MATLAB GUI Demo

This MATLAB GUI is designed to measure the fluorescent intensity of plant tissue images acquired from the fluorescent microscopy, to count the number of vacuoles in the selected region and to calculate the area of all the vacuoles.

The following is a short instruction. And you can also use it as the way in the YouTube video at https://www.youtube.com/watch?v=MHT2W4NjMJA

1. Load Image can load images and display it in display region.
2. Reset Image can reload the previous image file and display it in display region.
3. Choose Region can choose a rectangle region in display region. You may rotate the image by tuning Rotate Image bar to choose a best angle for the selection. Right click and choose Crop image, the selected region will be shown in the display region.
4. Florescence Intensity will give an averaged intensity of the selected region. The darkest is 0, and the brightest is 1. STD (Standard Deviation) is also given. Results will show in the output region.
5. Counting will give the counting results. Vacuoles will be circled with green line. And ones labeled with red circled will be counted and shown in the output region. The minimum and maximum of vacuoles area will be shown in corresponding region. You may change them manually and Modified Counting, new output will be given.
6. The distribution will give the distribution of vacuoles automatically. The x axis is vacuole area, unit is pixel, and the y axis is the number of vacuoles.
7. If the counting is not good, + can be used to modify the figure. By drawing black lines to separate the connected vacuoles, then press Counting or Modified Counting, new result will be given.
8. - can draw a white line. Link the vacuoles you want to delete with a vacuole cut by the boundary, then press Counting or Modified Counting, the vacuoles will be removed with the boundary vacuoles.
9. Known Problem:
   A. Counting cannot handle big figure, only the cropped region.
   B. Draw Lines sometimes need do several times to draw a thicker line to separate connected vacuoles or link with the boundary vacuoles.
   c. Sometimes, the GUI has no response, Reset Image and restart the analysis.