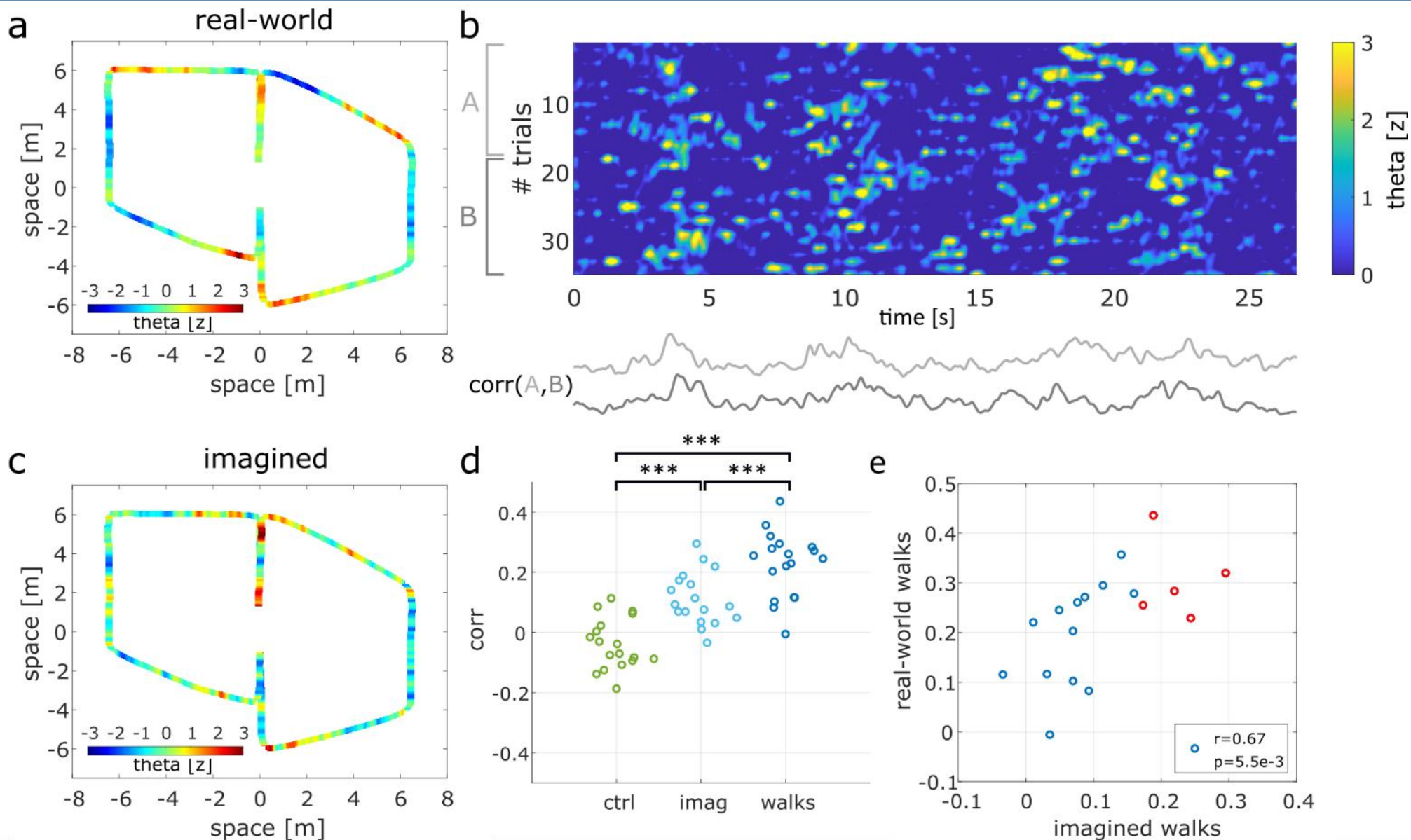


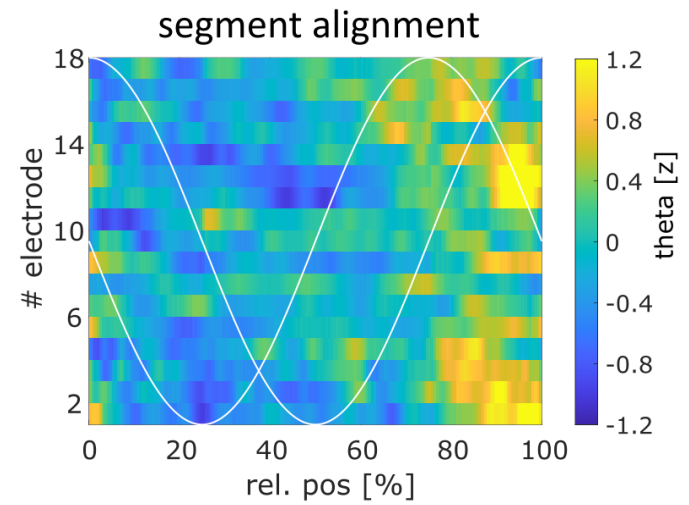
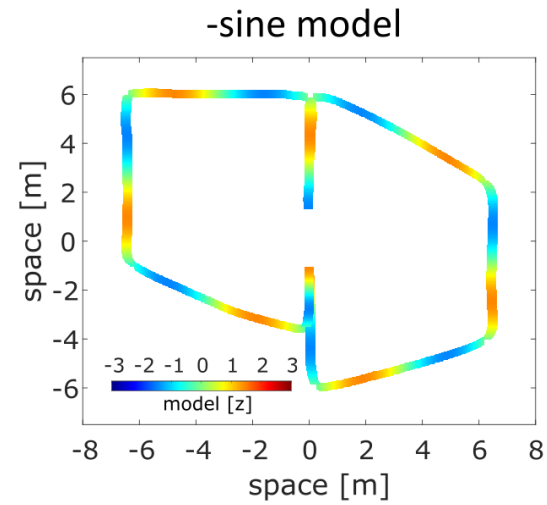
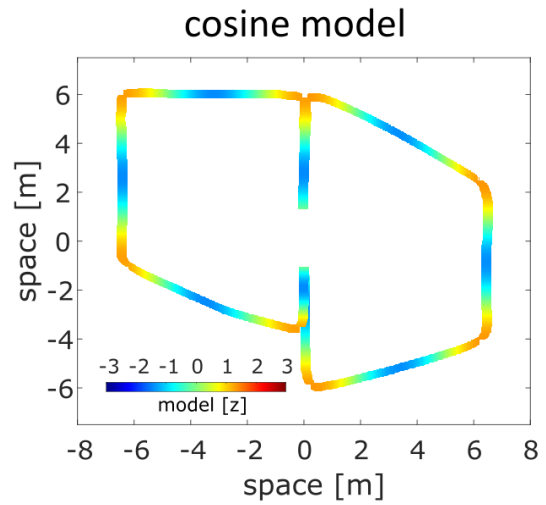


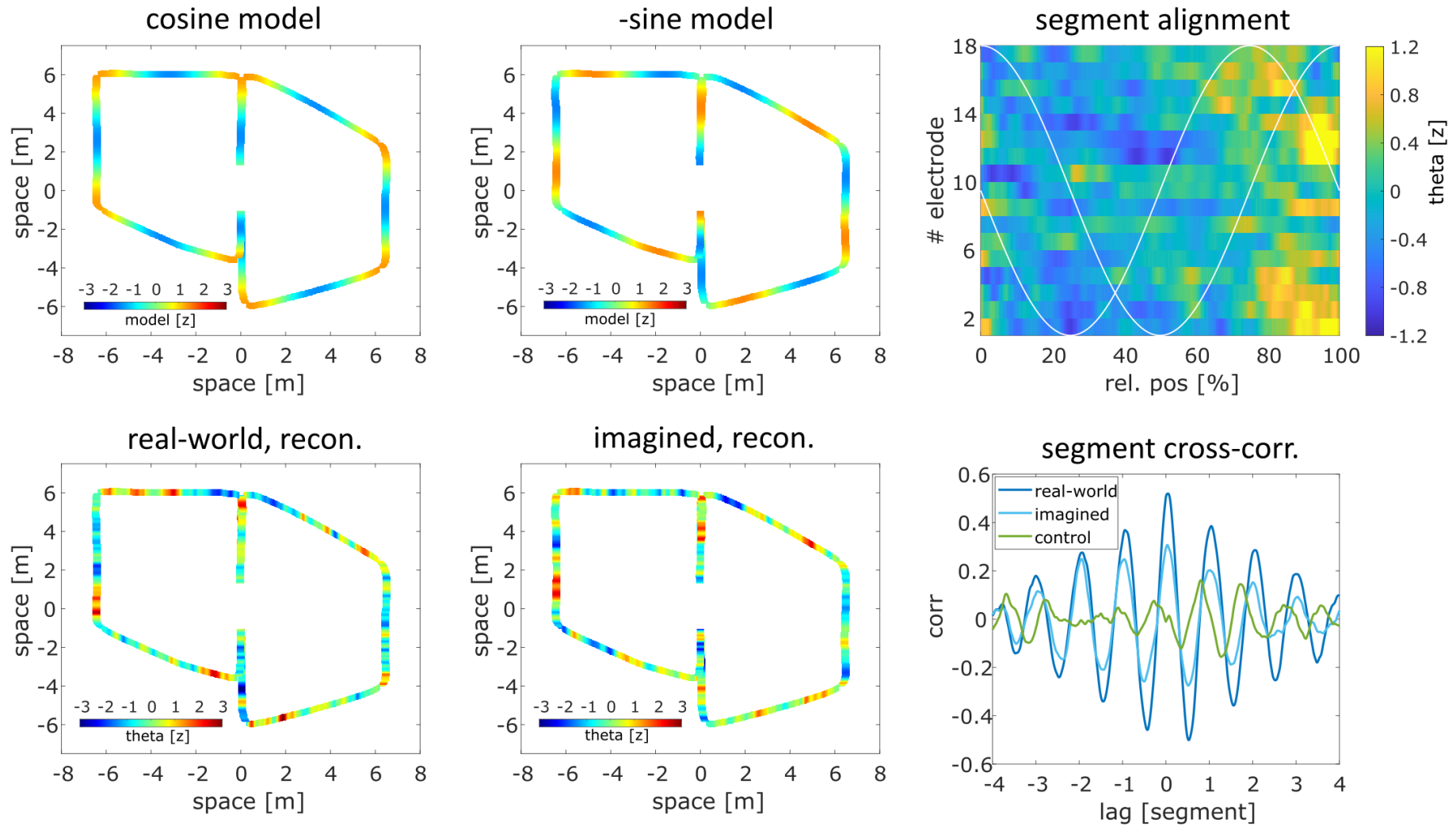


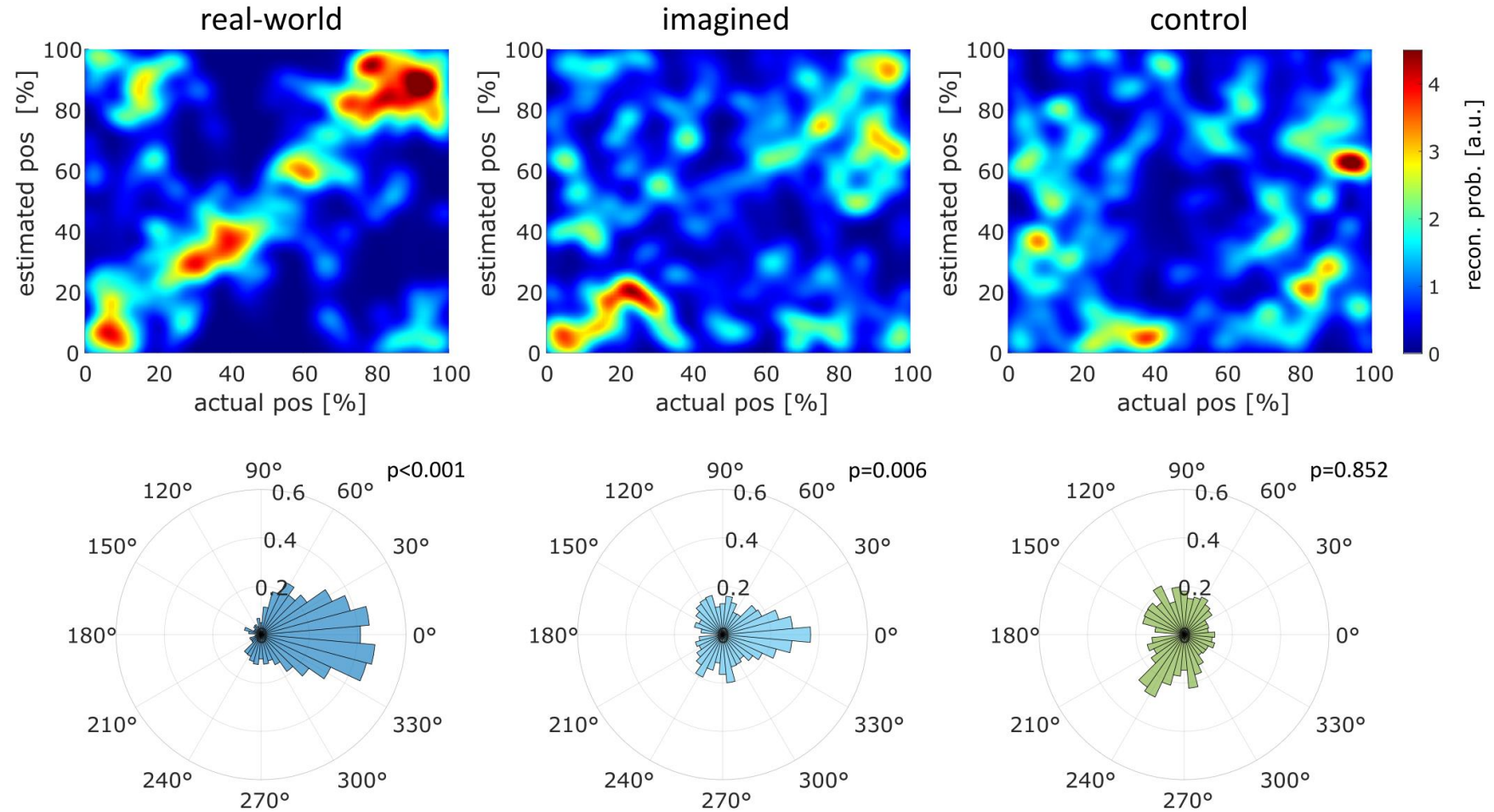


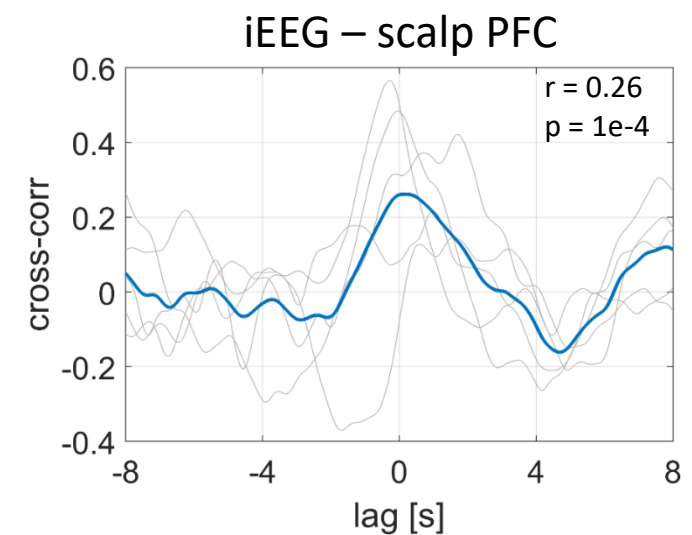
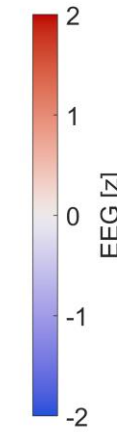
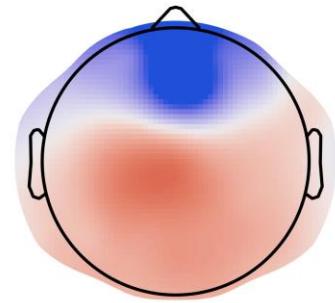
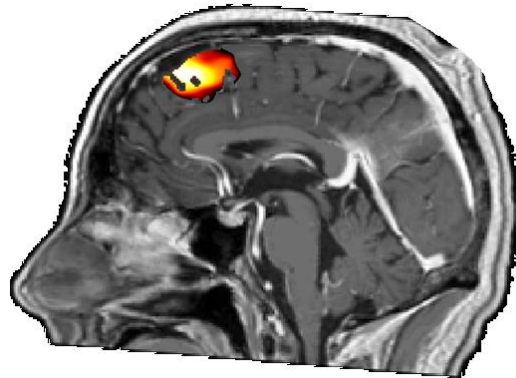
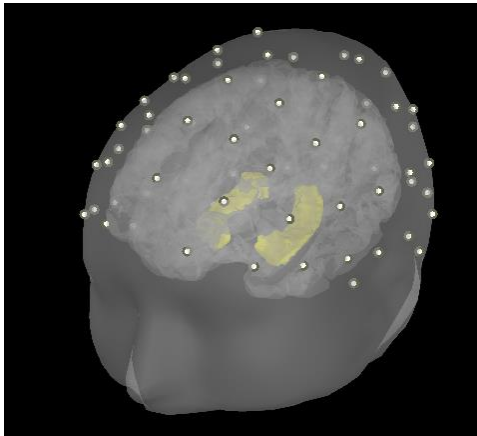
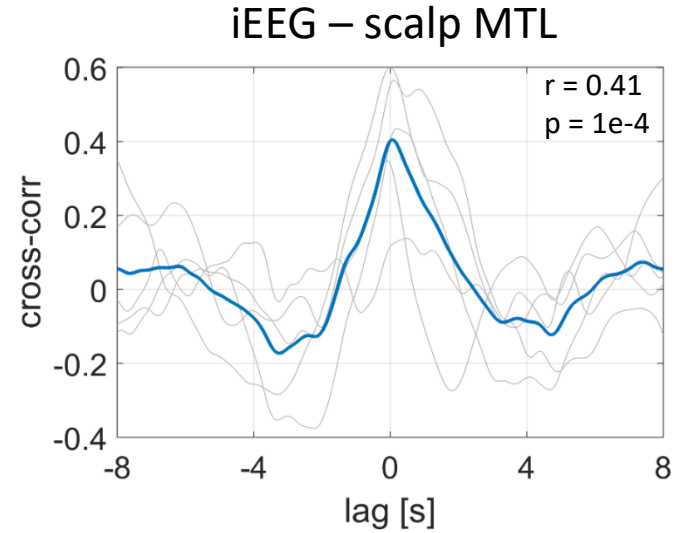
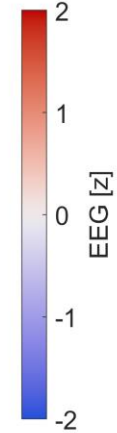
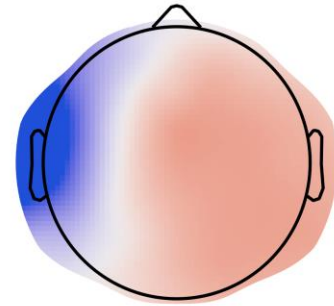
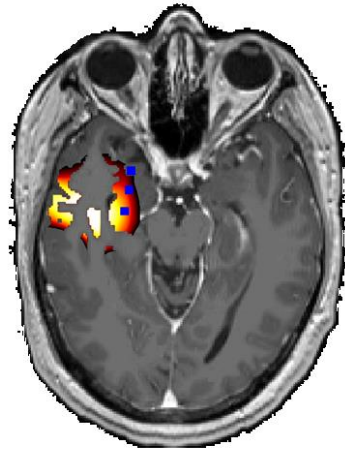












Brainstorm - Tadel et al., 2011
 FieldTrip - Oostenveld et al., 2011
 FreeSurfer – Fischl, 2012

- Theta oscillations in the human MTL are **intermittent** and **temporally structured** during navigation
- Theta oscillations encoded the **route segments** similarly during **real-world** and **imagined navigation**
- Internally generated theta dynamics might support **imagination** and **episodic memory** recollection at minimal sensory input
- Combined intracranial and scalp EEG enable novel perspectives to study **cortical** and **deep brain** activities in **mobile setups**

