Assessing the EEG response to noise tagging in RIFT

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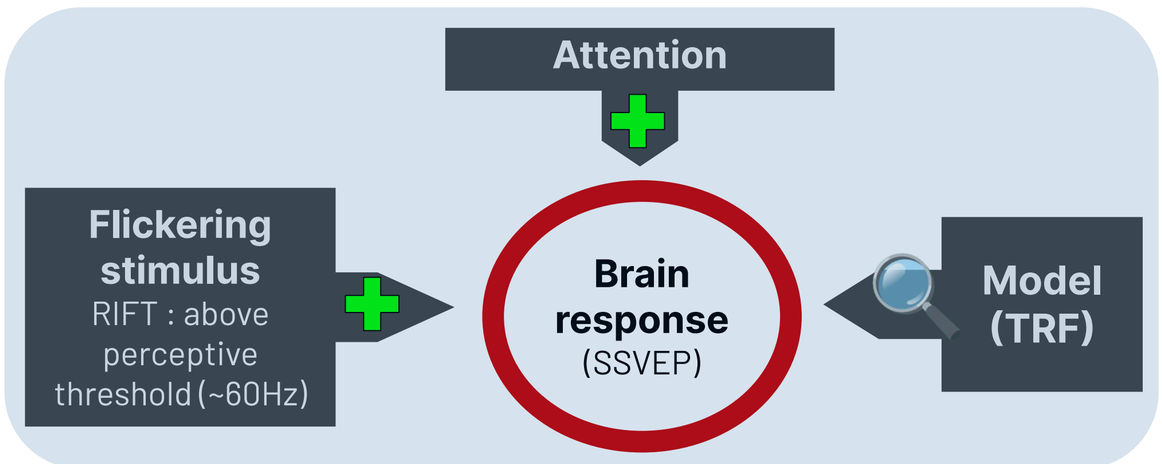
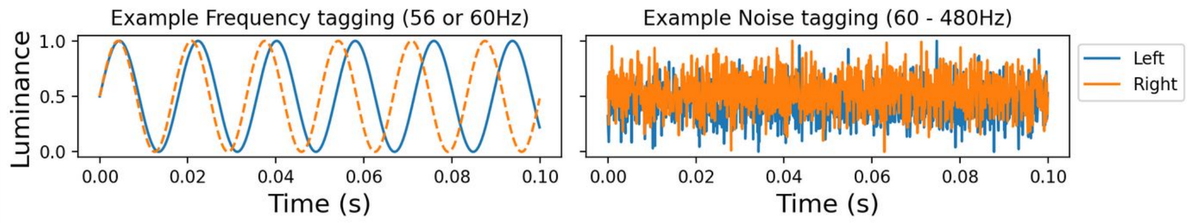
Introduction

Relevance : a broader way to track visual attention.

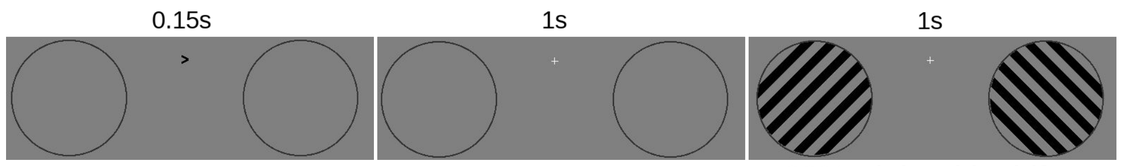


Question: Can we inject unique noise sequences to increase the number of usable tags within the brain response range (up to 64Hz)?

Method

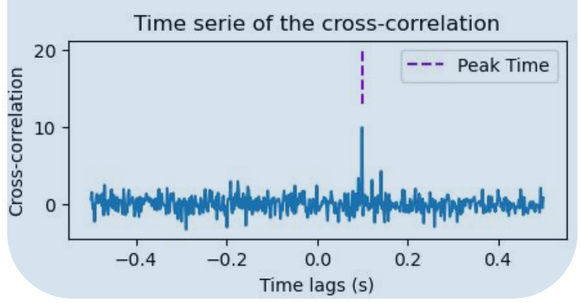


- Shift detection task (n=3) based on an always valid cue.
- 2 conditions (interleaved) : noise and frequency tagging.

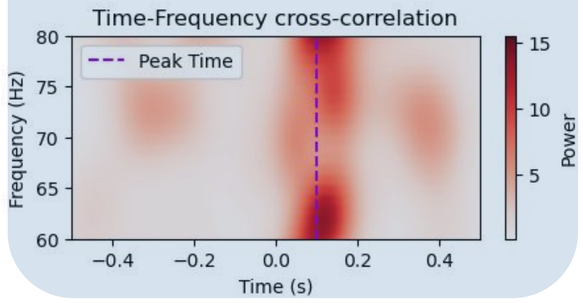


20% trials with shift between 0.2 and 0.8s

TRF: cross-correlation

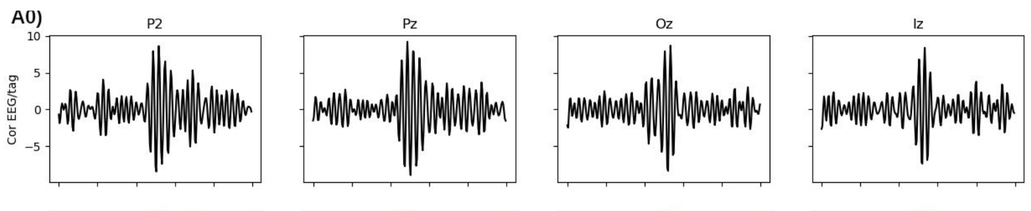


Gamma echo in TRF

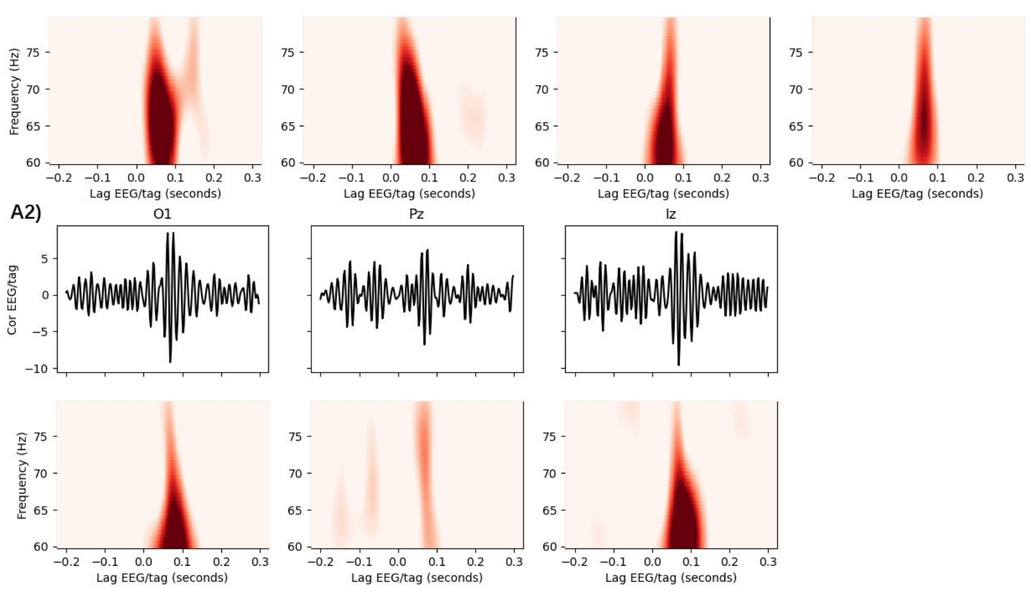


We can recover noise tags in EEG

TRF



Echo



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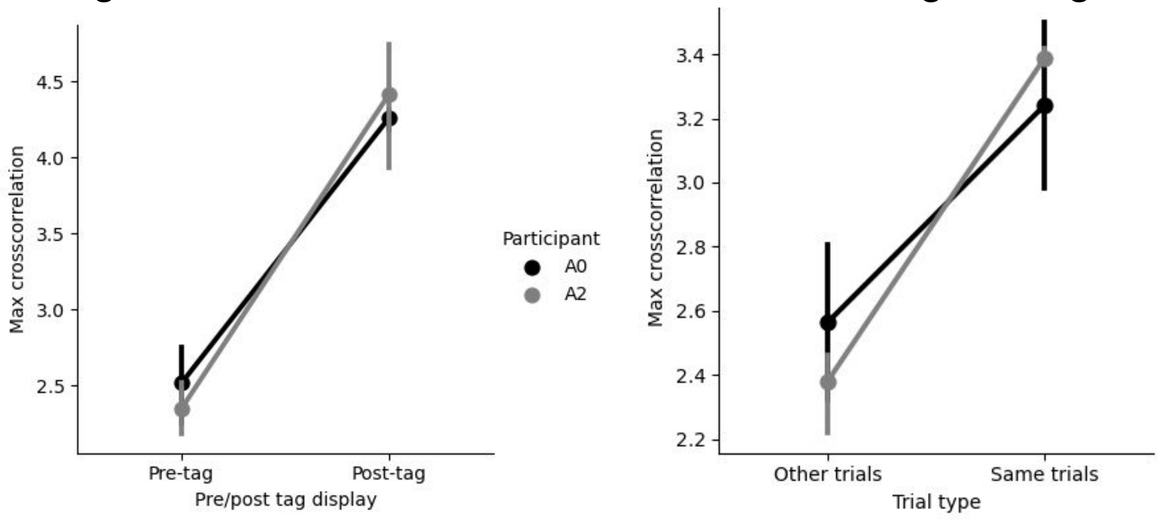
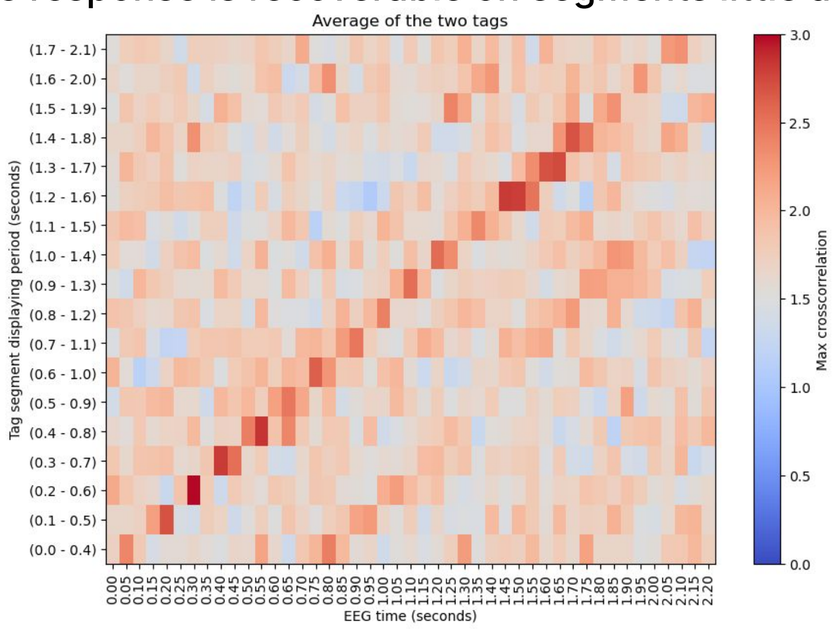
- Higher noise cross-correlation with co-occurring EEG signal

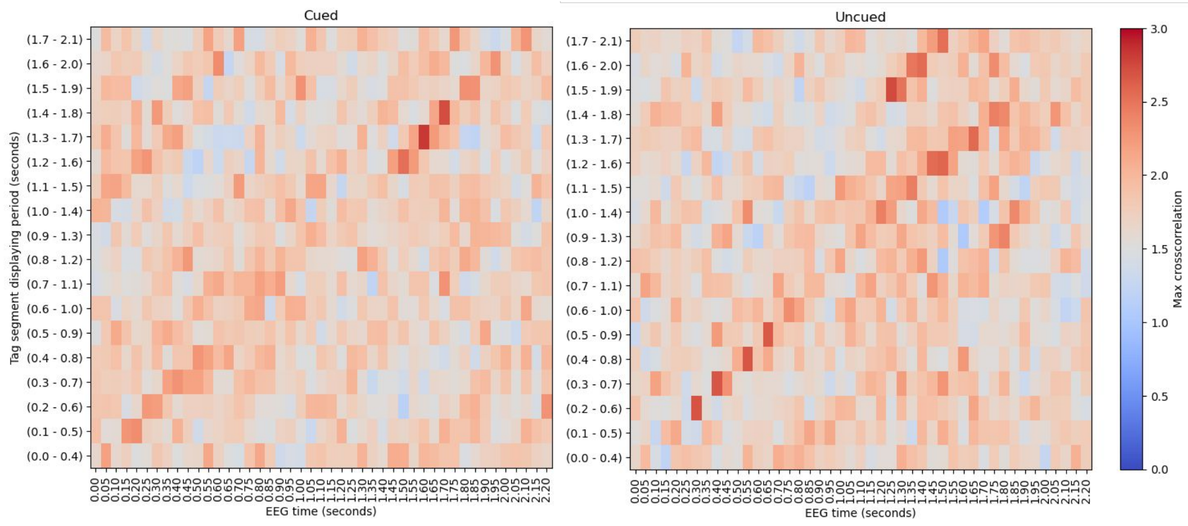


- Impulse response is recoverable on segments little as 0.4s

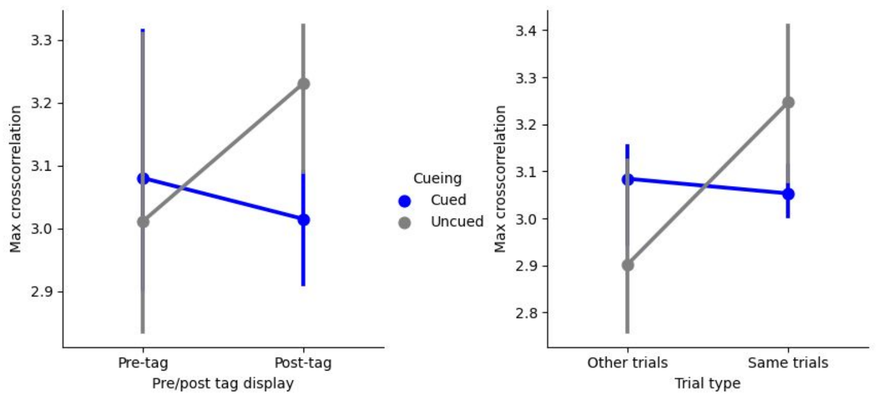


Some evidence for attention tracking

- No attentional effect might reflect true attentional behavior : attention on cued after gratings onset, on uncued before.



- Congruent with the response to the whole tags before 1s.



Experiment 2: cueing refinement