Investigating the physiological and behavioral effects of transcranial alternating current stimulation (tACS)

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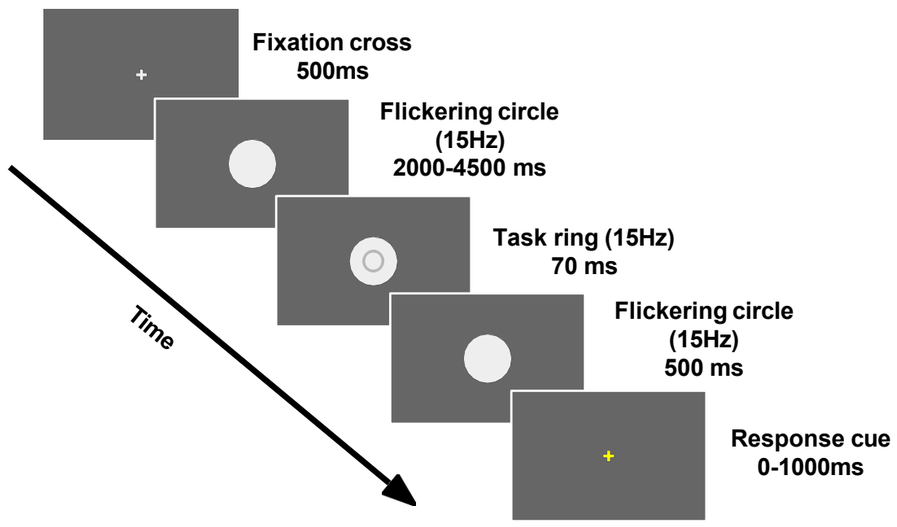
Goal

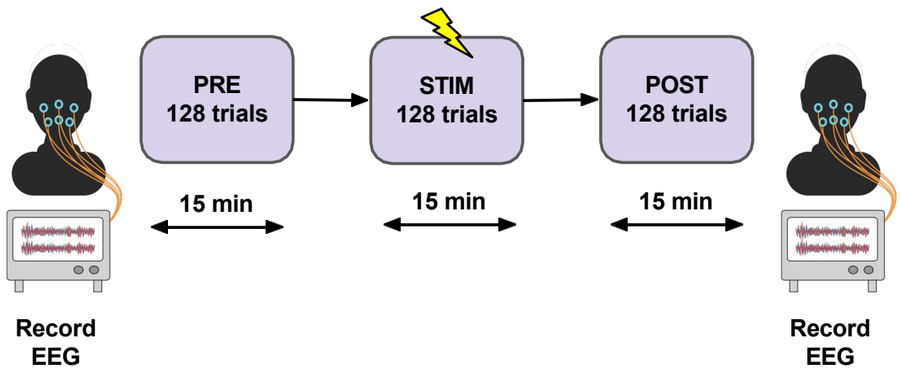
To demonstrate reliable behavioral effects of phase-matched transcranial alternating current stimulation (tACS).

Behavioral Task



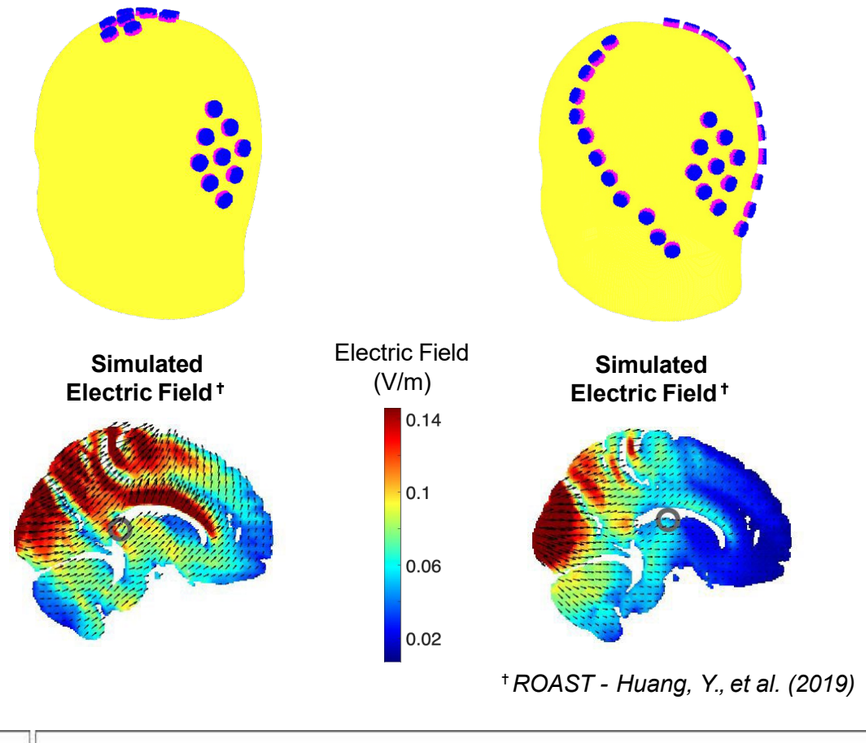
Participants (n=18) performed a perceptual attention task, involving a flickering stimuli to induce steady state visually evoked potentials (SSVEPs).

Block Design



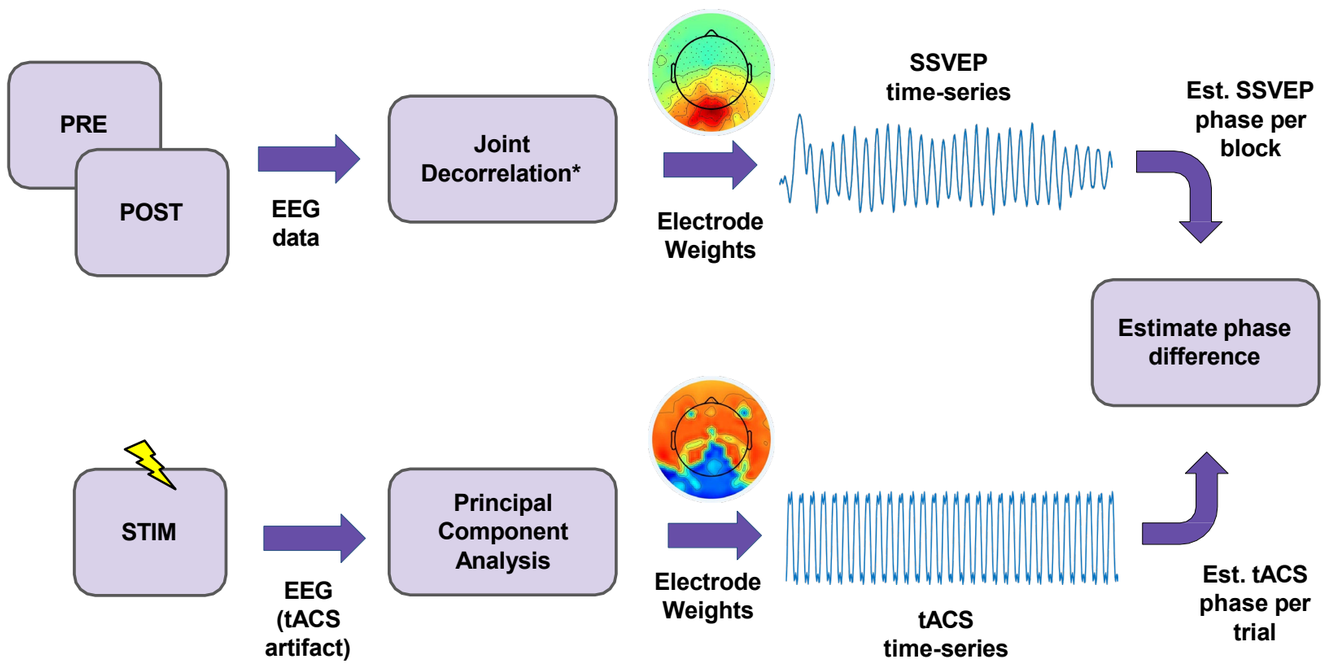
15Hz tACS was delivered while the participants performed the behavioral task, in the STIM block. In the PRE and POST blocks, EEG data were recorded during the behavioral task.

Montage to target Visual Cortex



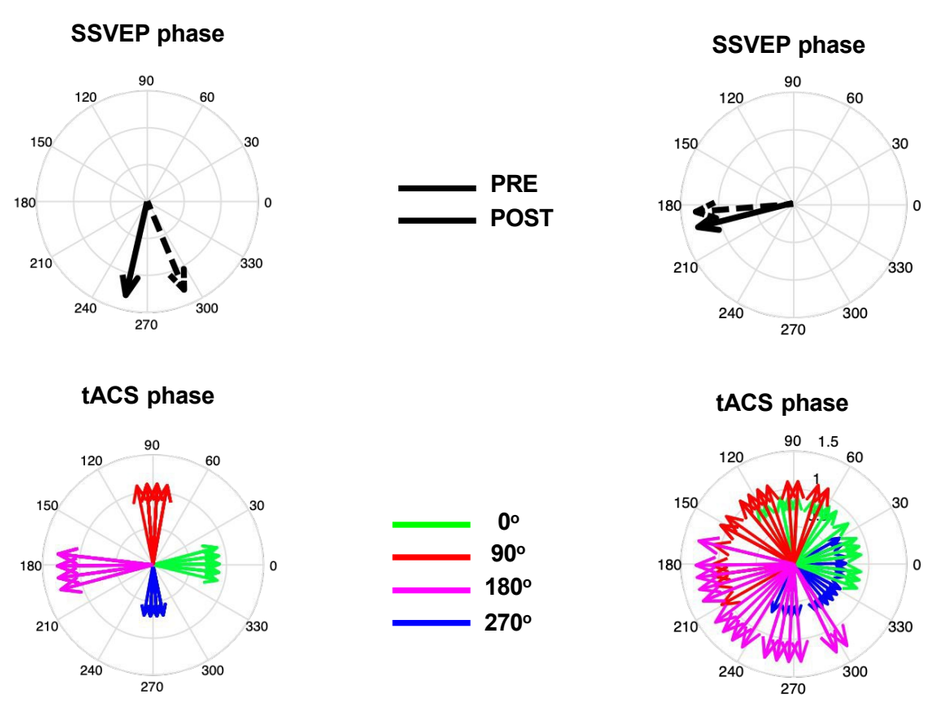
†*ROAST - Huang, Y., et al. (2019)*

Estimate phase difference between SSVEP and tACS

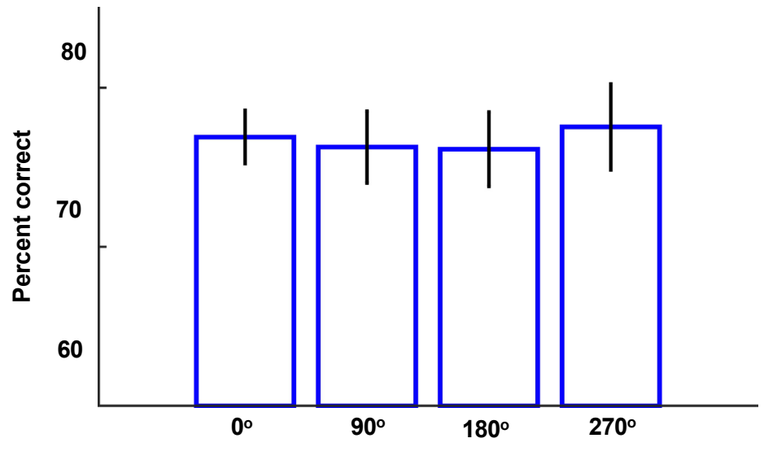


** Joint decorrelation, de Cheveigné, A., & Parra, L. C. (2014)*

Matching phase of SSVEP and tACS is difficult!



No behavioral effects of online tACS



Phase difference between tACS and SSVEP were estimated for each trial. Trials were binned based on the phase difference values, into 0°, 90°, 180°, and 270°. No significant differences in percent correct values were found between various phase difference values.

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