VLSEE: Very Large Scale Electrophysiology-Experimental

1 Introduction

VLSEE is a collection of scripts used in and with a large scale spike sorting process. A section is dedicated to each of the scripts detailing behavior and usage. [Deprecated] proceeds the titles of scripts that are no longer actively maintained or improved.

2 `get_sane`

`get_sane` is function that returns an array of indices of bad units based on some simple criteria. Note that bad units are considered to be those that fall *outside* the valid range of these parameters. It should function as a basic sanity check before any sorting process to prevent garbage units from causing a "garbage–in–garbage–out" effect.

Value	Minimum	Maximum
Peak-to-peak Voltage (V_{pp})	60μV	350μV
Absolute Voltage	-350μV	350μV
Wave Count	200[1]	∞
Coefficient of Variation (Magnitude)	0	0.4

2.0.1 Coefficient of Variation

The calculation of this parameter is motivated by the observation that most units that are considered to be artifacts are very noisy around the peaks. Here, the mean of the lowest point of the unit is considered to be the peak and the coefficient of variation is defined as:

$$c_v = \sigma/\mu \tag{1}$$

were σ is the standard deviation of the minimum of the waveforms and μ is the minimum of the mean waveform. The absolute value of the coefficient of variation is used in the function to simplify the process.

2.1 Usage

Example:
`badunits = get_sane(do_units, spiketimes, bestchannel, wavedir, sampling_rate, ispen)` Description of parameters:

`do_units`	The indicies of units to check
`spiketimes`	The cell array of spike times
`wavedir`	The director where the waveforms are store
`sampling_rate`	The sampling frequency[2]
`ispen` (1=True, 0=False)	Whether this function is being run just after `get_penultimate_units`

[1] This minimum is 0 if this function is run at the penultimate step
[2] currently unused

3 [Deprecated] `quasi_pdf_merge`