Department of Statistics

MASTER'S THESIS PRESENTATION

SAMUEL AKINS

Department of Statistics
The University of Chicago

Predicting Neuron Spike Trains from Local Field Potentials

MONDAY, August 24, 2015, at 2:00 PM
Eckhart 117, 5734 S. University Avenue

ABSTRACT

Predicting spike trains from low frequency local field potentials has the capability of extending the life of models used to control robotics from a brain machine interface. Typically neuron spikes are predicted from the higher frequency multi-unit spiking activity and the lower frequency local field potential is ignored. Here we demonstrate that the local field potential can partially replicate the "hoops" spike sorting model fitted on multi-unit spiking activity by using logistic and multinomial regression with leading, lagging, and transformed covariates on the local field potential. Given the perceived stability of the local field potential signal and the decay of multi-unit spiking activity signals, this new model may allow for a longer continuous operation of a robotic prosthetic after a "hoop" algorithm is no longer effective.

For information about building access for persons with disabilities, please contact Laura Rigazzi at 773.702-0541 or send an email to lrigazzi@galton.uchicago.edu. If you wish to subscribe to our email list, please visit the following web site: https://lists.uchicago.edu/web/arc/statseminars.