Documentation for Event Detector algorithm (2019.07.10)

- Simultan: Check this if you have both electrophysiological and calcium data
    - If you uncheck 'Simultan', you can choose which type of data you are feeding to the algorithm
- Num of ephys chan.: Write here how many electrophysiological channels you have selected
- Ephys block: This specifies whether from the selected curves in your Curve Analysis window the electrophysiological data comes first or second
- Ca delay vs ephys: Here you can set the maximum delay a Ca event should have compared to the simultaneously occurring electrophysiological event
- Options:
    - Debug: If checked it returns various data to the Matlab workspace, which can help if there is a confusion about the detection results
    - Matlab figs: If checked the algorithm produces separate Matlab figures in addition to the new gors in the Curve Analysis window
- Ca parameters: These are the parameters used for the event detection in your Ca data
    - Sample rate: The sample rate of the provided data
    - Step size: Specifies by how much the peak detection window moves for each step, the detection window itself is twice the given size
    - Min event distance: This determines how close to each other two peaks can be
    - Event length: Here you can specify how the length of the events to be detected
    - Threshold: You can select whether the thresholding should be done at a fixed dF/F value or at a calculated mean+n*sd value
    - sd mult: This gives the multiplier of the sd value (the n in mean+n*sd)
    - quietsd mult: The same as sd mult, but for the determination of the quiet intervals
- Ca processing: Here you can choose from a list of available processing options for the Ca data
- Ephys parameters: These are the parameters used for the event detection in your electrophysiological data (the settings with the same names as in Ca parameters operate the same way)
    - W1: The lower limit of the bandpass filter
    - W2: The upper limit of the bandpass filter
    - Quietint length: How long should the quiet interval be, on which the detection threshold will be based
    - Denoise: Useful for eliminating various artifacts, it subtracts the 'Refchan' from other channels
    - Refchan: Reference channel, for example in hippocampal recordings the cortical channel
    - 1s shift: This can be used when you have to shift your electrophysiological data forward by 1 second

- ○ Disregard peaks coinciding with refchan: If you check this, peaks on your 'normal' channels will be deleted from the result if they are within the 'Min event distance' to a 'Refchan' peak
- ○ Used for simult: Here you can choose which of the strongest channels should be used for the simultan detection
    - Maxnum: This option determines the strongest channel, based on the sum of the power of all peaks
    - Norm: This differs from Maxnum in that it divides the sum of power of all peaks by the number of peaks, thus normalizing the result
- Ephys processing: Here you can choose from a list of available processing options for the electrophysiological data