WORKFLOW

ΨANNOTATIONS: Built-in and custom functions are expressed in Matlab command window coupled with “>>” sign. Workflow notations are consistent with Matlab. ]

1. Set matlab working path for the MATCAImage toolbox (One-time only).
   1. >>addpath(uigetdir); %Find the downloaded toolbox folder (Not saved)
   2. >>savepath(); % stored for future sessions.
2. Create you cell\_coordinates file (-.mat or –ascii format)

**>>cell\_centroids()**

1. Select your reference image path (pop-up).
2. Enter the desired image range to extract.
3. Visual check the centroids for entered cell sequence.

‡User must select a reference image path that is consistent with other image file names and ends with no numerical parameters. Such as ‘hc\_images’ for hc\_image1, hc\_images2..., etc. is good but not ‘hc\_images1’. Also, make sure image folder does not contain any hidden files.

1. Load your data. Here you can apply the sampling rate as well as limits time and cells to be analyzed. Accepted formats are ‘.xls’, ‘.csv’, ‘.mat’, ‘.txt’,’-ascii’. Data will be segmented in row-wise (cell) and column-wise (time). ‘File directory’, ‘format’ and sampling rate are required inputs. (Add instructions on how to quickly get file directory and format)

**>> [newdata]=dataread(sampling rate,’’,’’,’’,’’);**

**#Locate your data in the pop-up screen.**

if you would like to limit your time or cells analyzed use this:

**>>[newdata]=dataread(sampling rate, time start, time end, cell start, cell end);**

**Example:**

**>>[newdata]=dataread(5,300,400,3,256);**

**#this will load a 100 sec segment with 254 cells.**

‡User must use the time entries in seconds.

1. Automated raster, peri-event time histogram and functional cell plotting.
   1. Draws the original data
   2. Adds a raster plot for used-defined amplitude threshold.
   3. Peri-event time histogram with temporal binning.
   4. Functional cell imaging on a heatmap.

**>>RasterPlot(threshold, sampling rate, time start, time end, cell start, cell**

**end, bin size, gaussian\_order)**

* + 1. Locate your Ca2+ data in the pop-up screen.
    2. Locate the matching ‘cell\_coordinates.mat’ stored in step #2.

**Example:**

**>>RasterPlot(2,5,300,400,3,256,'','');**

‡ Required inputs are sampling rate and threshold

#time and cell parameters can be entered as desired.

# bin size can be picked with respect to sampling rate (default is 1Xsampling rate).

#Gaussian order will determine the degree of smoothing, default is 5.

