

## FUNCTIONAL AND BEHAVIORAL ROLES OF NEURAL PROCESSES UNDERLYING BCI

Julie Ann Onton, Arnaud Delorme, Scott Makeig

Swartz Center for Computational Neuroscience

Institute for Neural Computation

University of California San Diego 0961

We are working on dissect the neural dynamics of EEG feedback. This follows our previous work of using ICA to identify and localize alpha and mu rhythms that we presented at the previous BCI meeting (Makeig, Enghoff, Jung, and Sejnowski, 2000, IEEE transactions on Rehabilitation Engineering, 8(2)), and our previous work on alertness monitoring (Makeig and Inlow, 1993; Jung et al, 1997). We also developed new techniques to visualize event-related brain dynamics (Delorme, Makeig and Sejnowski, in press, available on line at [www.cnl.salk.edu/~arno/mypapers/DelormeCNS2001.PDF](http://www.cnl.salk.edu/~arno/mypapers/DelormeCNS2001.PDF) ). As a first step, we used these techniques to identify brain areas that elicit specific oscillatory processes of interest for brain-computer interface work (e.g., specific classes of alpha or mu rhythms). The goal of our study is to understand the interactions and functional roles of the underlying neural processes.