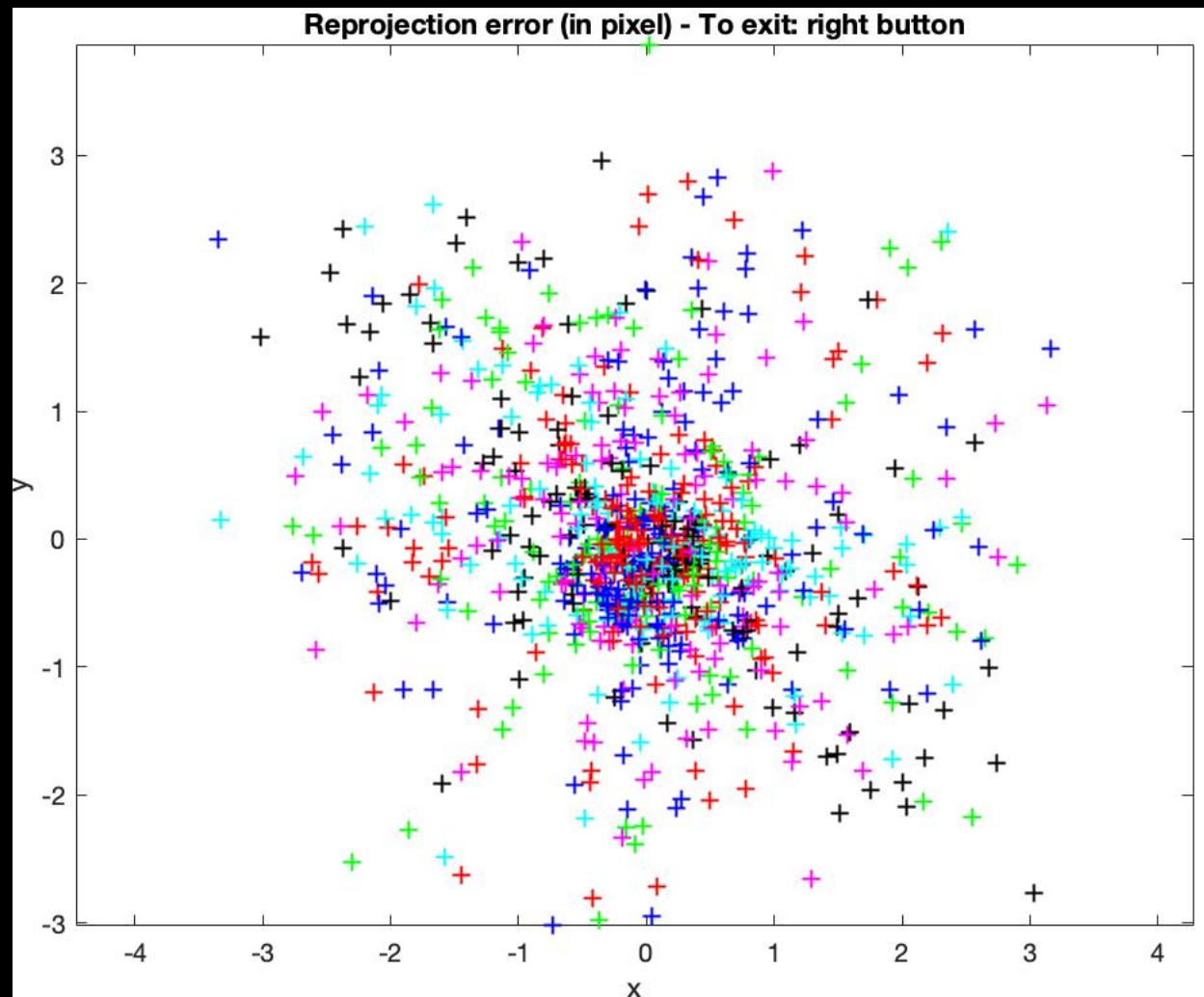


Lab 4: Camera Calibration

Marissa D'Alonzo

Part 1: Camera Calibration: iPhone SE

The images in `calib_example` were used to calibrate the iPhone SE camera. After recomputing the corners several times, the average projection error went down to [1.03034 0.95745] pixels. This is slightly higher than that reported by my team members, however, I have an uncorrectable astigmatism in my right eye that make it hard to see close up. This made it difficult to calibrate the images accurately, and was probably what caused the larger error.



Part 2: Image Correction

The curving in of the images suggests a barrel or mustache distortion

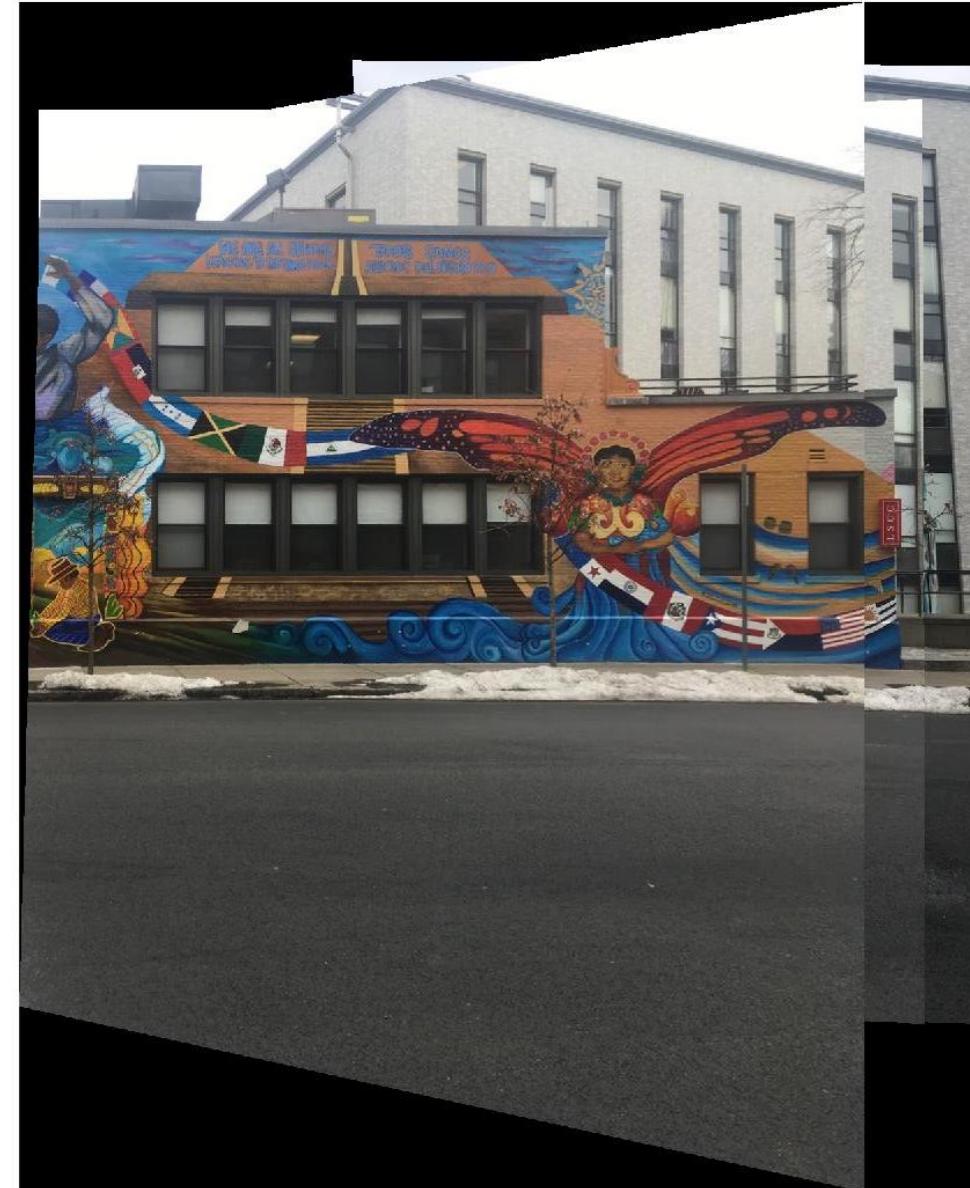










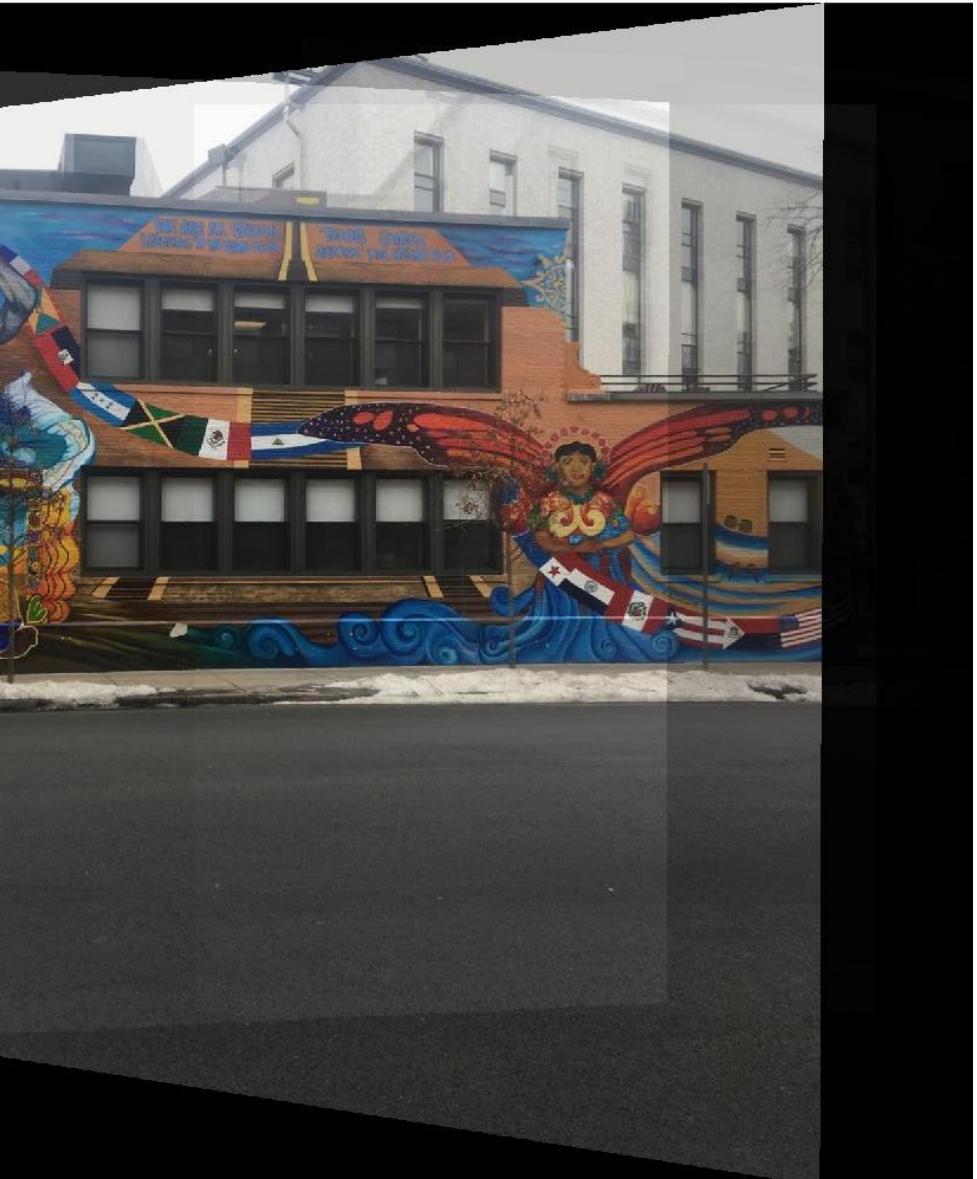


Part 3 – Panoramic Mosaic

Part 4 – Estimating Camera Position

- The position was estimated relative to the bottom left corner of the first image. This was done by taking the xlim and ylim components from the stitching script and normalizing them to the bottom left corner. It seems accurate, except for the negative x value for figure 4. This could be the large portion of road jutting out in the panoramic mosaic, which was not accurately stitched due to the low number of features.

Image	X	Y
2	32.8123999	1222.88933
3	41.9928489	1194.91826
4	-98.736706	1445.07121
5	45.4928489	1500.72121



Part 5 – Composite Mosaic

The composite mosaic was generated by manipulating the `vision.AlphaBlender` parameters



Part 6 – Cinderblock Wall

In order to account for less matching features, the harris function arguments were changed to:

```
harris(grayImage, 3000,'tile', [4 4],'disp', 'fft')
```

Part 7 – 15% Overlap Graffiti Wall

In order to account for less matching features, the harris function arguments were changed to:

```
harris(grayImage, 3000,'tile', [4 4],'disp', 'fft')
```

