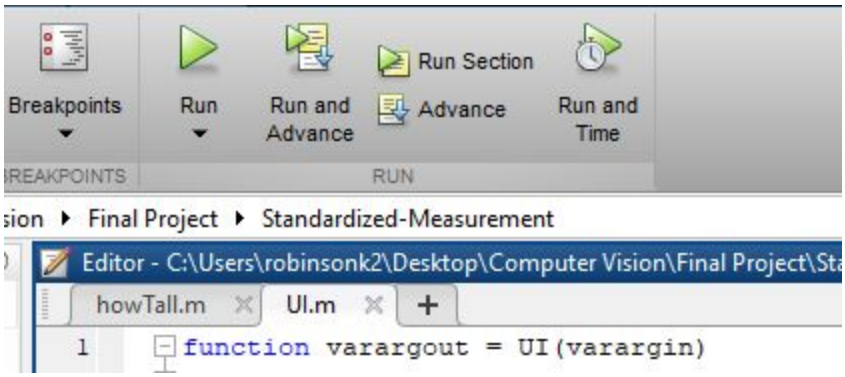
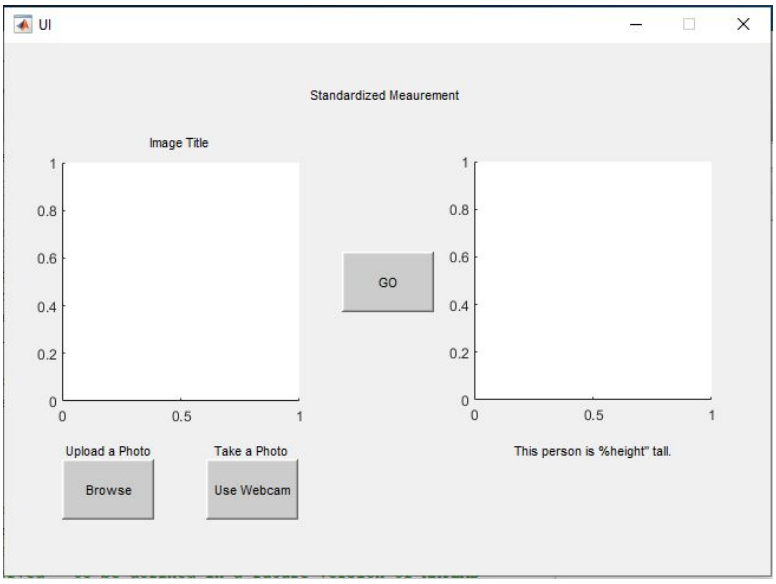
USER MANUAL

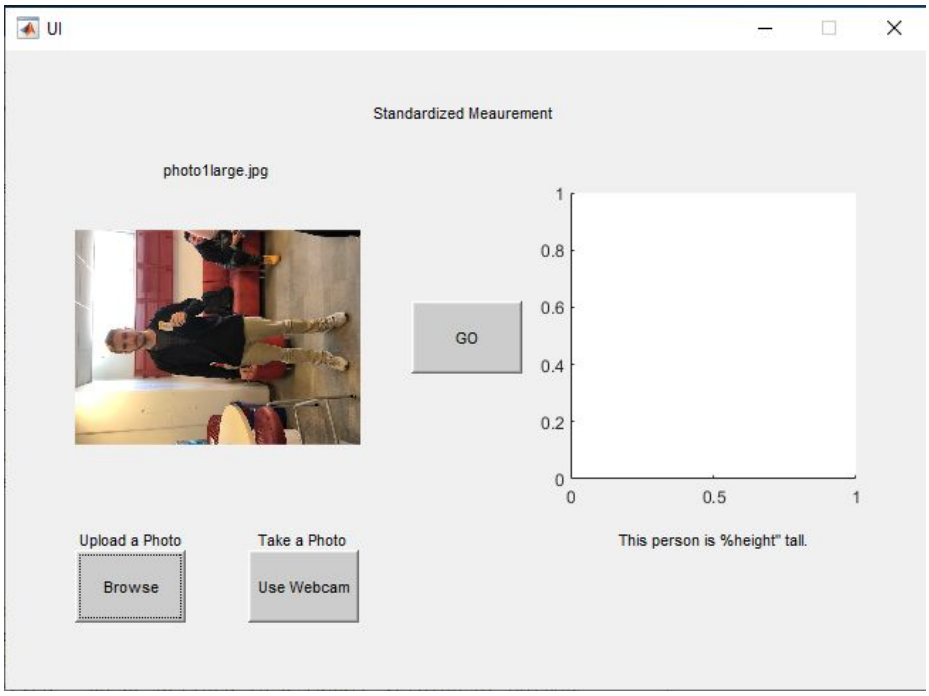
1. Open the Standardized Measurement folder. Open the UI.m file and run that to start the application.



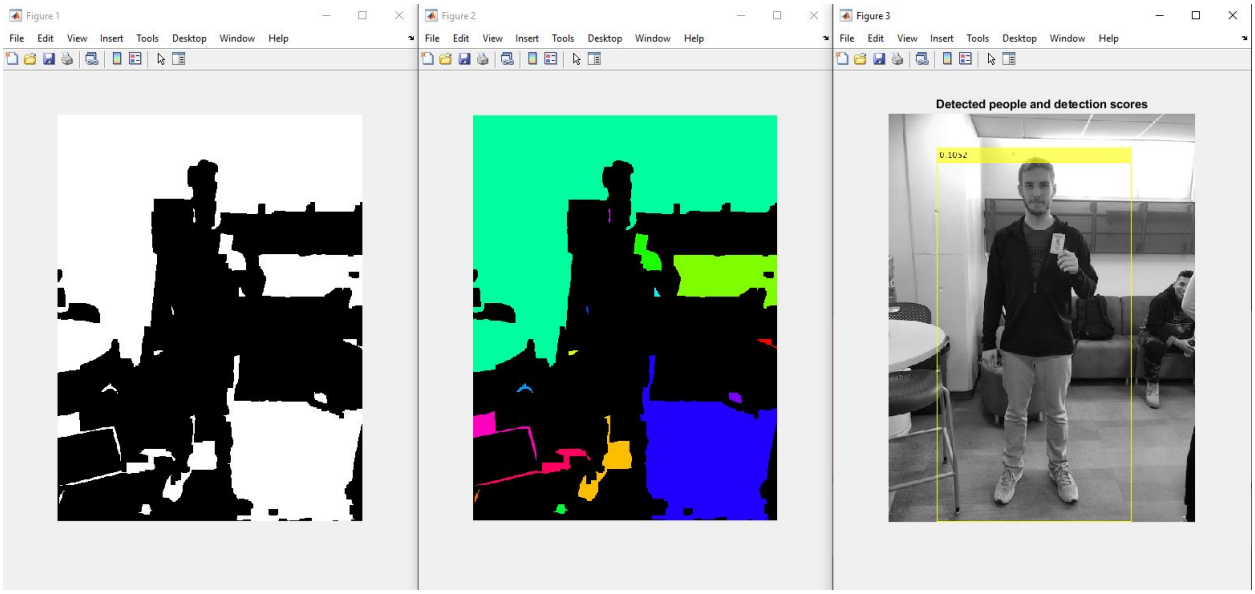
2. When presented with the main user interface shown below, select the Browse button to select one of the existing test images or to upload an image taken with a better quality camera. Or, select the Use Webcam button to immediately snap a new image using an external webcam.
   (Note: For best results, the images used should be clear full body pictures with the subject holding their student ID / credit card in front of their different colored shirt. Some photos may render in rotated. I this occurs, you have to uncomment a line of code in howTall.m that will rotate the image before any calculations take place)



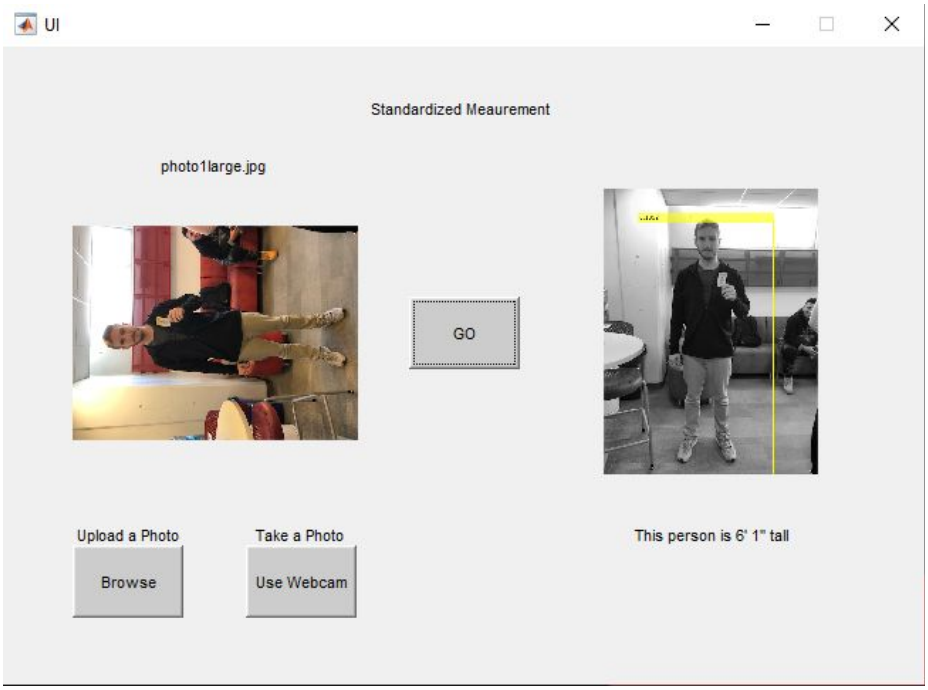
3. Once an Image has been selected, you have the option to change your mind and upload a different image once again using the Browse or Use Webcam buttons. Once satisfied with your picture choice, selecting the Go Button will begin processing the image.



4. Our program then goes through the process of making the image black and white using thresholding. Then blobs related regions together to identify where in the photo the ID/Credit card resides. Finally, it uses Matlab's peopleDetector add-on to identify the person in the image.



5. Once both the card and person have been identified in the image, pixel lengths of the two are used to calculate and output the height of the person.



If the person or credit card are not able to be identified in the picture, the text that above shows “This person is 6’1” tall” will instead read “Person not found” or “ID/Credit card not found”. Since the box for the person detector often overestimates the area the person occupies, you may need to edit a “pixel constant” that is being used to account for this over estimation.

SAMPLE TEST CONFIGURATIONS

Values:
bwareaopen: 30
Strel: square, 4
Height: -80
Rotate: off

Values:
bwareaopen: 30
Strel: square, 4
Height: -110
Rotate: on

Resources:
https://www.mathworks.com/help/images/identifying-round-objects.html#d120e26688
https://www.mathworks.com/matlabcentral/answers/116793-how-to-classify-shapes-of-this-image-as-square-rectangle-triangle-and-circle
https://www.mathworks.com/matlabcentral/fileexchange/25157-image-segmentation-tutorial