3/29/2023

Setup a simple gui window for looking at data live and setting up a scan

Diagram

Description automatically generated

The data collection is done asynchronously via the “threading” module

Next additions:

* ROI additions
  + Square (we don’t need sophisticated live analysis…)
  + Separate ROI’s for data and signal
  + We can plot each separately along with the difference during the scan
  + Plot window on this pre-scan screen that just plots the intensity of the roi’s vs true time
* Button additions
  + Exposure and gain adjustments
  + Save image
  + Save image set
  + Scan settings entries
    - Array notation for setting positions in a scan
    - Motor wait time
    - Batch size

3 April 2023

Additions:

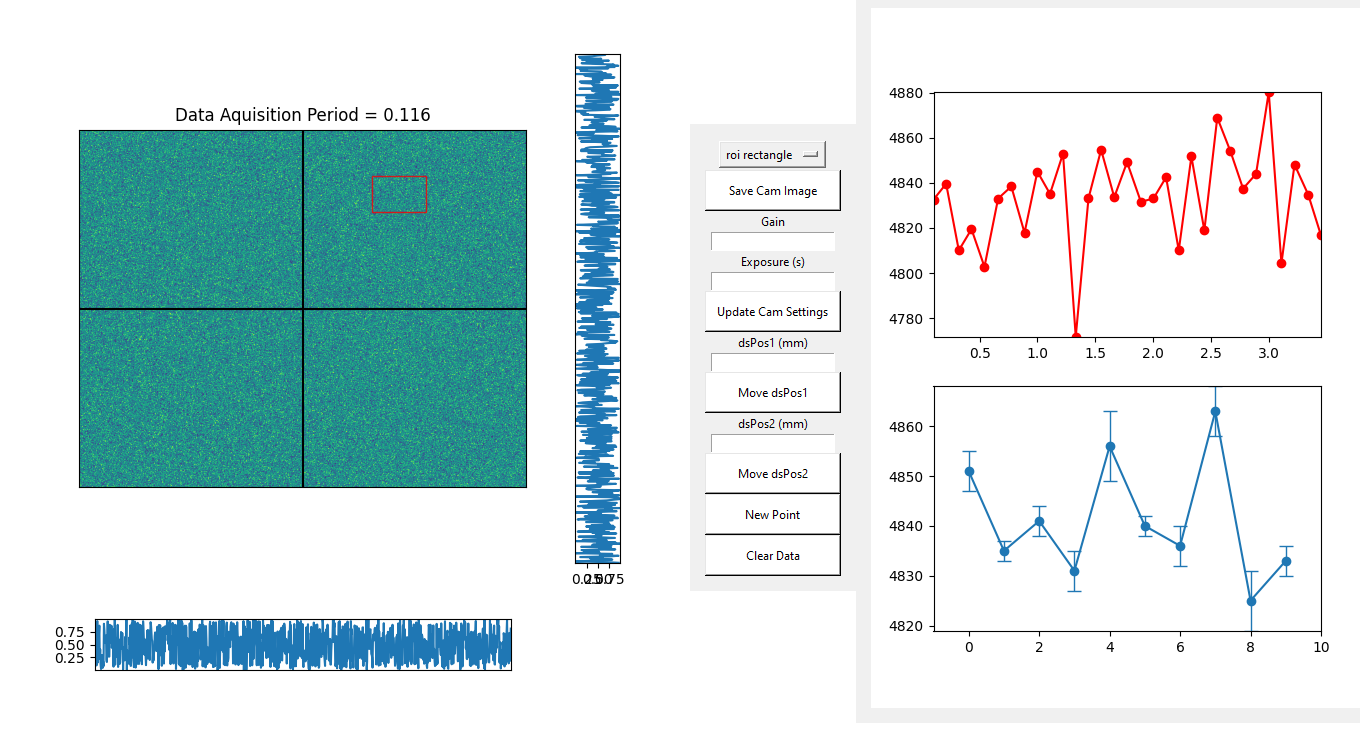
1. Line profile updates when clicking on image to click location
2. Buttons for adding ROI
3. Fast zoo

4 April 2023

Additions:

1. Square ROI
2. New Buttons
   1. Exposure
   2. Gain
   3. Update button on camera settings
   4. Delay stage position entry + button
3. New plot window for live intensity + window with average and error bar
4. Save image button for cam image
5. Remove inbuilt matplotlib figure controls

Current GUI appearance:



5 April 2023

Adding the scan control buttons

1. Entry for ds Positions:
   1. (start,end,step) notation
   2. Look for + sign to add regions
      1. So (1,2,0.1)+(2,3,0.5) would add these regions
2. Entry for batch number
3. Check box for translation correction
4. Check box for smart scan
5. Button for starting scan
6. Active directory button

Misc features.

1. Adding dividers to separate logically separate controls
2. Adding a back end to the save image button
   1. Should save image with the current data + exposure + gain
   2. Remember the directory of the last save

TO DO LIST

|  |  |
| --- | --- |
| **Task** | **Completed ?** |
| Put a limit of 100 data points on the live data plot so that it doesn’t look cluttered | True |
| Fix user warninig: UserWarning: Attempting to set identical low and high x…… | True |
| Fix name of image\_0 (should just be camImage) | True |
| Setup a virtual camera that approximates the code structure for taking a real image | True |
| Change feather logo of tkinter to Anshul’s face | True |
| Setup a back end for the exposure and gain entries (will just work with virtual cam for now) | True |
| Setup a virtual ds stage that approximates the real delay stage interface | True |
| Setup back end for the move ds buttons that approximates the real ds interface | True |
| Plot the current exposure and gain in the label on the entries | True |
| Add dynamic entry for last sent dsPosition | True |
| Make sure an ROI has an area of at least 1 | True |
| Add clear all ROI button, save button, and load button | True |
| Add backend for ROI controls buttons, save, load, clear | True |
| Display ROI number in image title | True |
| Fix issue of history deleting!!! | True |

What should be displayed during a scan?

The live image along with the ROI

Should the ROI object be the thing that updates the patch through a method?

Quick changes