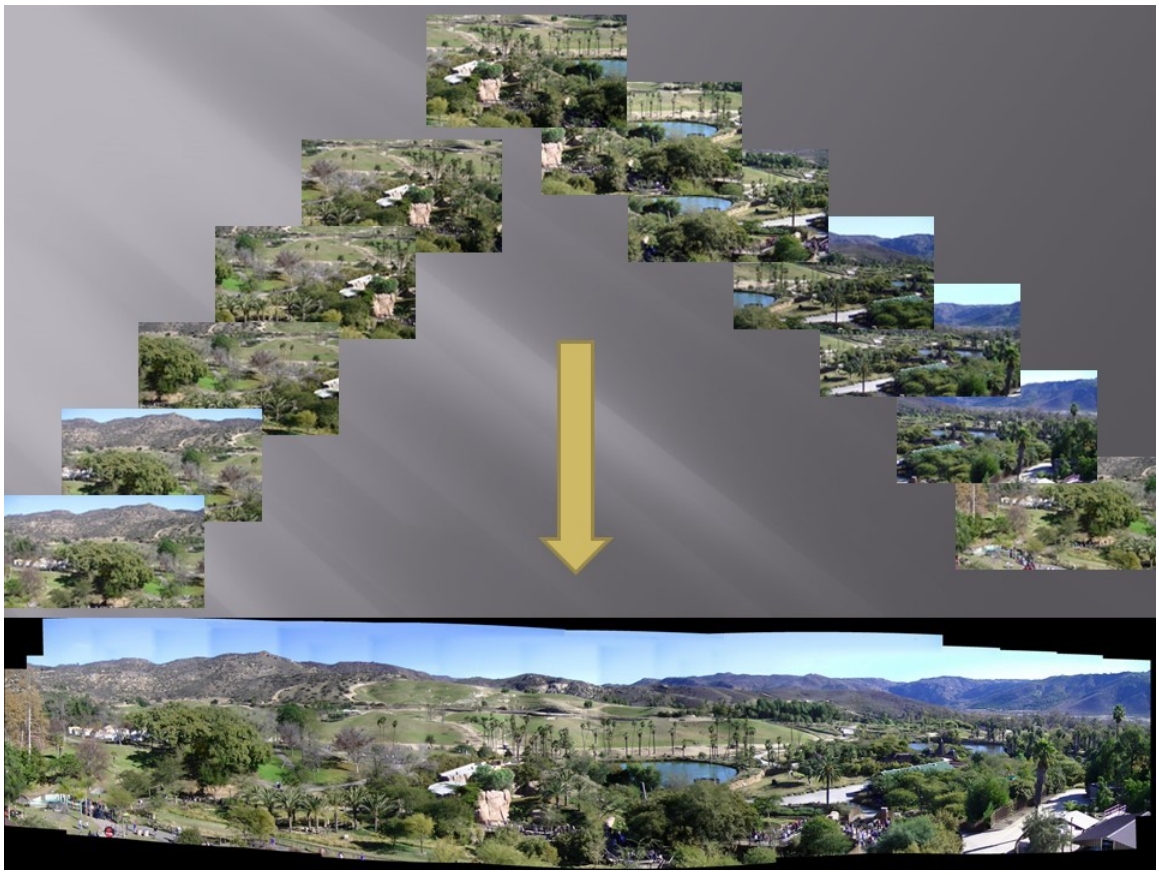
Homework Assignment #2

DUE: July 4th



You are to implement a panorama stitching program in this assignment. The input images will be taken by a single camera with no change of any intrinsic camera parameters. The camera trajectory is always a rotation about the person holding the camera, either in a simple panning motion (left to right or right to left) or a “saw-tooth” pattern (panning + up and down tilt). This implies that you should always match and stitch adjacent images in an alphabetic or numerical order.

You are welcome to use your own images for testing. Just remember that the homography assumption is valid only for far-field imagery, so you should exercise caution in taking pictures. Sample test images can be found under testimages/prog2 folder (or follow the local image archive link from the class web page). There are many such test image sets there that include all input images and the final stitched results (named mosaic.jpg). There are two types of sequences: those depicting a complete, 360^o rotation and those depicting less than a 360^o rotation. Make sure that your program works on images in that directory, at least for those depicting less than 360^o motion.

For grading, you should turn in your stitching program (Python, Matlab, C, C++, Java, etc.) and sample stitched images. Your stitched images must include at least two (2) sets from testimages/prog2 and two (2) sets from your own photos (for your own data, please turn in both photos used in stitching and stitched images).

BONUS: If you implement some elaborate features, e.g., ability to handle 360^0 panorama and random input sequences, color blending and smoothing in stitching, etc., you should turn in your program with your own images (if necessary) to demonstrate the advanced capabilities. Please provide a README file so we know what to look for.