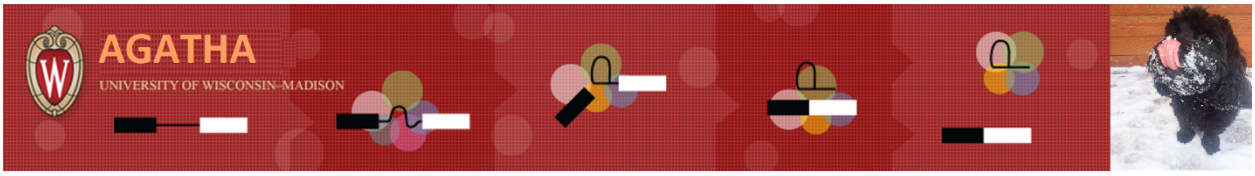


# User Manual
# Short Counter

ABSTRACT: This program counts the short events that occurs prior to a long binding event. For an AOI, it first classifies all events as long or short using the user input values. For every long event, it will count all the short events in front of it as shown in Fig. 1. The short counter outputs
1). Long_Short_counts.mat (This file will have AOI number, number of the short events, number of the long events in the corresponding AOI.)
2). Short_counter.mat (This file will have AOI number, number of the short events in front of a long event, and the corresponding long event time interval.
3). Scatter plot demonstrating the relationship between the consecutive event lengths.

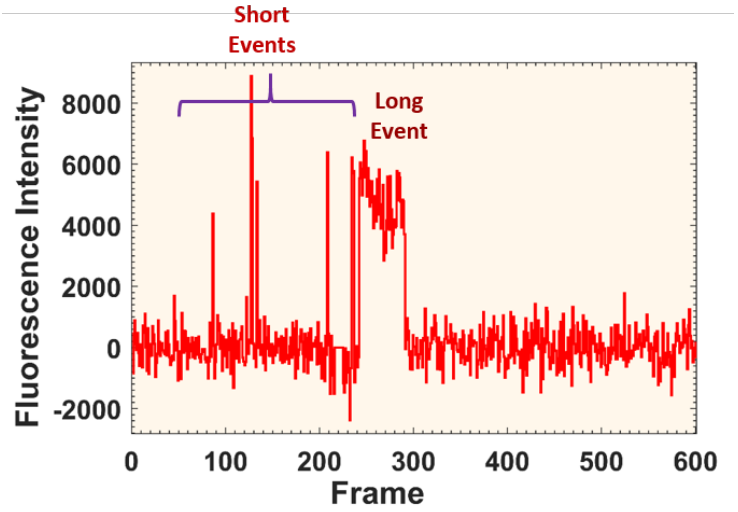


Figure 1. A fluorescence intensity trajectory depicting the five short events that has occurred prior a long binding event.

Instructions to run the code:

1. Click on the Short Counter on AGATHA GUI.
2. The following GUI will appear on the screen.

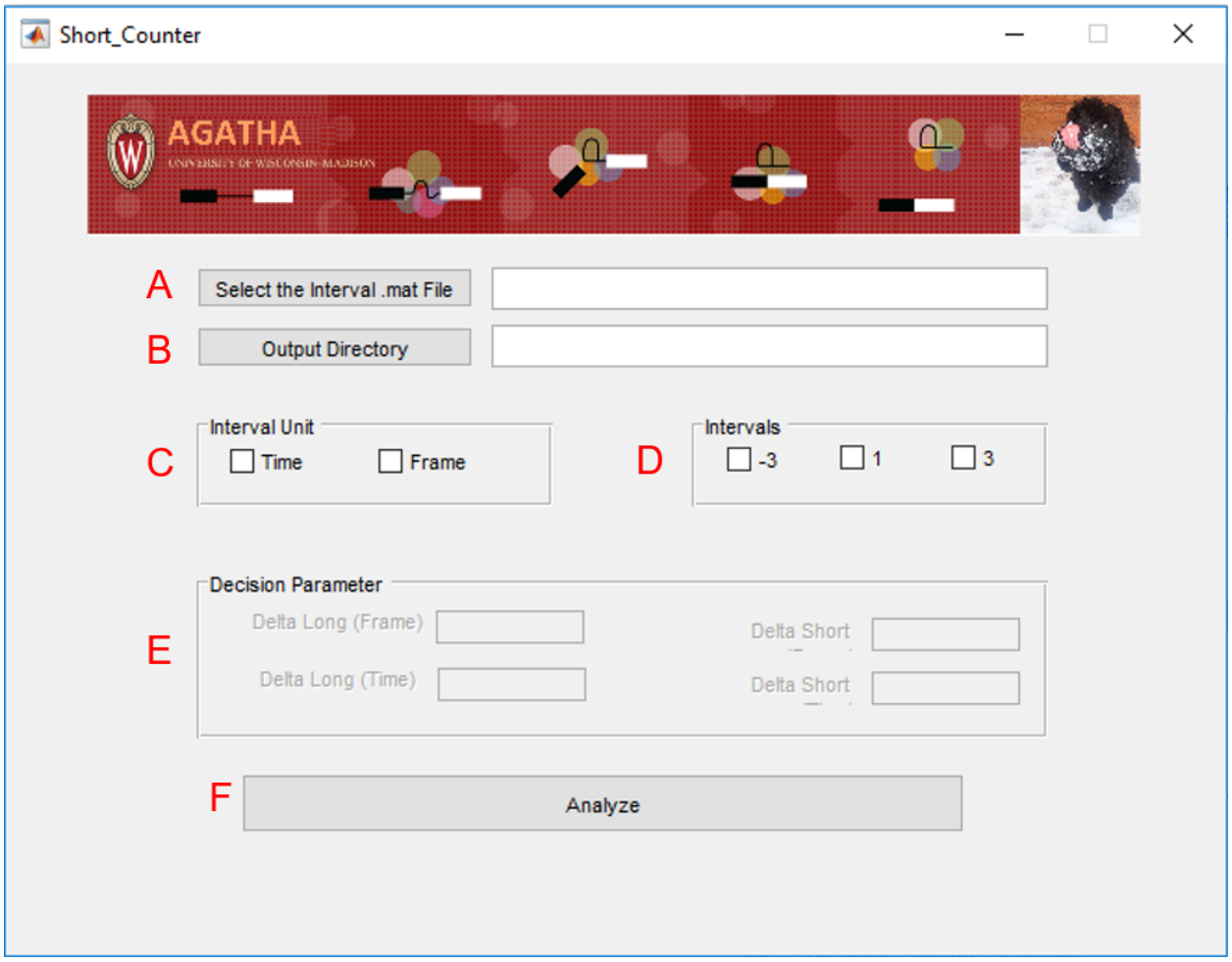


Figure 2. GUI for the Short Counter program.

3. Click on the Select the intervals .mat file button to assign the interval file (A in Fig.2).
4. Click on the Output Directory button to assign an output location (B in Fig. 2).
5. Choose the Interval Unit (C in Fig. 2).
   Frame: It will check the Long event_startframe > short_event_endframe.
   Time: it will check the Long event_starttime > short_event_endtime. Time unit is in seconds.
6. Choose high events you want to analyze (-3/1/3, glimpse event classification) or any combinations of these high values (D in Fig. 2).

7. Decision Parameter (E in Fig. 2): if you have selected Frame in the Interval unit, Delta Long is the shortest frame interval that will be considered as a long binding event. Delta Short is the longest frame interval that will be considered as a short binding event. Similarly for Time as an interval unit, input the desired time intervals.
8. Hit Analyze button (F in Fig. 2).
9. Output folder will have three files.
   (a). Long_Short_Counts.mat
   This file will have AOI number, number of the short events, and number of the long events in the corresponding AOI.
   (b). Short_Counter.mat
   This file will have AOI number, number of short events in front of a long event, and the corresponding long event time/frame interval.
   (c). Out.fig
   Scatter plot that describes the correlation between the consecutive event lengths of each AOI, where y axis represents the event length for every $n+1^{th}$ event in an AOI (units are in seconds) and x axis represents the event length for every $n^{th}$ event in an AOI (time units are in seconds). As an example, for two AOIs with event lengths [110 50 6 30 2 70] and [20 3 3 30] out.fig plots [50 6 30 2 70 3 3 30] vs [110 50 6 30 2 20 3 3].