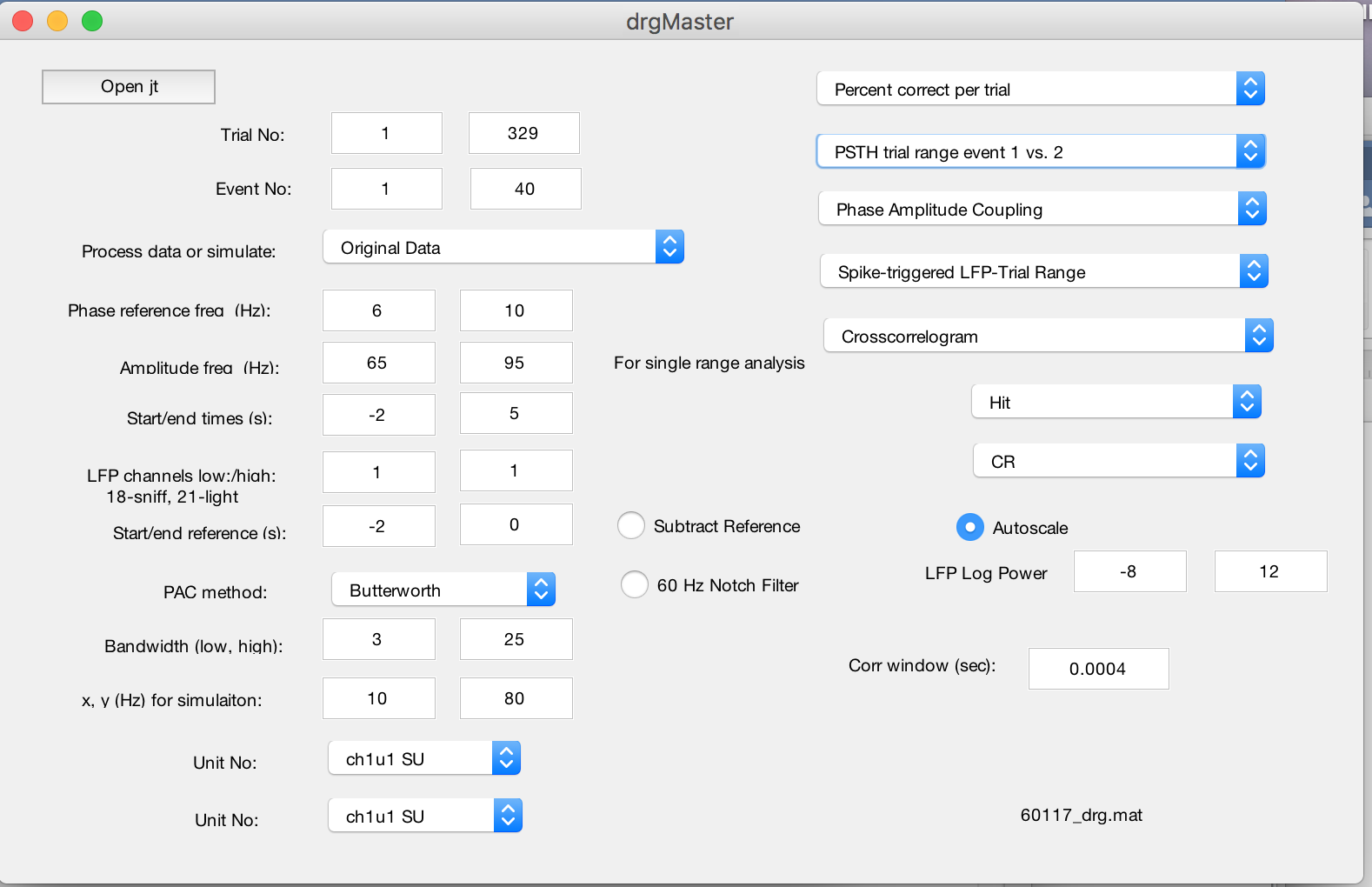
**drgMaster**

drgMaster performs basic analysis of spike and LFP data acquired by the Restrepo lab. Data are acquired with the Data Translation DT3010 or Intan RHD2000 boards. After reading the header with drta you can perform LFP analysis with drgMaster. In order to perform spike analysis you need to sort spikes using wave\_clus. drgMaster will read header and spike information from a jt\_times file generated by drta/wave\_clus and will read LFP recordings from .dg (DT3010) or .rhd (Intan) files.

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**Analysis of behavior in go-no go tasks**

Phase amplitude coupling. Calculates PAC according to Tort. The amplitude frequency band is set by “Amplitude frq. (Hz)” and the phase reference frequency band is set by “Phase reference freq (Hz)”. The PAC is calculated in the window set by “Start/end time (s)”.

Percent correct per trial. Calculates percent correct (PC) in a window of 20 trials. Blue denotes PC<=65%, red PC>=80%.

**LFP analysis**

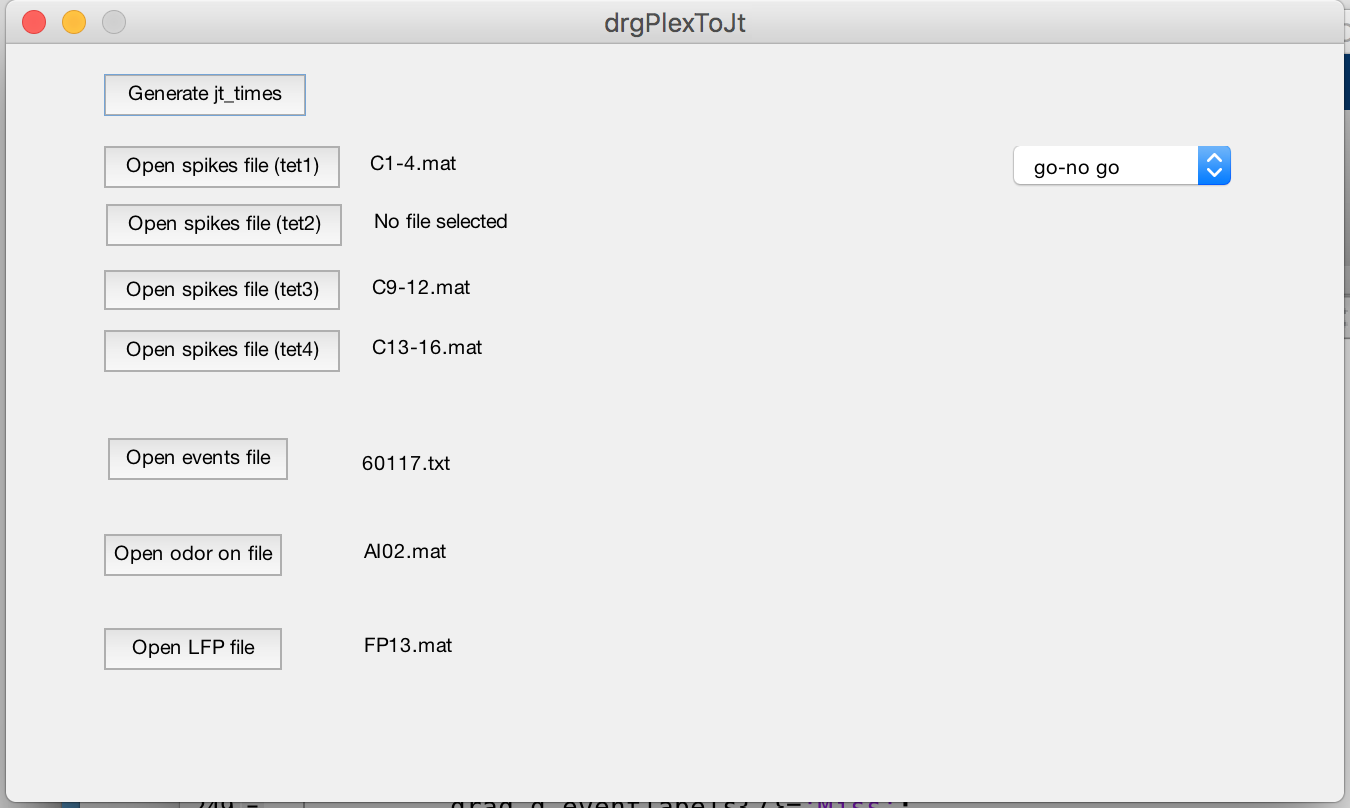
**Spike analysis**

PSTH in phase event 1 vs 2

Computes the PSTH convolved with the spike phase histogram generated by “Spike phase in LFP-Trial Range”. You must run Spike phase in LFP-Trial range first. You need to specify: events 1 and 2 (e.g. S+ and S-), Start/end time(s), UnitNo and Amplitude freq (Hz). Make sure that Amplitude freq (Hz) is the same frequency bandwidth used to calculate “Spike phase in LFP-Trial Range”.

**drgPlexToJt**

Generates a jt\_times file that can be read using drgMaster using data acquired with Plexon by Anan Li’s. laboratory.



**drgRunBatchLFP**

This code performs power and PAC analysis for a batch of files. It requires a drgbChoices file that specifies the path and file names for each file, which experimental group they belong to, the time windows, and events that will be used. We include an example file drgbChoicesLFPexample.m. The program takes several hours, days for analysis of several files. The code saves a .mat output file. The data can be displayed with drgDisplay code.

**drgLFPDiscriminantBatch**

Batch discriminant and PCA analysis for LFP data

It takes as input a choices file such as drgbChoicesDiscriminantJustin\_spm\_perfom\_LFP\_20180215

handles.drgbchoices.which\_discriminant chooses the analysis:

1 Perceptron for power LFP (very slow and has not been troublehsot)

2 Linear discriminant analysis (LDA) for power LFP

3 Principal component analysis (PCA) for power LFP

4 Linear discriminant analysis (LDA) for phase in phase amplitude coupling (PAC)

5 Principal component analysis for PAC

6 LDA for subsets of electrodes for power LFP

**drgAnalyzeLFPDiscriminantBatch**

Analyzes the linear discriminant analysis performed by drgLFPDiscriminantBatch.

Takes as input the 'Discriminant\_\*.mat' output file from drgLFPDiscriminantBatch.

Performs an analysis of the timecourse for percent correct for LDA and for the PCA for naïve and proficient mice