User Manual for Panorama Stitching

Computer vision project

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Main function of the Application:

The function of the application is panorama stitching, and this is done by the user selecting and uploading a group of images so that the application assembles them into a panorama image using SIFT. After that, the resulting image can be modified using SIFT parameters, which are:

1. Contrast Threshold: The threshold is used to filter out weak features in low-contrast regions of the image. Increase the contrast threshold to decrease the number of returned features, threshold range [0,1].
2. Edge Threshold: The threshold is used to filter out unstable edge-like features in the image that are susceptible to noise. Increase the edge threshold to decrease the number of features removed by filtering, threshold range is greater than or equal to 1.
3. Layers Per Octave: Adding more layers in each octave improves feature detection at different scales, enhancing robustness. But it can increase computation time, layers per octave range is greater than or equal to 1.
4. Sigma: Adjusting the Gaussian blur parameter influences the scale at which SIFT operates. Smaller sigma values capture finer details but may be sensitive to noise, while larger values smooth the image, potentially missing small features, sigma range [1,2].

Interface:

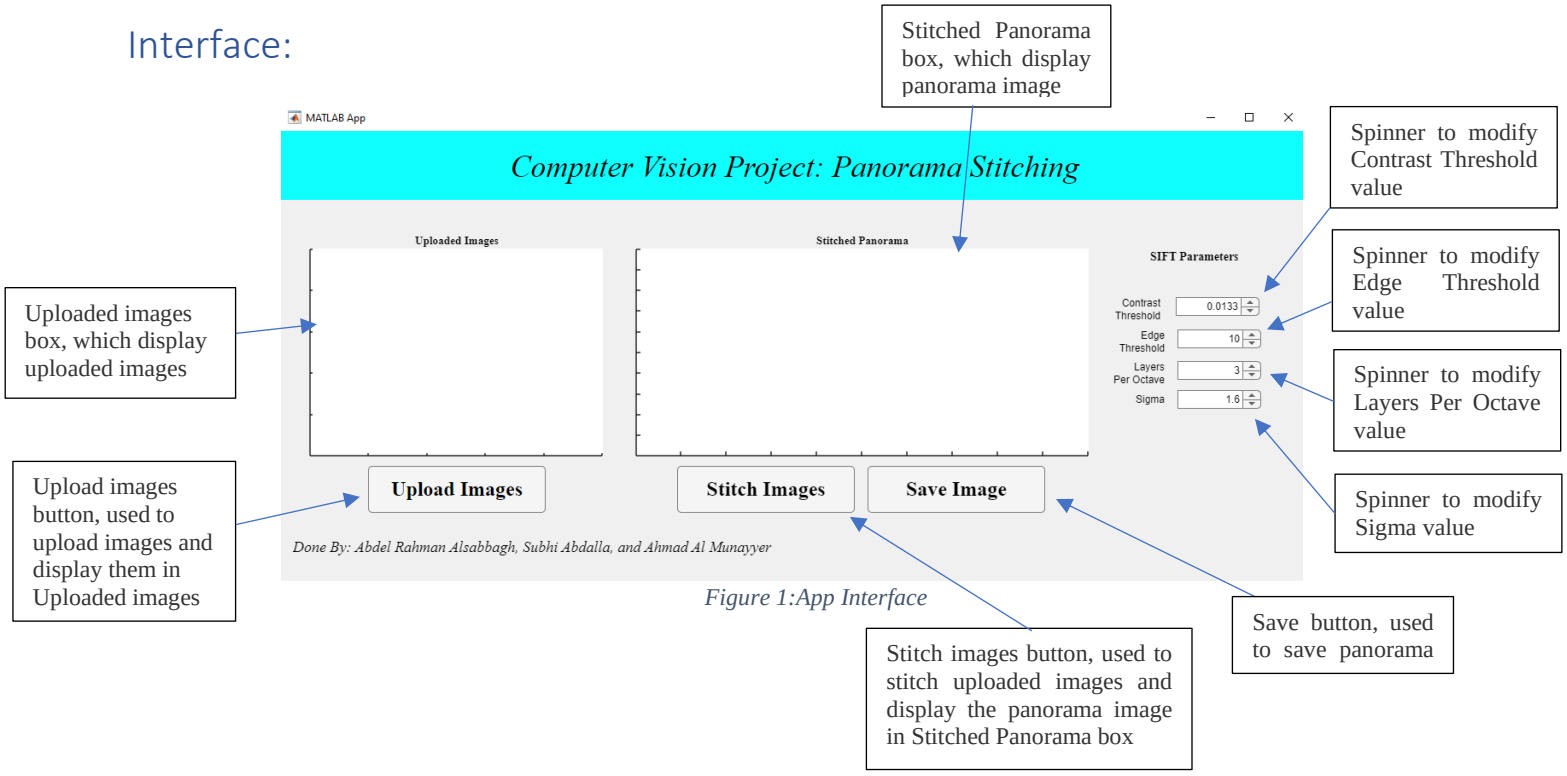

Figure 1:App Interface

How to do panorama stitching:

1. Open the application.
2. Click on Upload Images button to upload images from your computer(see figure 2).
3. After selecting the images (you can select images from different files) click on Upload button to upload images to the app(see figure 3) and display the uploaded images in the uploaded images box(see figure 4).
4. Click on Stitch Images button to stitching images to panorama image and display it in the Stitched Panorama box(see figure 5).
5. To modify and improve the panorama image, adjust SIFT parameters.
6. To save panorama image click on save image button then choose saving location and write the name that you want to save image as in the field file name then click on save button(see figure 6).

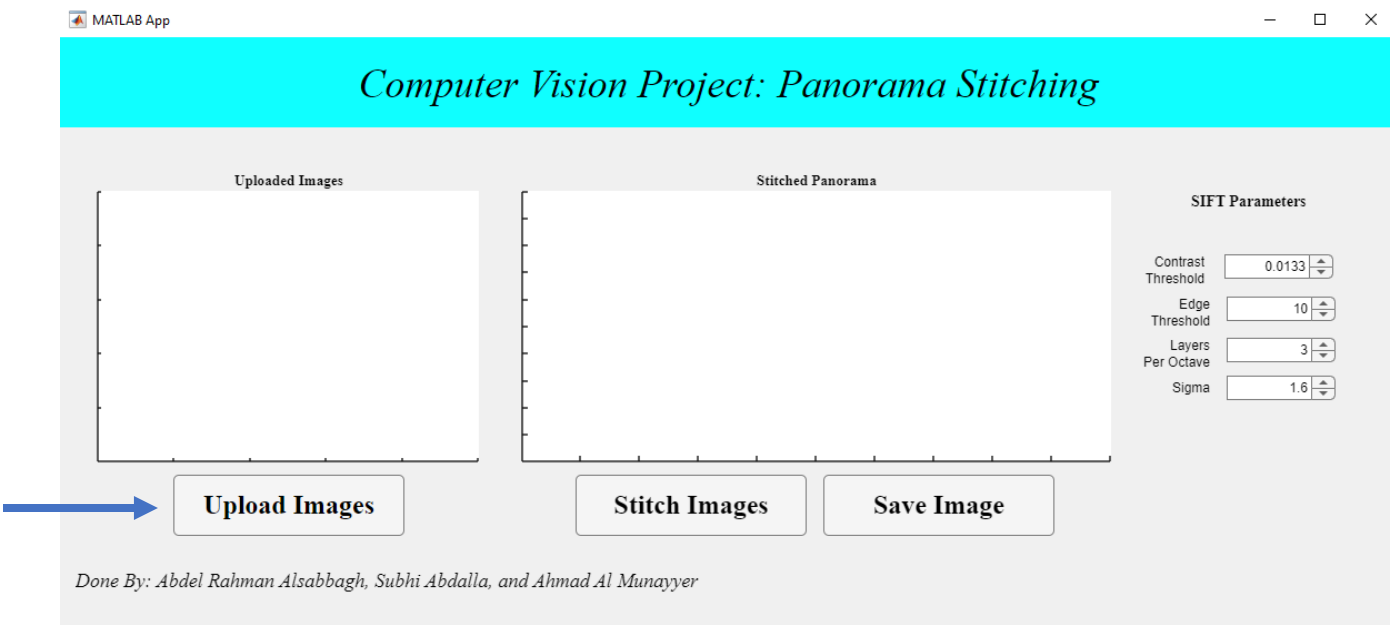

Figure 2:upload images

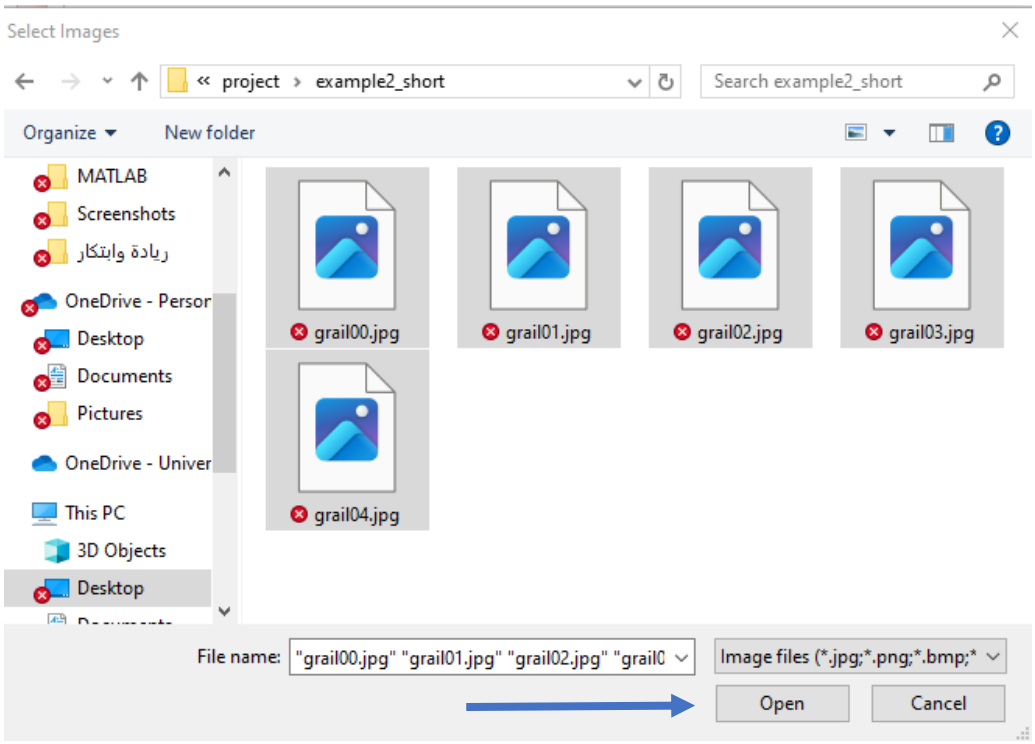

Figure 3:Select images page

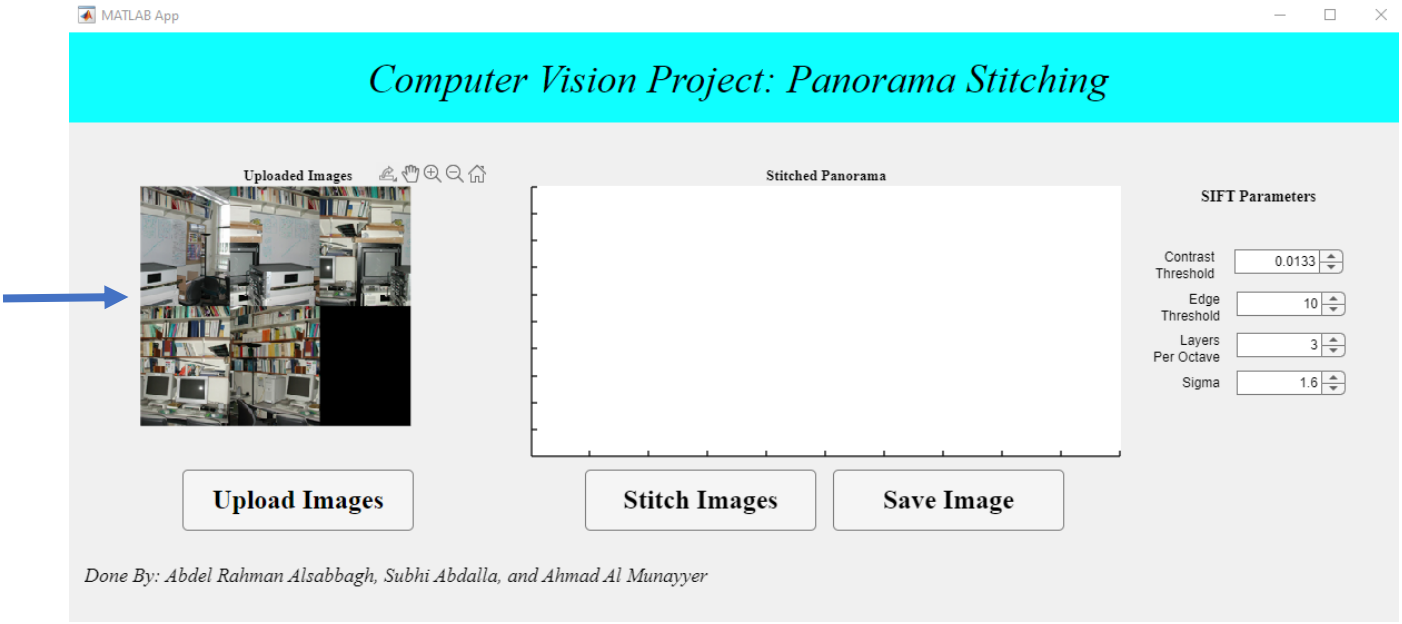

Figure 4:show uploaded images

Figure 5:show output image

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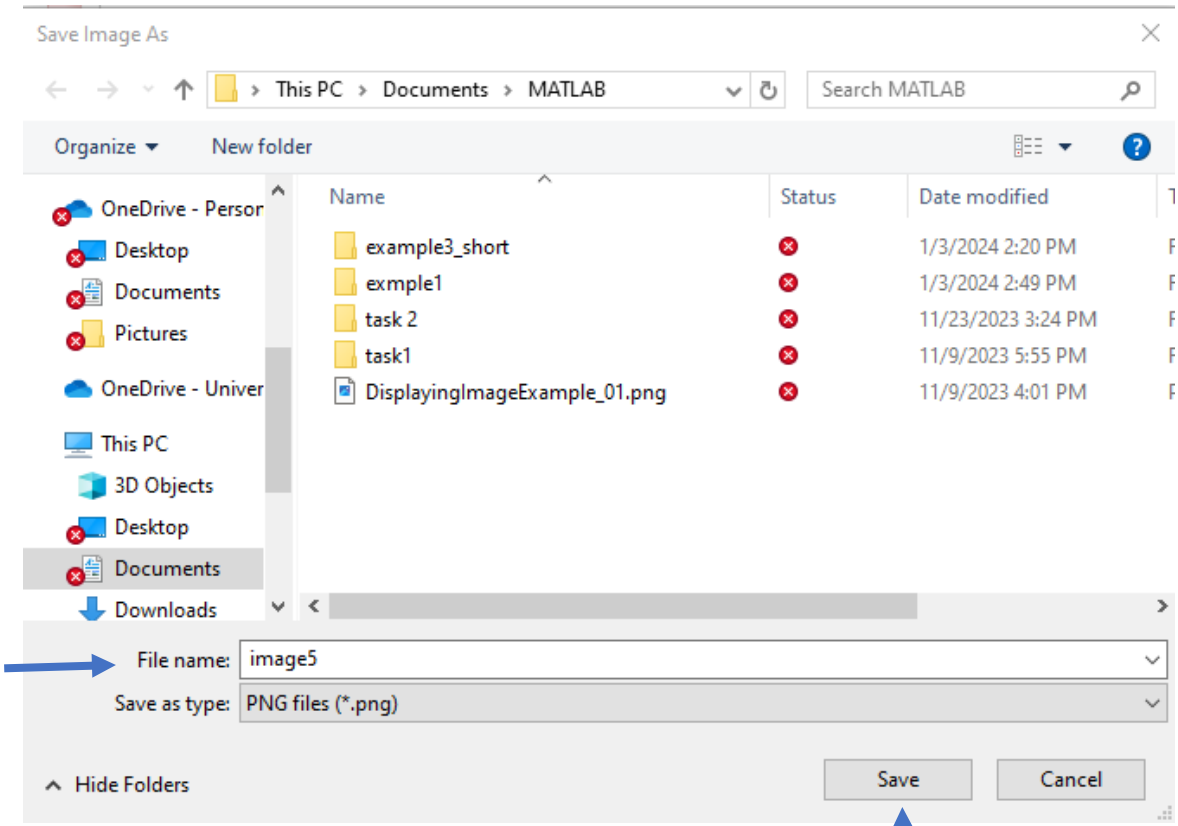

Figure 6:save image as page

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