

Dear Faculty, IGERT Fellows, IGERT Associates and Students,

You are cordially invited to attend a Seminar presented by Brett Bays. Please plan to attend.

Brett Bays

IGERT Fellow
Psychology

Date: Friday, January 17, 2013

Location: Bourns A265

Time: 11:00am

Spatio-temporal patterns of alpha band EEG activity in a perceptual learning paradigm: An in-progress analysis

Abstract:

In studies of perceptual learning, subjects are highly trained in specific tasks across many sessions in order to induce perceptual benefits towards the stimuli in those tasks. However, as subjects perform the same tasks across many training sessions, the task becomes automatized, especially in the presence of the trained stimuli. In this case, specificity of learning may be partly related to automatic processing of the trained stimulus sets. To investigate this hypothesis, we examined alpha-band activity, which modulates with attention directed to visual stimuli, as a measure of automaticity in an orientation discrimination task where participants were trained for 8 sessions to find an oriented target in a field of near-oriented distractors. Before and after this training, alpha-band activity was acquired via EEG as subjects performed the task with trained and untrained stimuli. Results show that alpha power increases overall following training consistent with less attention required to perform the task. Additionally, after training, alpha desynchronization was weaker on trials containing trained stimuli compared to untrained stimuli, even though performance was generally greater on trials with more alpha desynchronization. These data are consistent with the hypothesis that performance on the trained stimuli is more automatic and that less alpha desynchronization is required to achieve the same performance levels on trained compared to untrained stimuli. Furthermore they suggest that more effort may be expended on trials containing untrained stimuli. This has implications for perceptual learning, as transfer effects between trained and untrained stimuli may also depend on differential effort of the individual at the time of stimulus processing.

