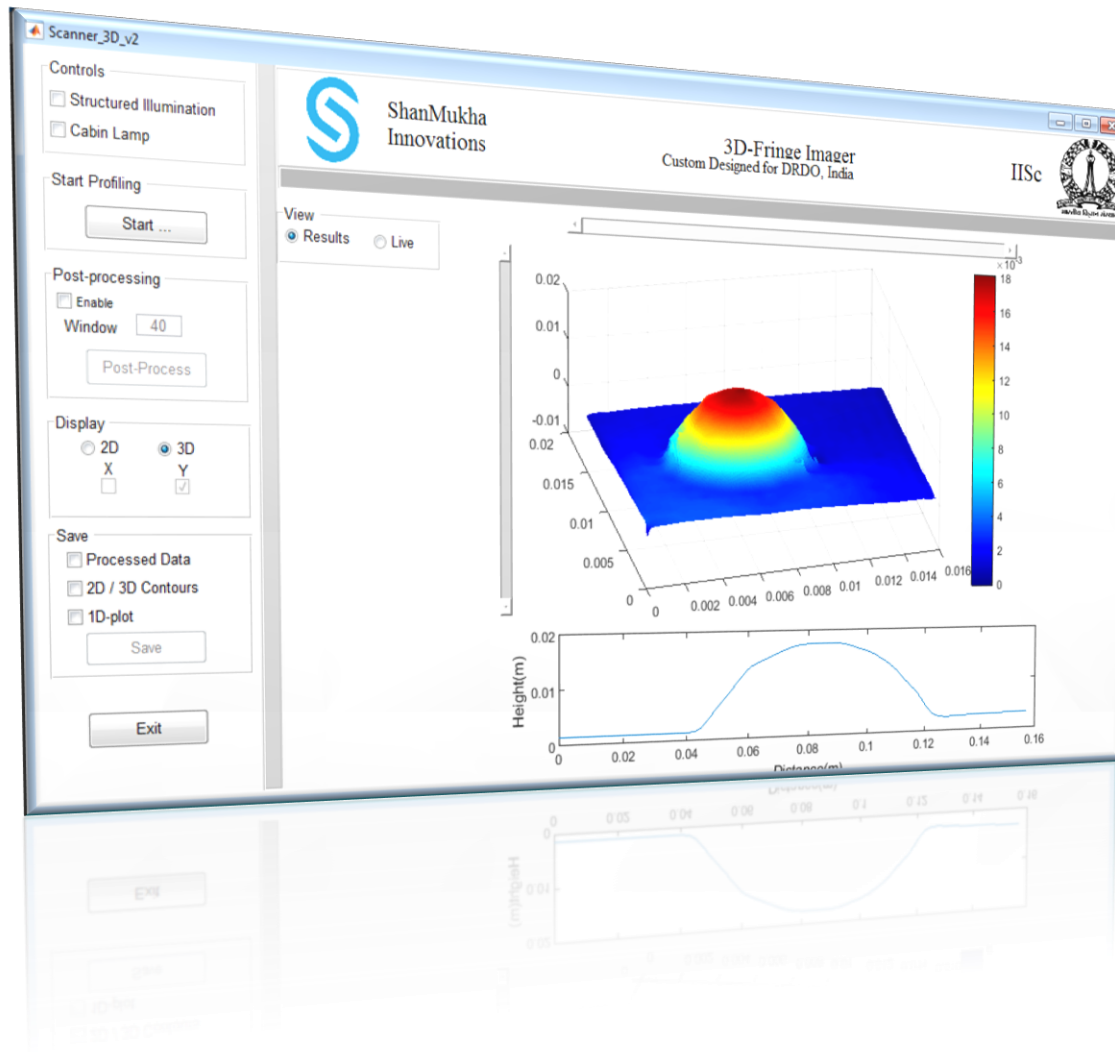


HELP DOCUMENTATION FOR 3DFrImager v2

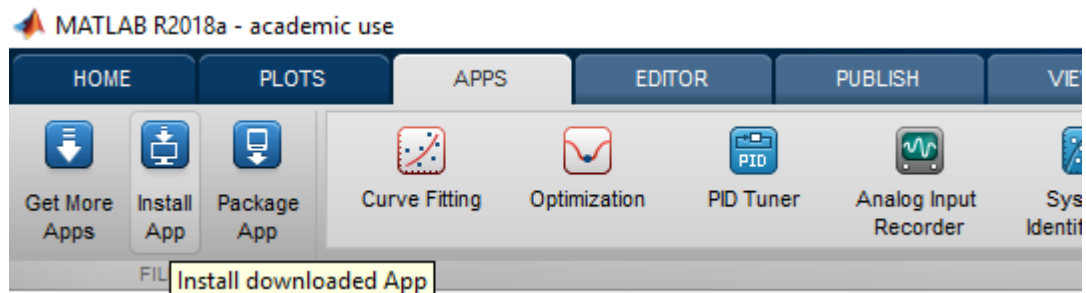


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Installation:

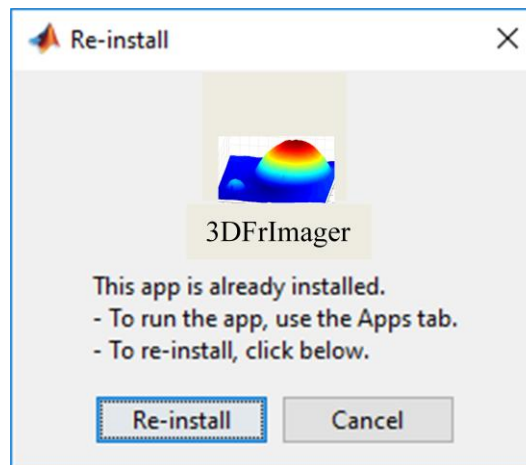
1. Open MATLAB(R)(version 2014 and above) in system
2. In MATLAB environment

a. Go to APP—Install APP

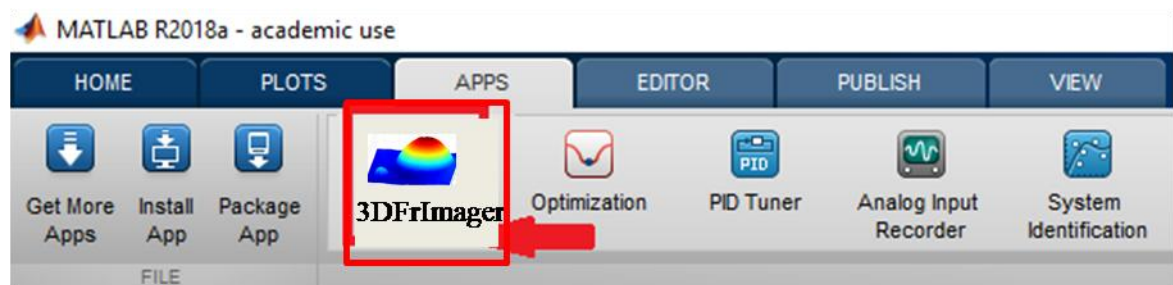


b. Direct to the folder containing '3DFrImagerv2.mlappinstall' and select it

c. Install/Reinstall it



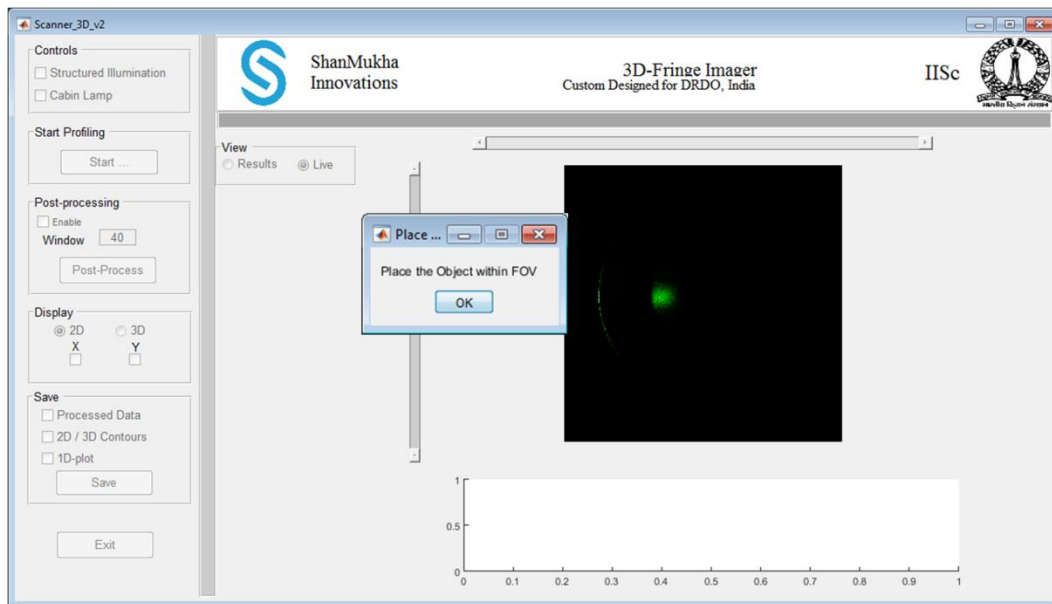
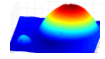
d. After Installation it will be available under the APP Toolbar



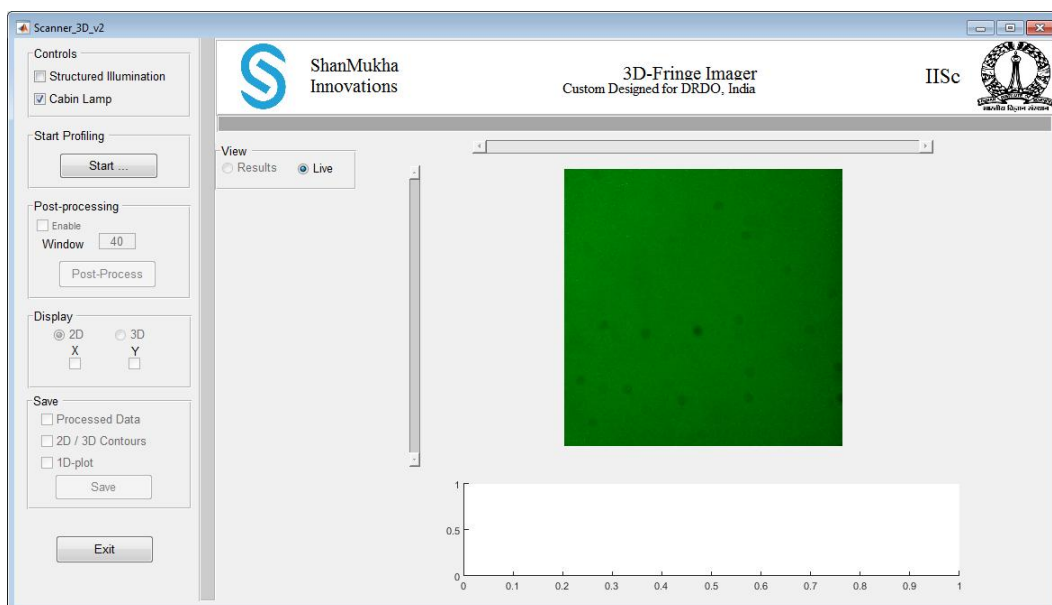
e. Press the ICON  to launch the APP for data processing

Data Acquisition and Processing:

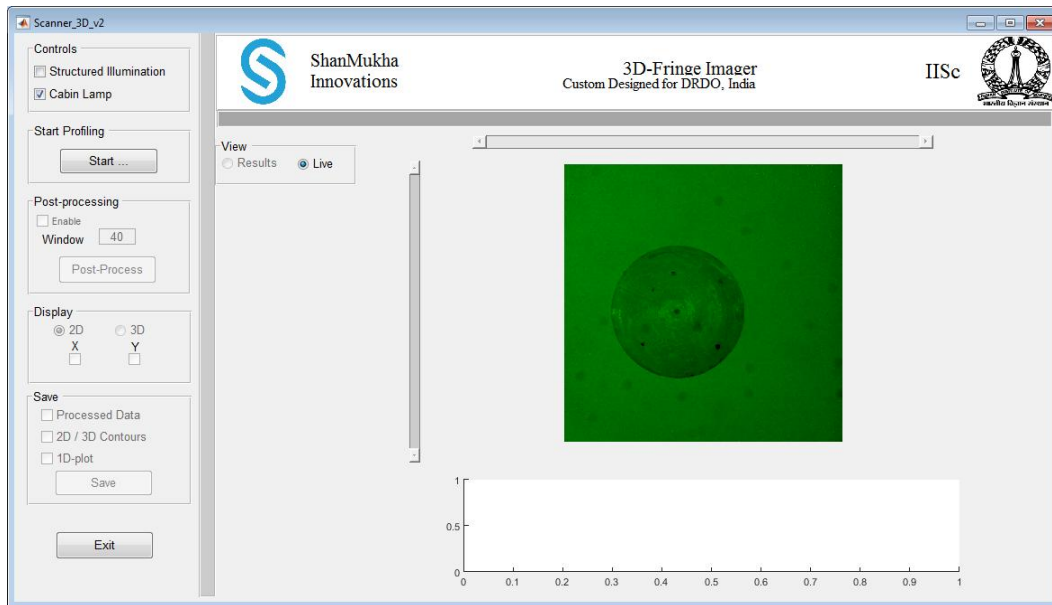
Step 1: Connect all the hardware (see Note 1 at page 55) and launch the APP by pressing the ICON under the APP Toolbar



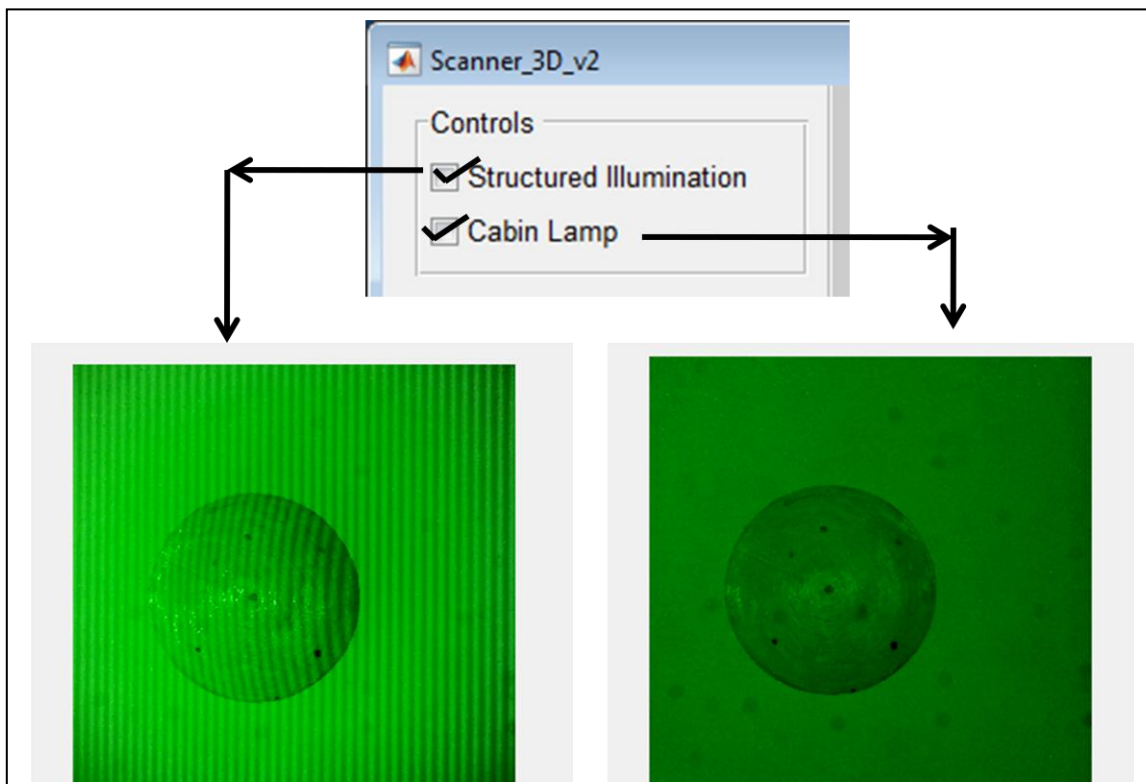
Step 2: Press **OK** and place the object within ROI (Live view zone of the screen (Green zone in the image))



Step 3: Place the object within the ROI (a circular disk in this case) and close the door of the cabinete.



Step 4: Select the Check box to illuminate the object placed within the cabinete (**Optional**)



Step 5: Press **Start** button for scanning the object

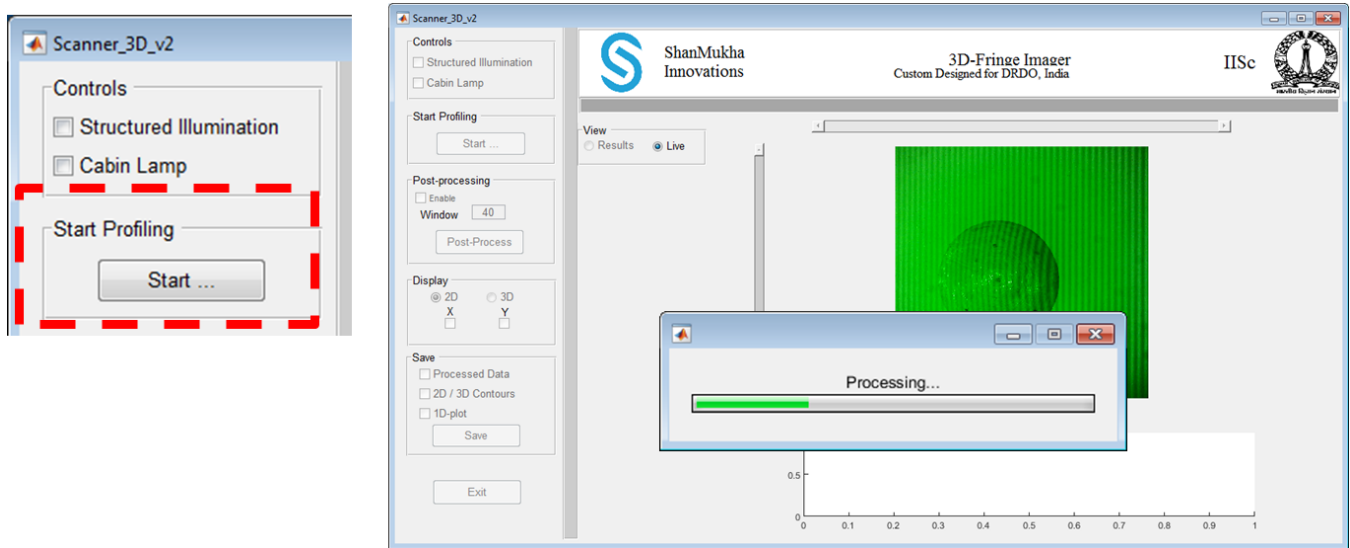


Fig: Press the **Start** button to start the scanning process. Progress bar indicates the status of data acquisition and Processing .

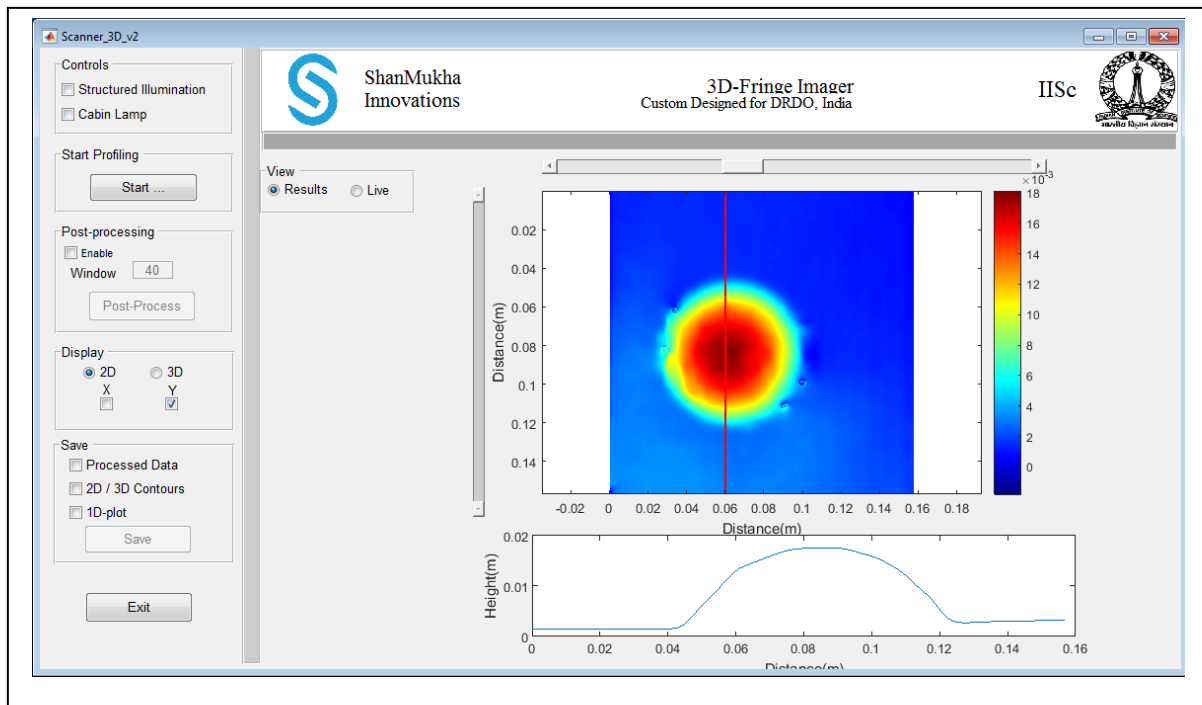
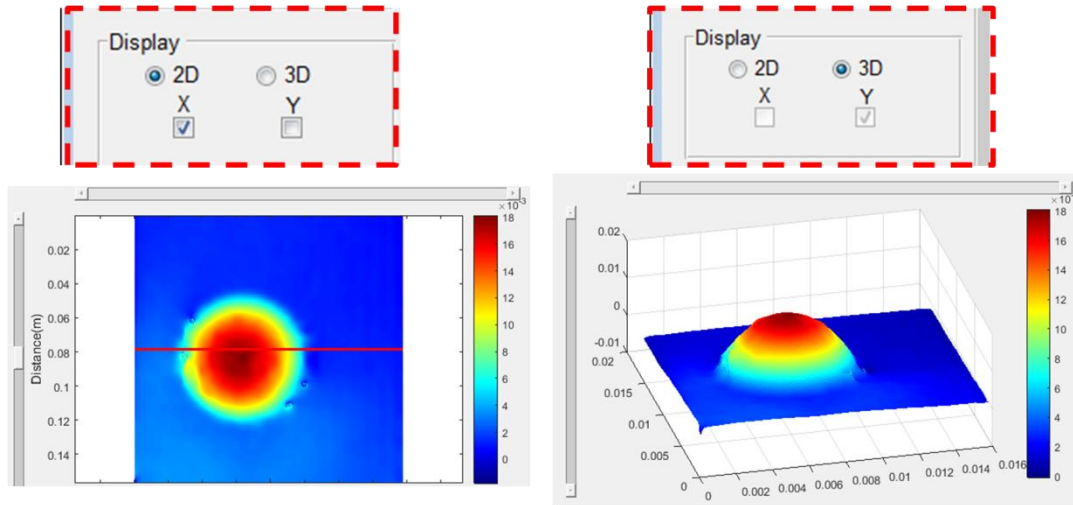


Fig: 3D-Scanning is performed. Processed height map is displayed in pseudo-color and its value are in color bar. Height map of the sample through the RED line of Top Fig. is displayed in the Bottom Fig.

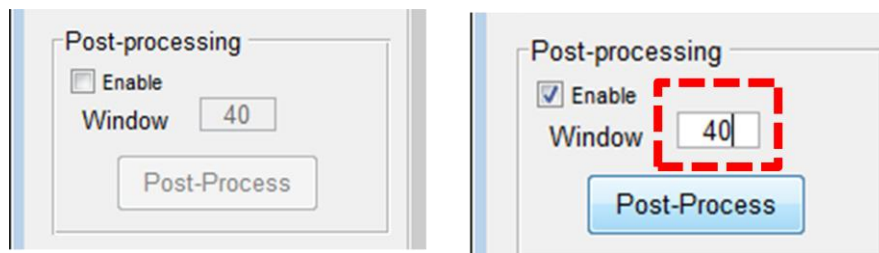
Step 6: Select **2D** or **3D** options to display the result in different orientations from the **Display Menu**



Note: Orientation of the 3D view can be changed by dragging and pressing the Left click of the Mouse

Note: By selecting check box **Y**, orientation of scanning can be changed from horizontal to vertical direction. location of line scanning can be set by using the scrolling bars placed at the left and top positions of the display panel.

Step 7: **Enable** Post-processing (**Optional**)

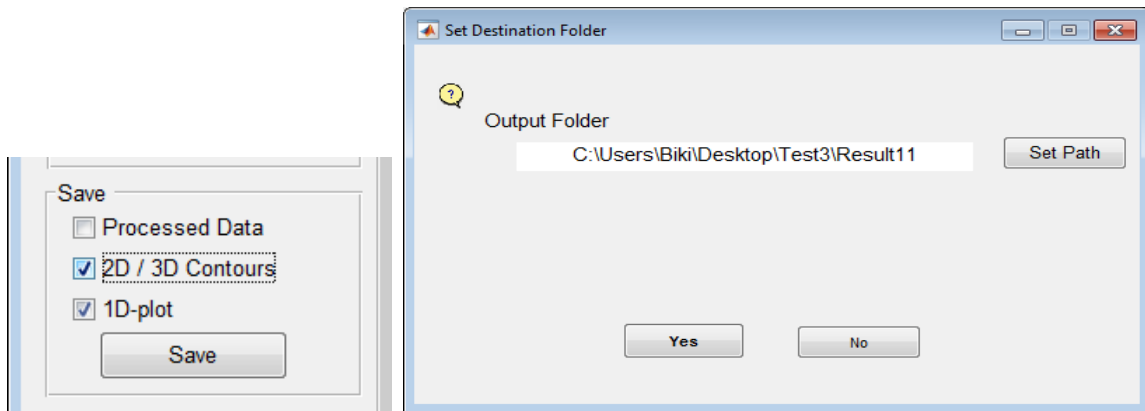


Note: Set the window size to any positive value lesser than 100. Default value is 40.

Note: The smoothness of the reconstructed height map will increase with the increase of the window size

Note: Use a higher value ($1 < \text{Window} < 100$) for the scanning of irregular noisy surface

Step 8: Use the **Check box** accordingly under **Save Menu** to save the Processed data or generated graphs (**2D/3D Contours** and **1D-plot**) by pressing **Save** button

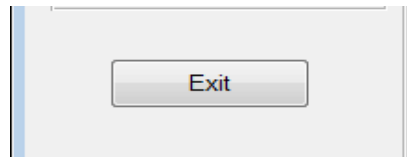


8.1 **NO**, to stop the saving process

8.2 Set the destination Folder by pressing **Set Path**

8.3 Press **Yes** to continue with the Output folder as shown in the text box.

Step 9: Press **Exit** button to switch off the scanner unit



Note: On pressing **Exit**, a new confirmation menu would prompt

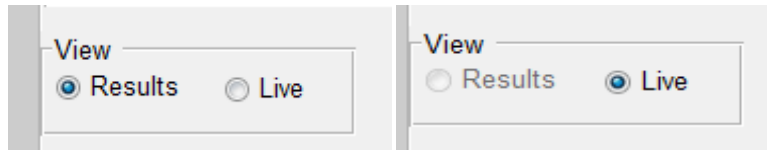


9.1 **NO**, go back to the GUI for further scanning and post-processing options

9.2 **Yes**, to exit from the scanning process

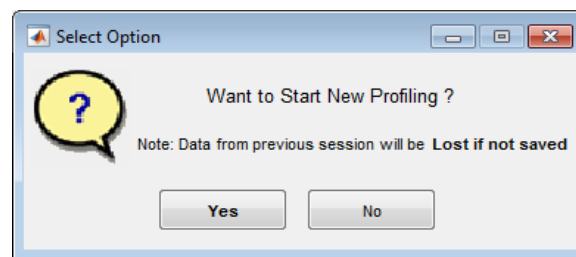
Step 10: Continuous Scanning (Optional)

10.1. Select **Live** option from the **View** Menu. The display window would show live view from the Scanner.



10.2 Place the new object within the field of view of the camera and press **Start** button from the **Start Profiling Menu**

10.3 : On pressing **Start** button, a new confirmation menu would prompt



10.3.1. **No**: Do nothing

10.3.2. **Yes**: New profiling starts. Follow the steps from Step XX to Step 10 as mentioned above

Results and Output data format:

Three options are provided to save the processed height map.

Processed raw data (enable the check box Processed data under Save Menu) is saved in **DATA.mat** file (MATLAB^(R) file). It's a two dimensional matrix equal to the size of the captured image (cropped image from calibration stage). The axes are in meter.

2D/3D Contour (available under Save Menu) : The displayed Result/Live view images at the result window (upper display unit) is saved in the folder specified by user. Data is stored as "*.tif" images with naming 2D3D_*i*, where *i* varies from 0 to 100.

1D-plot(available under Save Menu) : The processed data displayed at the result window (lower display unit) is saved in the folder specified by user. Data is stored as "*.tif" images with naming 1D_*i*, , where *i* varies from 0 to 100.