
Joint CNP-IBI-BMI SEMINAR
CENTER FOR NEURO-PROSTHETICS DISTINGUISHED LECTURE SERIES

***“Neural Decoding of Movement from Slow
Cortical Potentials”***

**Monday – September 10, 2012 – 10:15 a.m.
EPFL – room SV1717a**

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Abstract

It is generally thought that the signal-to-noise ratio, the bandwidth, and the information content of neural data acquired via non-invasive scalp electroencephalography (EEG) are insufficient to extract detailed information about natural, multi-joint movements of the upper and lower limbs. In this talk, I challenge this assumption by demonstrating continuous decoding of linear and angular kinematics of upper and lower-limb movements and natural reach-to-grasp gestures from neural data acquired from slow cortical potentials measured using a plurality of scalp EEG electrodes. These data demonstrate the feasibility for designing non-invasive neural interfaces to robotic systems for restoration and rehabilitation of motor function in clinical populations with diminished sensory and motor function, and suggest that we still do not know the limits of scalp EEG as a source signal for studying the neural representation of movement at the macro-scale.