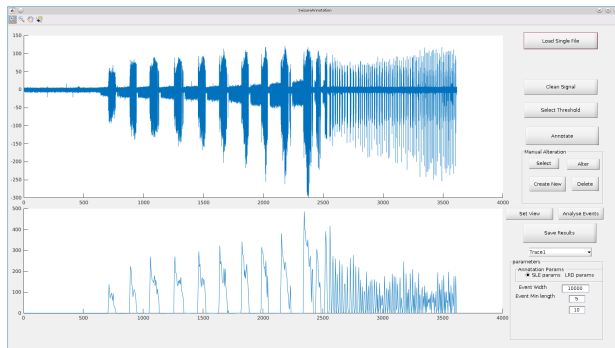


User manual for AbAnT (AbruptnessAnnotationTool)

September 10, 2018

Loading Files To Isolate Events

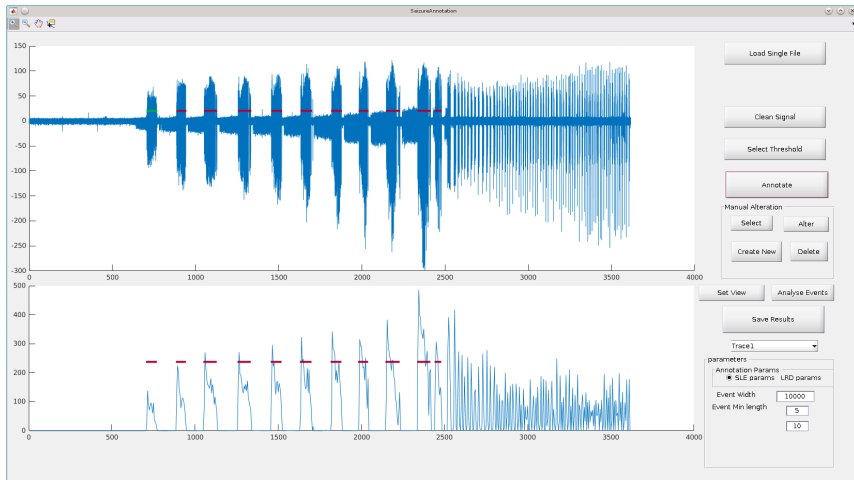


- ▶ Run the SeizureAnnotation.m script.
- ▶ Press the Load Single File button and select a file. This may be a .mat file exported directly from spike2 or an axograph file if the import_axo function has been added to your path.
- ▶ This should load the first trace on the file as shown above.

Isolating Events

- ▶ Having loaded the file, isolating the events can be performed automatically by selecting a power threshold above which events can be considered.
- ▶ This can be done by pressing the select threshold button - this will show a cross hairs on the screen which you can point on to the bottom screen showing the power of the low frequency component of the signal.
- ▶ Where you click will determine the threshold on the y axis, and will consider events up until the point where you have clicked on the x axis.
- ▶ Having selected a threshold, you can then press the annotate button, this will highlight the events considered to be above threshold. (as shown below)

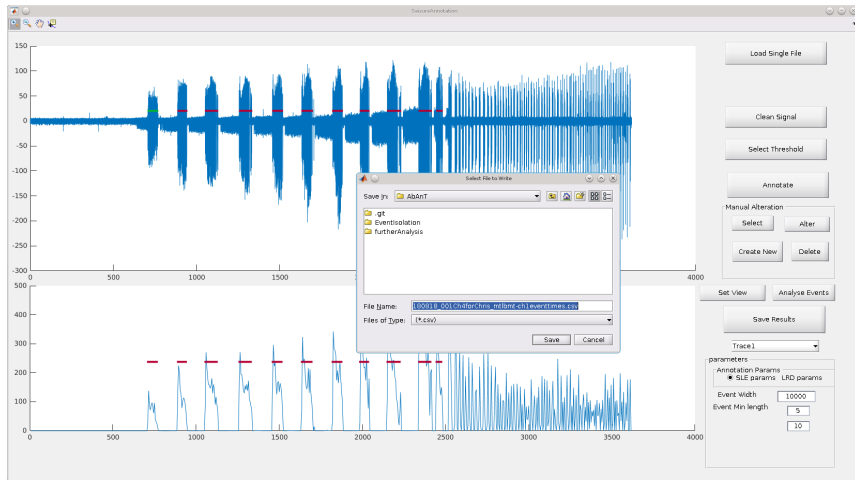
Manually altering events Events



Isolating Events

- ▶ The events will show up as red bars across the top of the signal. The user can select an event by pressing the select button on the manual annotation panel. This will again bring up a crosshairs, which can be used to select an event by ensuring that it is in line with the event on the x axis and pressing the left click.
- ▶ The event should then turn green to show that it has been selected. The user may now delete or alter the event.
- ▶ To alter the event press alter, a cross hairs will appear, this can be used to extend or shrink events by selecting a location on the x axis. The selected event will extend or shrink to this location incorporating other events if they then subsequently overlap.
- ▶ An event can be created by pressing the create new button then selecting a location.

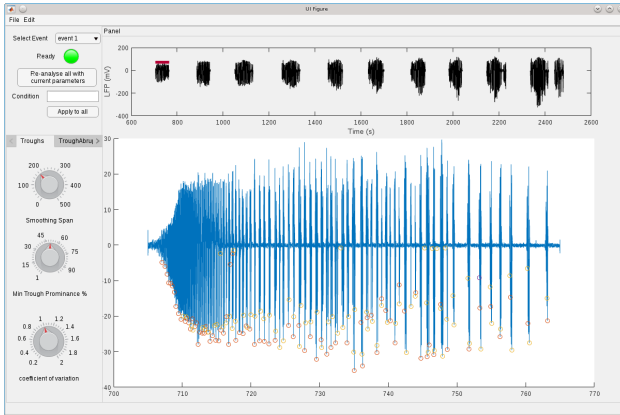
Saving Events



Saving Events

- ▶ Press Save Results to save when you are happy with the event times for this trace. This will bring up a file selection dialog for you to select a file name and location.
- ▶ The event times are then saved as a comma separated value file, along with the trace number, and the file name. This can then be analysed further by pressing the Analyse Events button.
- ▶ You can also isolate events on any other traces present on this file if you wish by using the trace drop down menu below the save results button. These should then be saved as a separate file.

Analysing Events

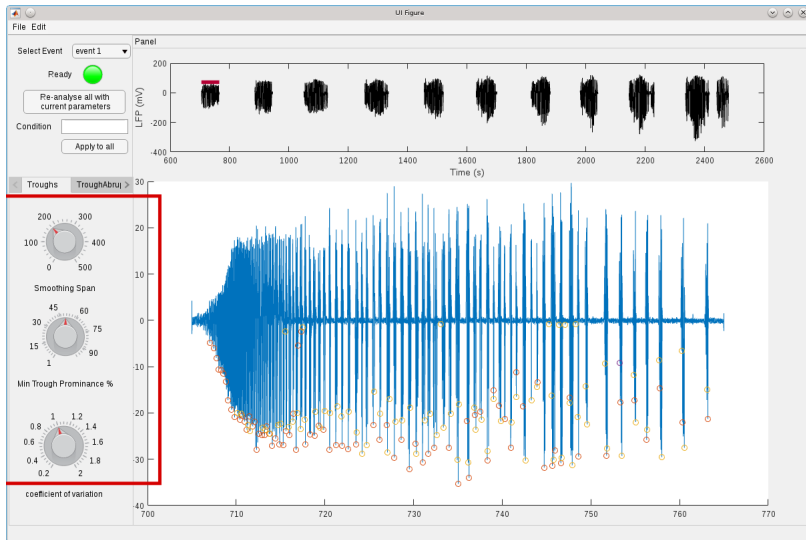


- Individual events can be analysed further by pressing Analyse Events. This will bring up a separate analysis window.

Analysing Events

- ▶ Specifying experiment details can be done using the Edit menu. You will see a menu to set the experiment date and the multi recording experiment settings.
- ▶ When multiple recordings are used for a single experiment, an offset can be applied to the relative event times so that they can refer to the absolute time relative to experiment start rather than recording start. A recording number is also specified.
- ▶ The condition text box in the upper left of the screen can be used to note the experimental conditions present for this recording. Clicking apply to all will apply this condition to all events in this recording.

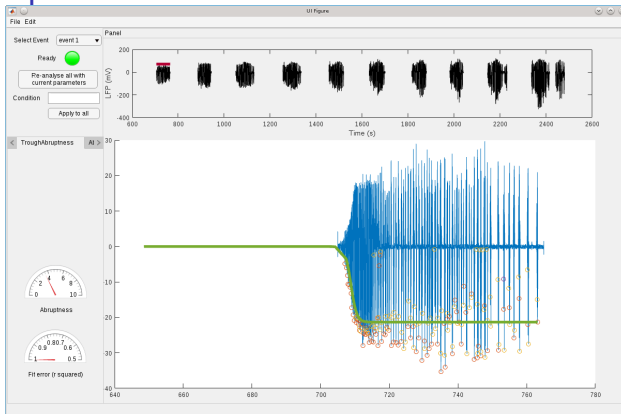
Finding Troughs



Finding Troughs

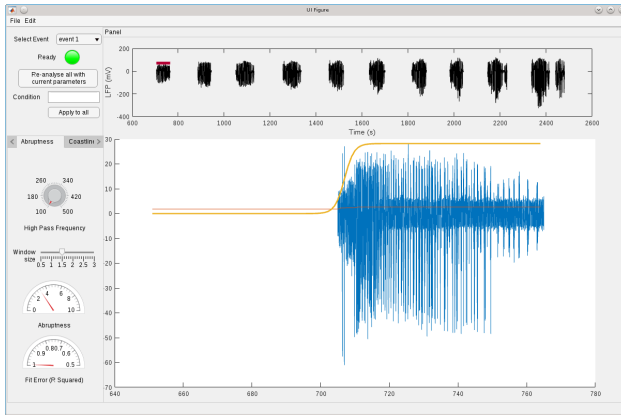
- ▶ Multiple measures are provided but first we should make sure we are identifying the troughs correctly.
- ▶ Three parameters can be tweaked to improve the performance of this, these are seen as knobs to the left of the trace. You will see that the plot will update - the troughs are identified with circles. Red for sharp trough, yellow for less sharp trough, and purple for very wide troughs.

Abruptness



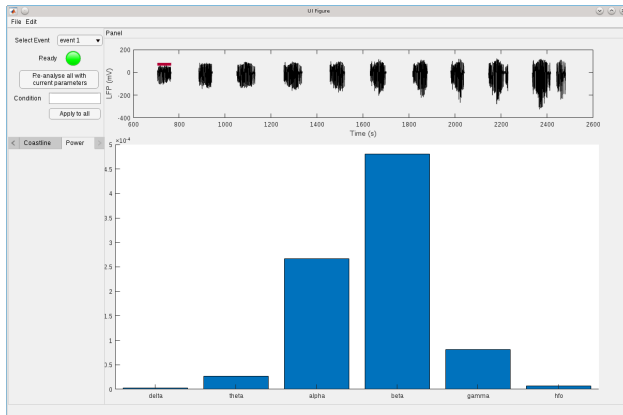
- ▶ To the left of the trace is a tab area, currently with the trough parameter knobs displayed. If we select a different tab, we will see a different analysis applied to the signal.
- ▶ The first abruptness tab will show a logistic function fit to the troughs. We can see the abruptness value on the upper dial and a goodness of fit on the lower (1 = good fit, 0 = bad fit).

Abruptness



- ▶ Abruptness measured by the multi unit activity is on the next tab.
- ▶ Here we can tweak the high pass filter and the windowing, but these should be kept constant across all comparable data.

Other measures



- The coastline and relative power of several frequency bands will also be calculated and displayed on the subsequent tabs.

Saving results

- ▶ Results can be saved by going to file then save. You may save as csv or xls files.
- ▶ This will save all measures for all events, with other details such as condition or offset or experiment date, if these have been provided.