

Simple Manual for the GPU-based Registration for Split Dual-view Application

How to install the program

1, copy the folder “splitDualViewReg” to ImageJ or Fiji’s main folder.

2, install the UI macro: ImageJ (or Fiji) Plugins--> Macros-->Install..., Choose the macro file “splitDualViewReg_UI.ijm” (within the “splitDualViewReg” folder). Then there will be a splitDualViewReg option listed on the Plugins--> Macros menu.

How to use the program

1. run the program:

ImageJ (or Fiji) Plugins--> Macros--> splitDualViewReg.

or

Directly open the “splitDualViewReg_UI.ijm” within imageJ (or Fiji) and run it;

2, Following the pop-up dialogs, sequentially select folders:

For single color: Input folder→Beads Image →Output folder;

3, Select Region of Interest:

The program pop-up 2 image windows (maximum projections of images), draw rectangles to contain the samples. The images will be cropped automatically based on the rectangles. The cropping will also be implied to the bead images. During the cropping a subtraction of 100 will also be applied to the images.

Users can adjust the contrast of each image if needed, but the size of the rectangles should be same.

4. Confirm and modify the parameters in the next pop-up panel.

split Dual Color Registration

Input Directories: a "\" at the end

Input Directory: Y:\Cell_Tracking_Project\RW10752\Lineaging\052219_RW10752_Lineage\Min_Test_Data\SPIMA\

Image Name: SPIMA- Image names: prefix of the name of image files

Output Directory: Y:\Cell_Tracking_Project\RW10752\Lineaging\052219_RW10752_Lineage\Min_Test_Data\Output\ Output Directories: all output files/folders would be saved within this folder

Start #: 0

End #: 0

Interval: 1 Image numbers: start, end and increasing step. The numbers will be appended to the image names to format the whole name of each time-point image

Test #: 0

Input Pixel Size

ImageA x, y, z: 0.1625 um Test image will be used only when the registration option is set to "One image only". In this case, this image will be used for registration

Set Beads Registration Options

Initial matrix

☐ Default ☐ Customized ☒ 2D registration Do 2D registration based on max projection to guess and initialize 3D registration matrix

Set GPU Options

Initialize 3D registration by a known matrix

☐ Show GUP Device Information

GPU Device #: 0 If there are multiple GPU devices on the computer, select the one for the program. If there is only one GPU, set it to 0 (the GPU # is 0-based naming)

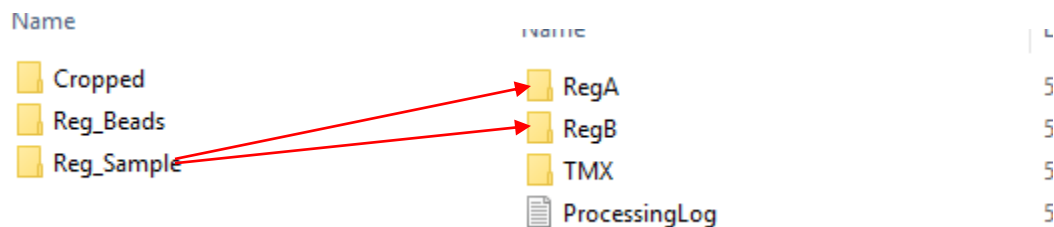
Just to show the information of the GPU device on the computer, this option would not affect the processing.

5. If “Customized” is selected for initial matrix, then users would be guided to choose a matrix file.

6. Then the macro calls GUP-based applications. And once the running is completed, all messages will show up in the imageJ log window.



7. The final outputs are within the folder “Reg_Sample”



Please note: if it's the first time for the GPU device to run on the computer, it may take some time (up to minutes) to initialize the device. But once the device is initialized, it won't need initialization next time.