Larry Lindsey
<larry>

Problem Set 3
10/27/2009
Part II

0. **About the code**

Rather than use ginput, I used callback functions in my approach. This results in a little more flexibility in how the user may input correspondence points, in that any order of clicks on the two images can be recorded. The callback function plots the point over the image, and records its location. This is done for both images simultaneously, and correspondences are taken between the two in order.

1. **UT Tower Pictures**

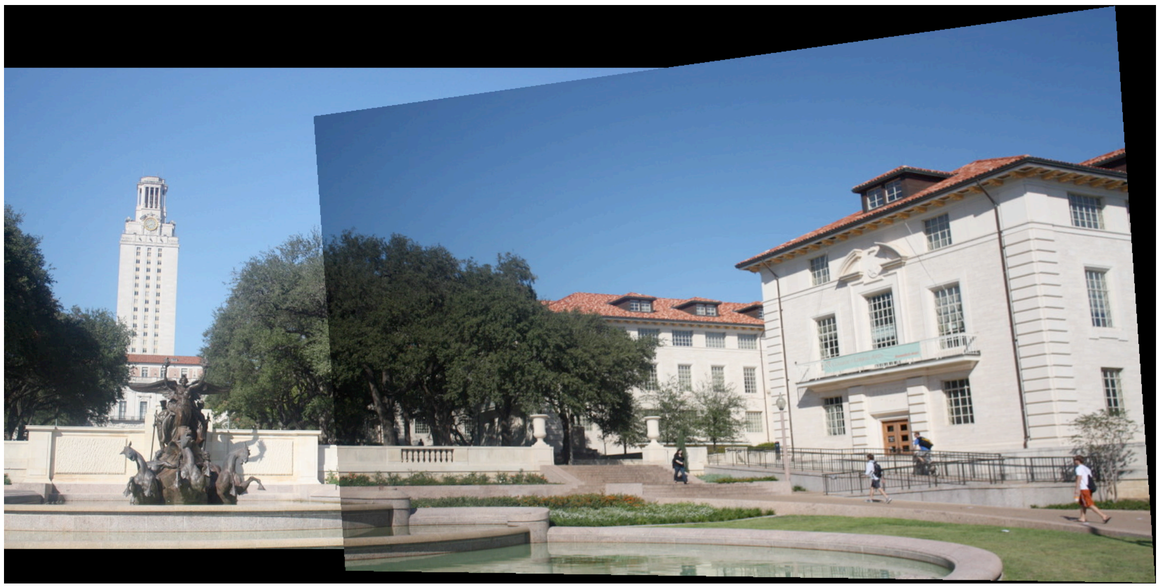

Fig 1a. The tower images with the right one on top

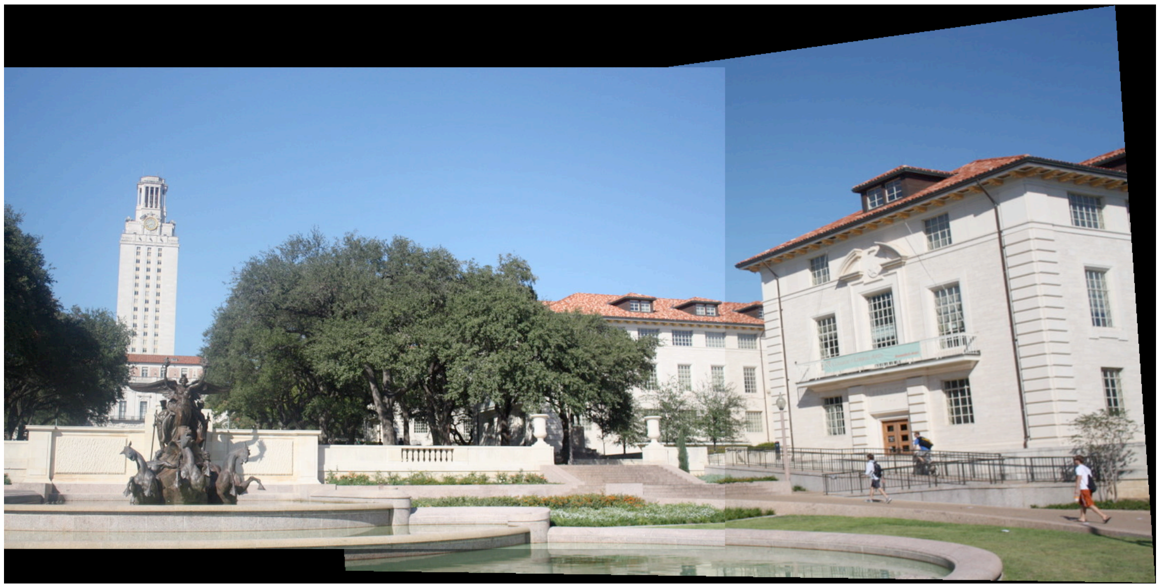

Fig 1b. The tower images with the left one on top

Sometimes the mosaic looks better with one image on top rather than the other. In this case, the edge artifact is a little more noticeable when the left is on top. Also, flipping back and forth between the two gives an impression of depth in the overlap region. This seems to indicate that the image axes are not exactly aligned.

2a. **A Game of Chicken**

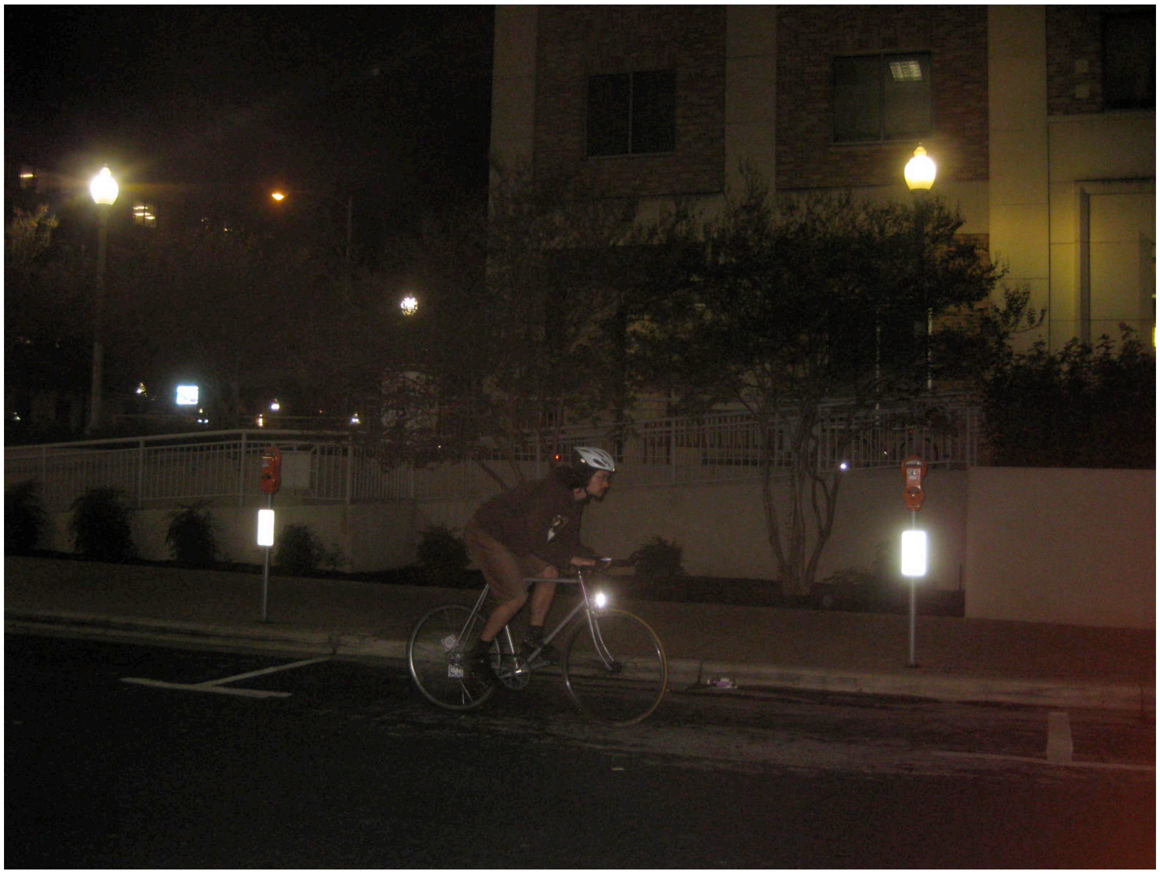

Fig 2a. Photo credit: Jared Bowden

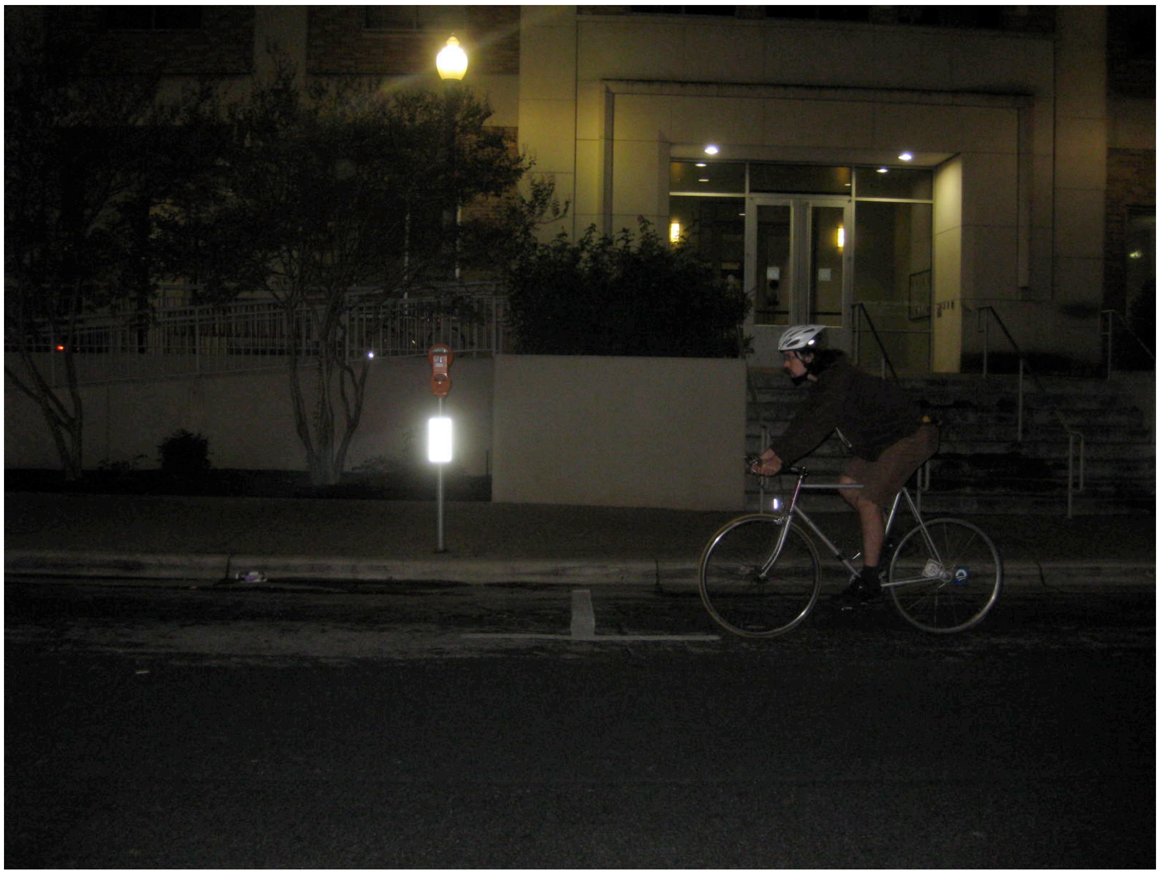
Fig 2b. Photo Credit: Jared Bowden

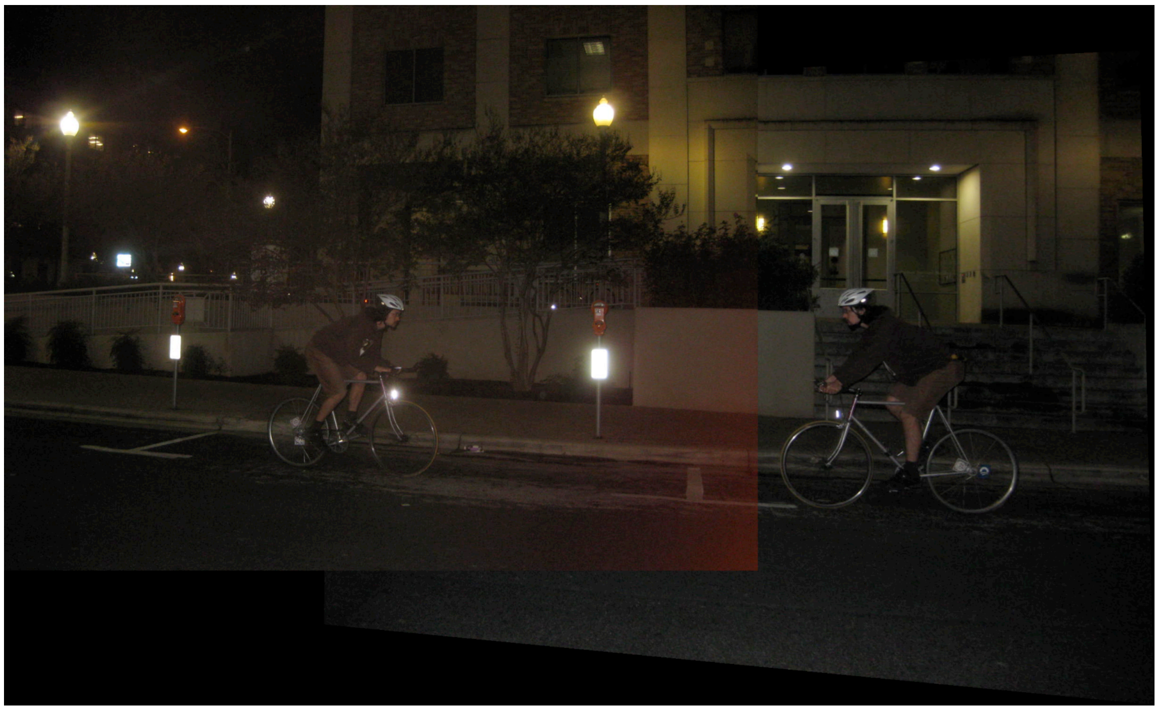
Fig 2c. Chicken, left image on top.

Due to the framing of the image, if the right one were on top, the right half of the left cyclist would be obscured. Unfortunately, there is some kind of lighting artifact in the right half of the left image. One way to fix this is to use the homography calculated from correspondences between these two images to warp the right image with a cropped left image.

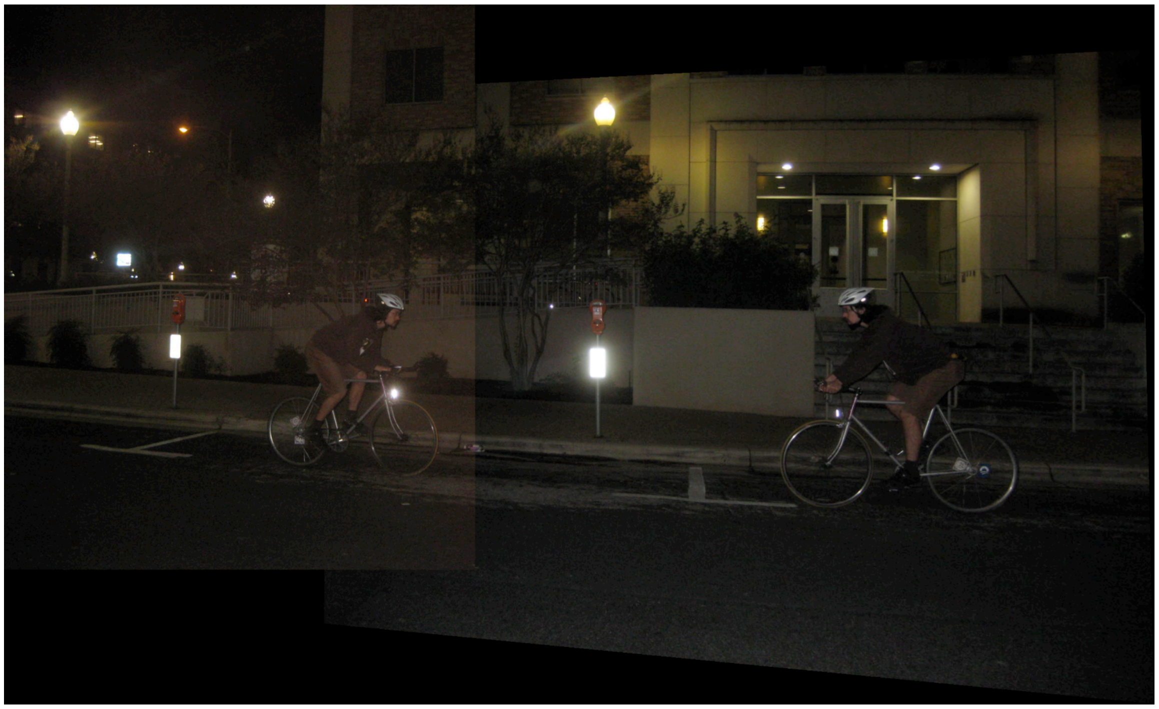
Fig 2d. Chicken, cropped left image on top.

There. That's better.

2b. There is a Bus in my Back Yard

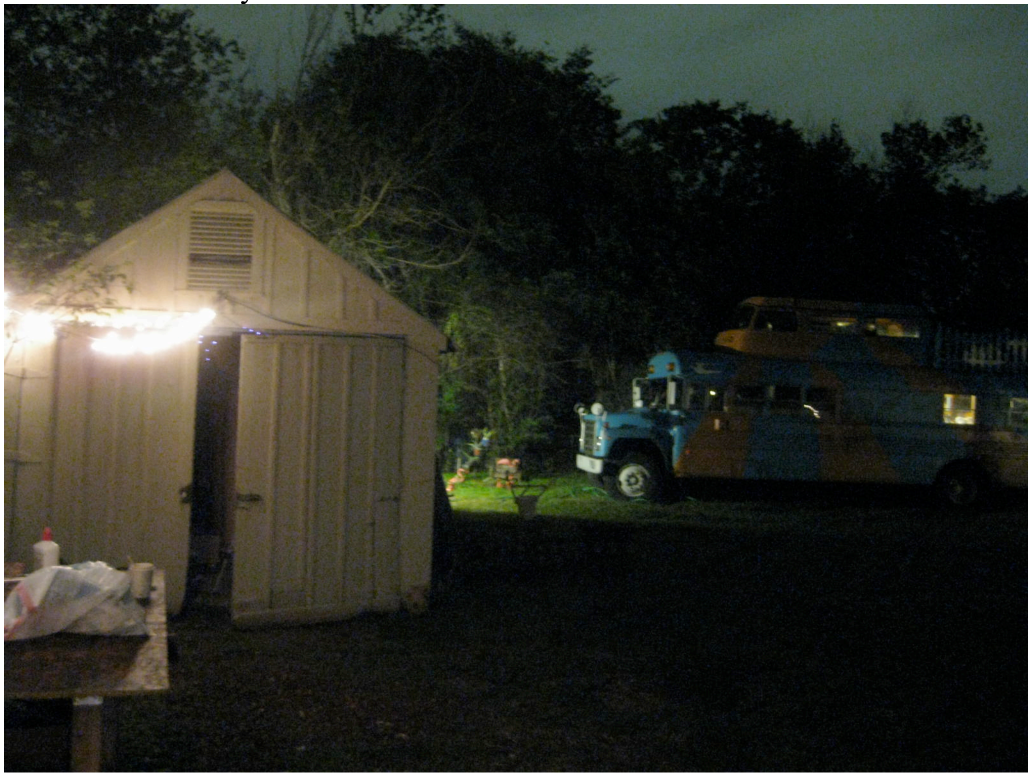

Fig 2e. Photo Credit: Larry Lindsey

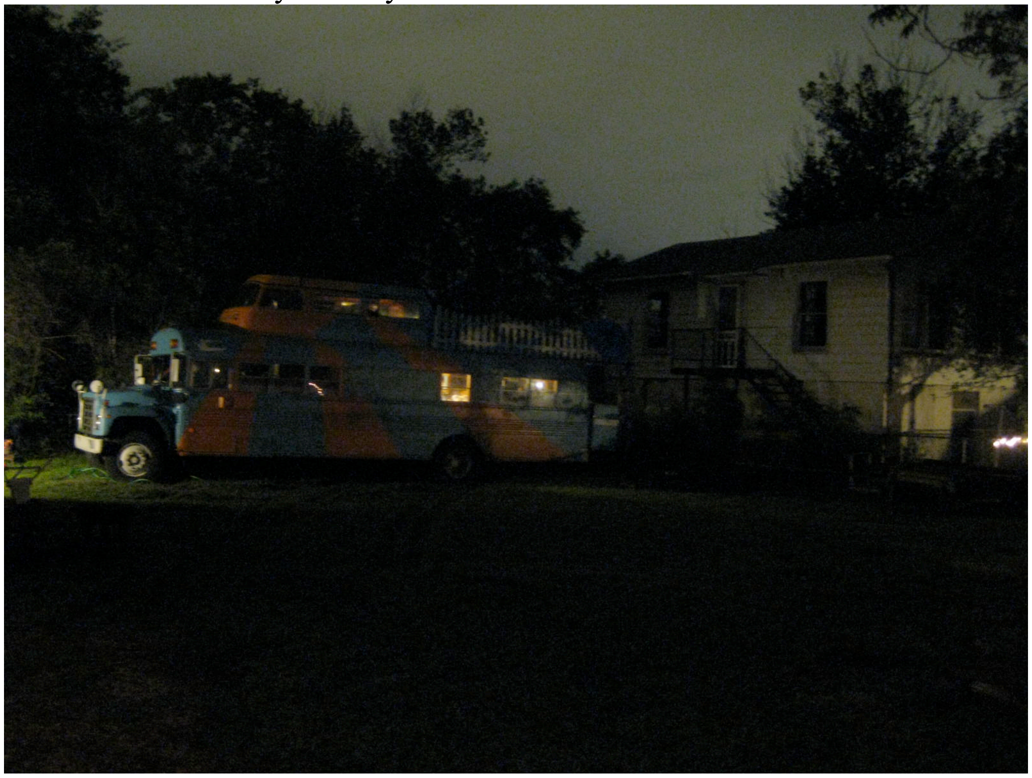

Fig 2f. Photo Credit: Larry Lindsey

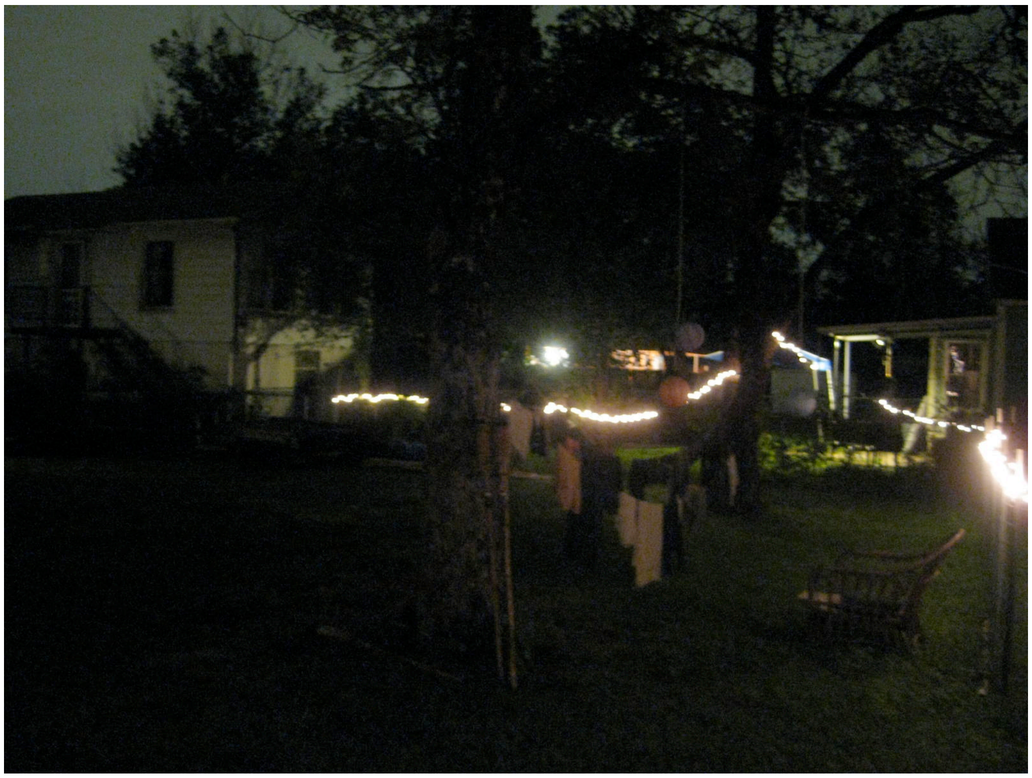

Fig 2g. Photo Credit: Larry Lindsey

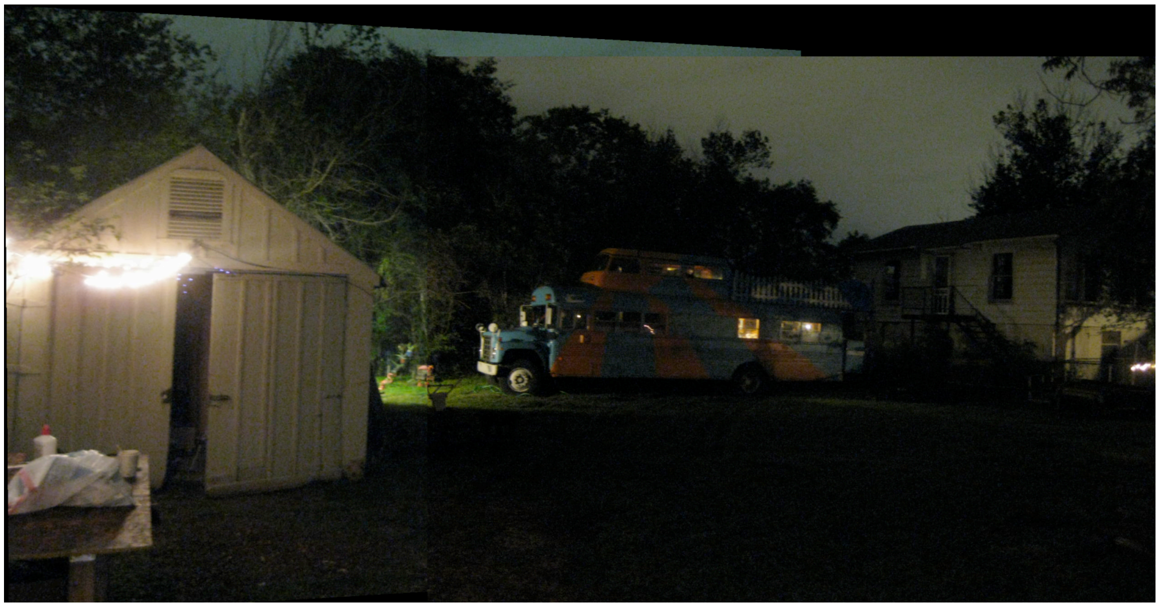

Fig 2h. Intermediate mosaic

The image above was created by merging the left and center images. It was then merged as the left image with the original right image to create the following final mosaic.

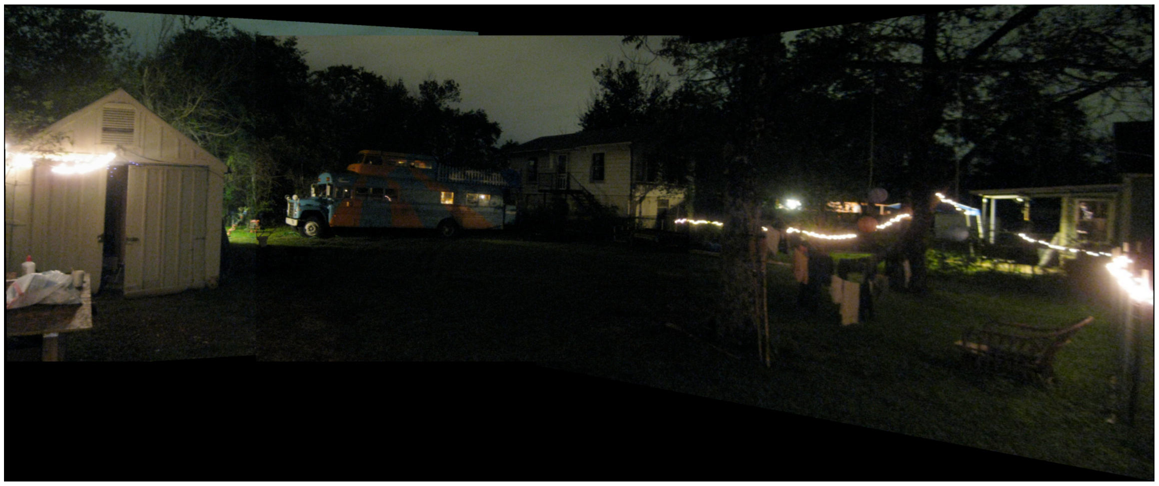

Fig 2i. Final mosaic of a Bus in my Back Yard

The above image shows a panorama of the view of my back yard. This includes a garage, a bus (not mine), and clothes on a clothesline between two trees. The scene is illuminated by some string lights.

3. **Steve Jobs and a LOLCAT**

The following image was found on Flickr, as posted by member techfever.

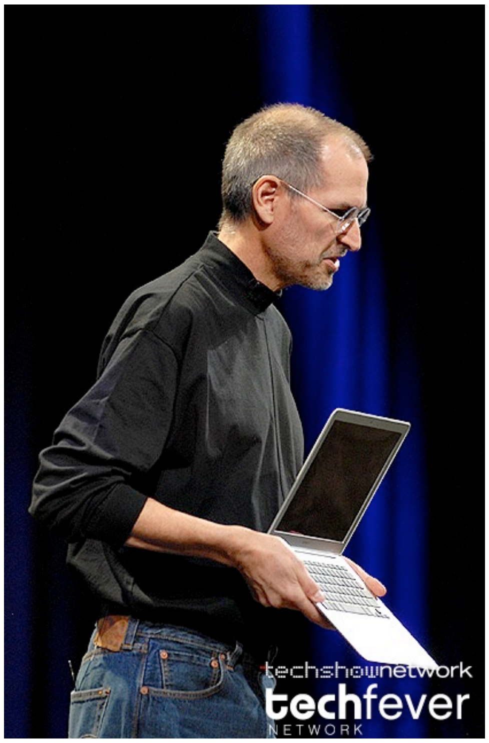

Fig 3a. Photo Credit: Flickr member techfever

This picture seems ideal because of the rectangular shape of the screen, which is angled away from the camera.

The following image was found by searching for the term “invisible sandwich” on icanhascheezburger.com

Fig 3b. Photo Credit: icanhascheezburger.com

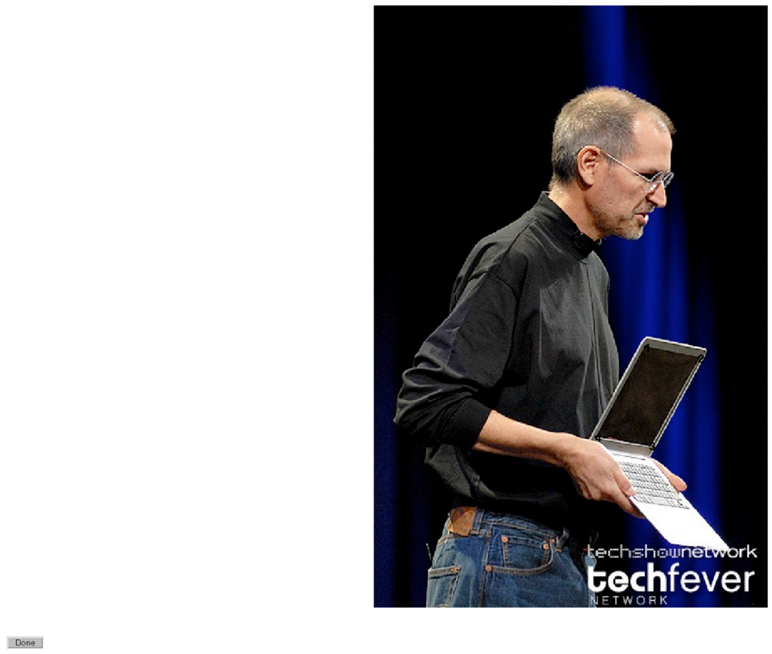

Fig 3c. Jobs image in the Matlab gui.

The lolcat image was warped into the laptop screen using the same methods used to montage images in the previous problem. It is somewhat difficult to see because of the zoom level, but there are four black dots surrounding the laptop image screen, and a "Done" button in the bottom left corner.

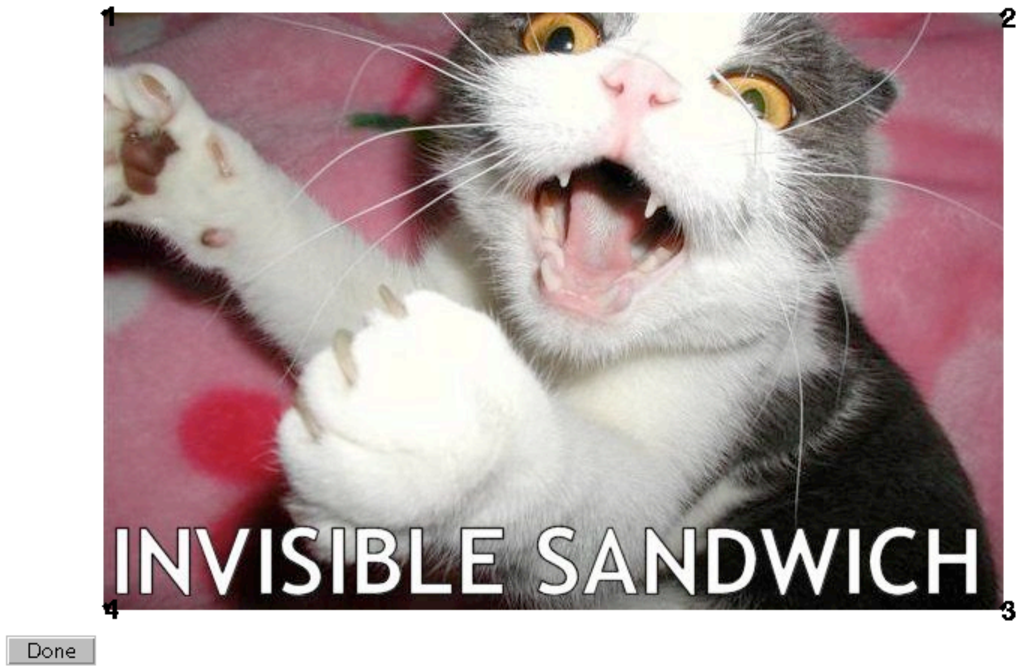

Fig 3d. Lolcat image in the Matlab gui.

The correspondence points for the lolcat image were chosen simply to be the image corners.

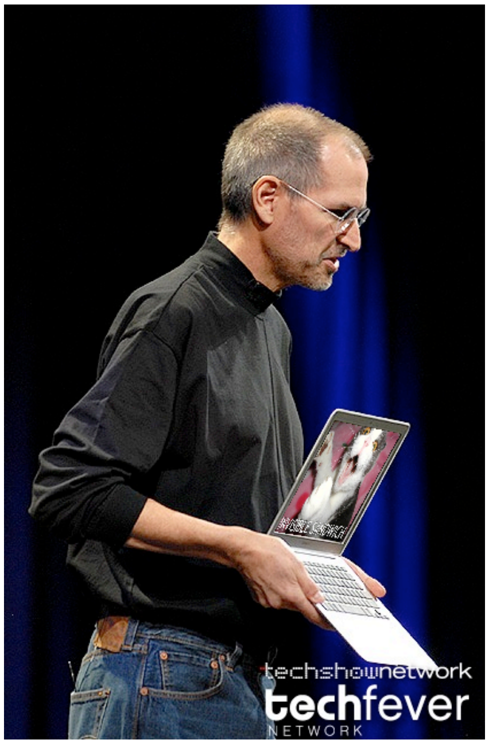

Fig 3e. Steve Jobs and lolcat

In this image, it can be seen that there are some aliasing effects in the lolcat image, to the point that the text is difficult to read. This is because I used linear interpolation in combination with a large scale-down of the lolcat. To fix this, I scaled the Steve Jobs image up a little bit, and used a gaussian filter to blur the lolcat before merging them.

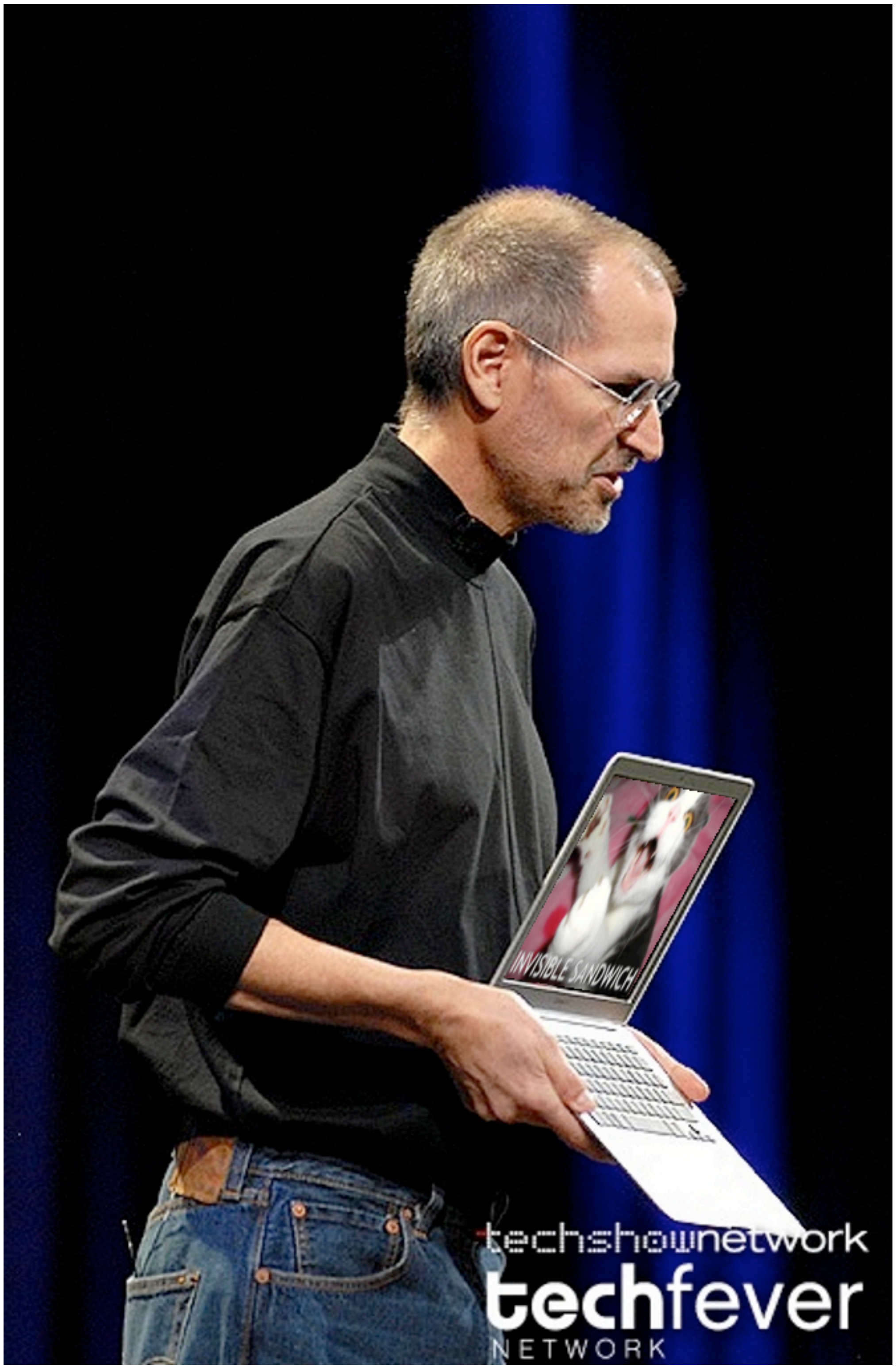

Fig 3f. Steve Jobs and Legible lolcat