Anish Mittal
UT EId: am44852
CS Login Id: amittal

Section 2

Corres.m calculates the correspondences between the two images to be stitched.
Homomat.m calculates the correspondences between two images.

Ans1.m computes stitches the UTower1.jpg and UTower2.jpg .
I used this script for answering Q1 and Q2 by changing the image names.

Ans3.m does the warping of one image to a frame region in other image.

1) The images together form a panoramic view of the scenes and span a much larger view of the area than single image alone using image stitching.
   Sampling the correspondence points from different regions in the image gives better results Than just selecting the points from a small area.

   IMAGES To BE STITCHED

IMAGE MOSAIC

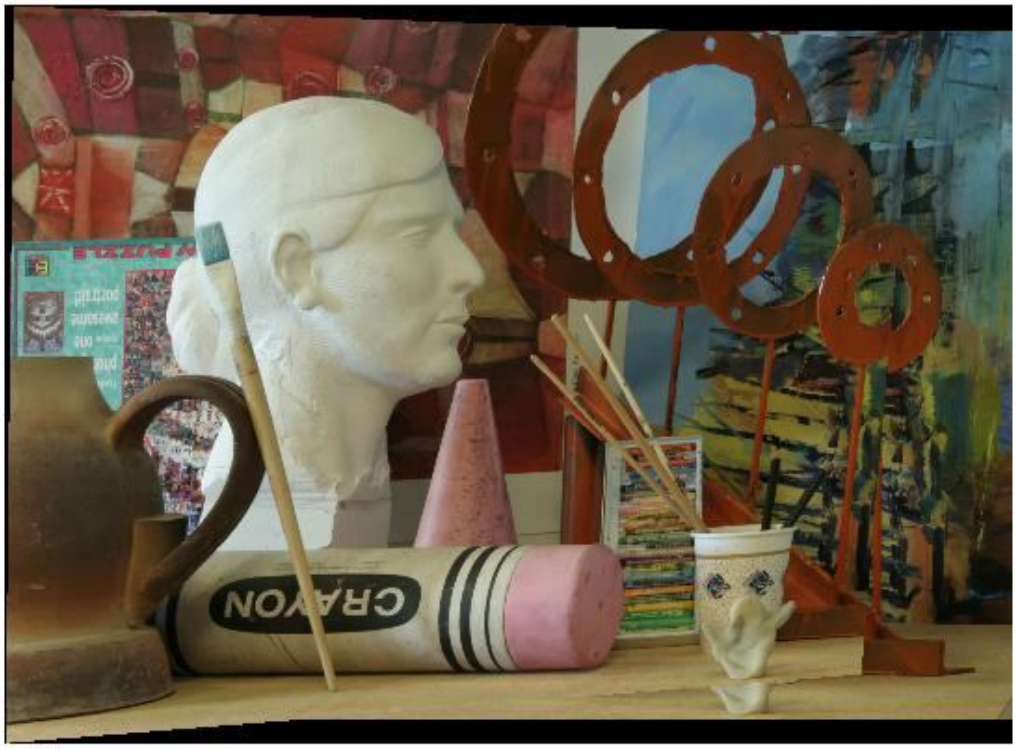
2) I have taken two kind of images to show the application of stitching.

The first one is stereo matching. The left and right hand views of the same image are stitched together and some things which are not visible in either of the image can be seen together now.

The images are taken from stereo data base of middlebury.


PUZZLE
awesome
portrait
CRAYON


CRAYON
Paul Klee



Images are stitched together to form a panoramic view of the scene in this case. Multiple photos of a large scene is taken and stitched together to form a panorama.

I used the big Chicago image
http://upload.wikimedia.org/wikipedia/commons/5/5f/Chicago_Downtown_Panorama.jpg

and then used parts of it to make 3 images to be stitched together.

Combined First and second image MOSIAC

Combine third image with the combination of first second image

FINAL MOSAIC

3) Image Sources
   Fairy Frame
   http://images.google.com/imgres?imgurl=http://familyfun.go.com/Resources/printable-previews/previews/0707e_fairy_frame.jpg&imgrefurl=http://familyfun.go.com/printables/craft-templates/printable/fairy-frame/fairy-frame.html&usg=__dYUgLb6kaZqo-RMLp6HCAaQXu0c=&h=372&w=482&sz=38&hl=en&start=12&um=1&tbnid=ALSvvQdpBCWtRM:&tbnh=100&tbnw=129&prev=/images%3Fq%3Dphoto%2Bframe%26hl%3Den%26rlz%3D1C1CHMR_enUS342US342%26um%3D1

   Mickey Mouse
   http://images.easyart.com/i/prints/rw/lg/5/8/Disney-Mickey-Mouse-5854.jpg

   The following shows the warping of the Mickey Mouse in to the photo frame of the fairy.

Fairy Frame

Print the frame on cardstock, then cut it out. Paste a picture in the white space of the frame or cut out the white space and place the photo behind the frame.

Fairy Frame

Page 1 of 1

Print the frame on cardstock, then cut it out. Paste a picture in the white space of the frame or cut out the white space and place the photo behind the frame.

© FamilyFun
www.familyfun.com

Extra Credit Questions

1) I have taken UT Tower images to display the application of RANSAC.I labeled one point on the small railing to a wrong corresponding point on the railing.

I have taken 8 correspondences of points and run the RANSAC 10 times on 4 correspondences to see which set have the largest number of inliers and take that group and inliers to calculate the homography matrix.

Taking all the points for homography calculation gives strange results due to the wrong correspondences. Hence we can remove the outliers and get nice results if we use RANSAC.

2) The alignment is better when the refine correspondences method is applied for the 5X5 patch around every correspondence found in the right image. Refinement is done by matching the RGB values of pixel in left image with the RGB values of pixels in the neighborhood around the corresponding point in the right image.

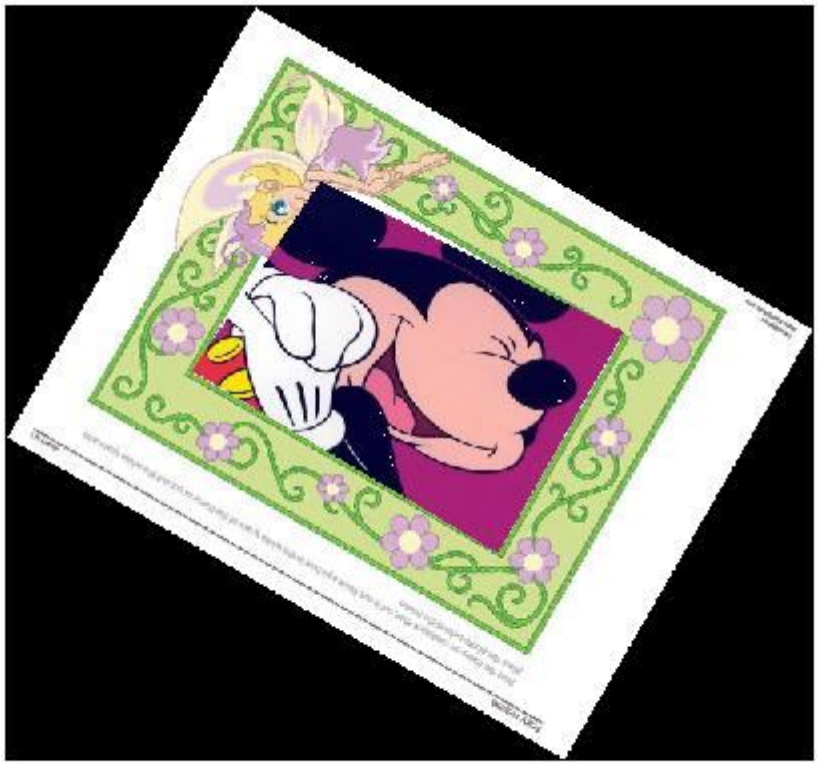
As we can see the upper image is not matched as well as the lower image because of the matching error in above which is rectified using refinement of correspondences.

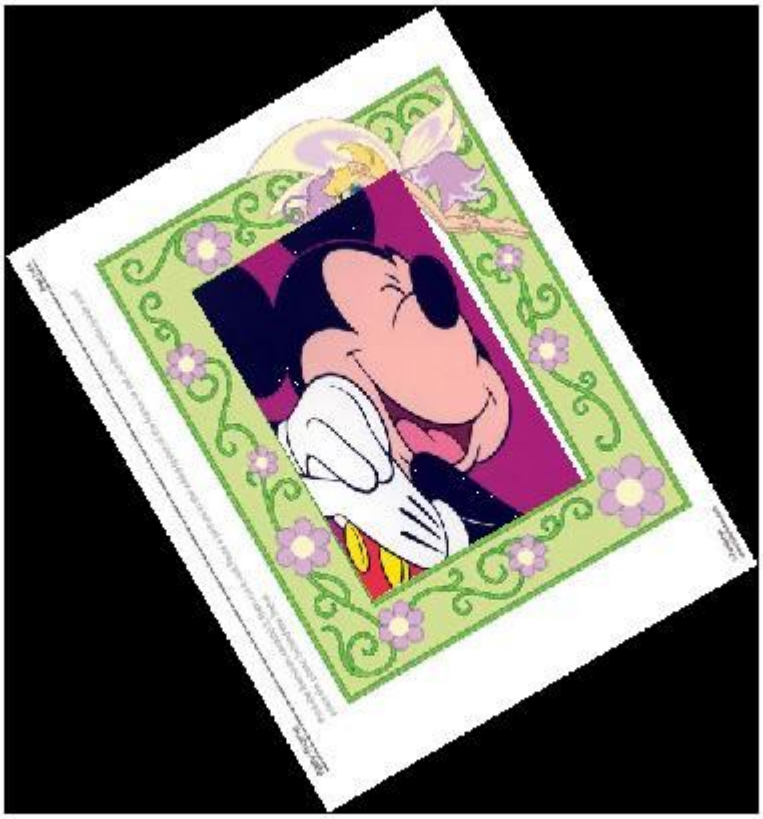
3) I used the **bottom right quarter of the image below** to find its virtual front parallel view. This image segment is mapped to the corners of black rectangular matrix and the results are shown.


lafuma

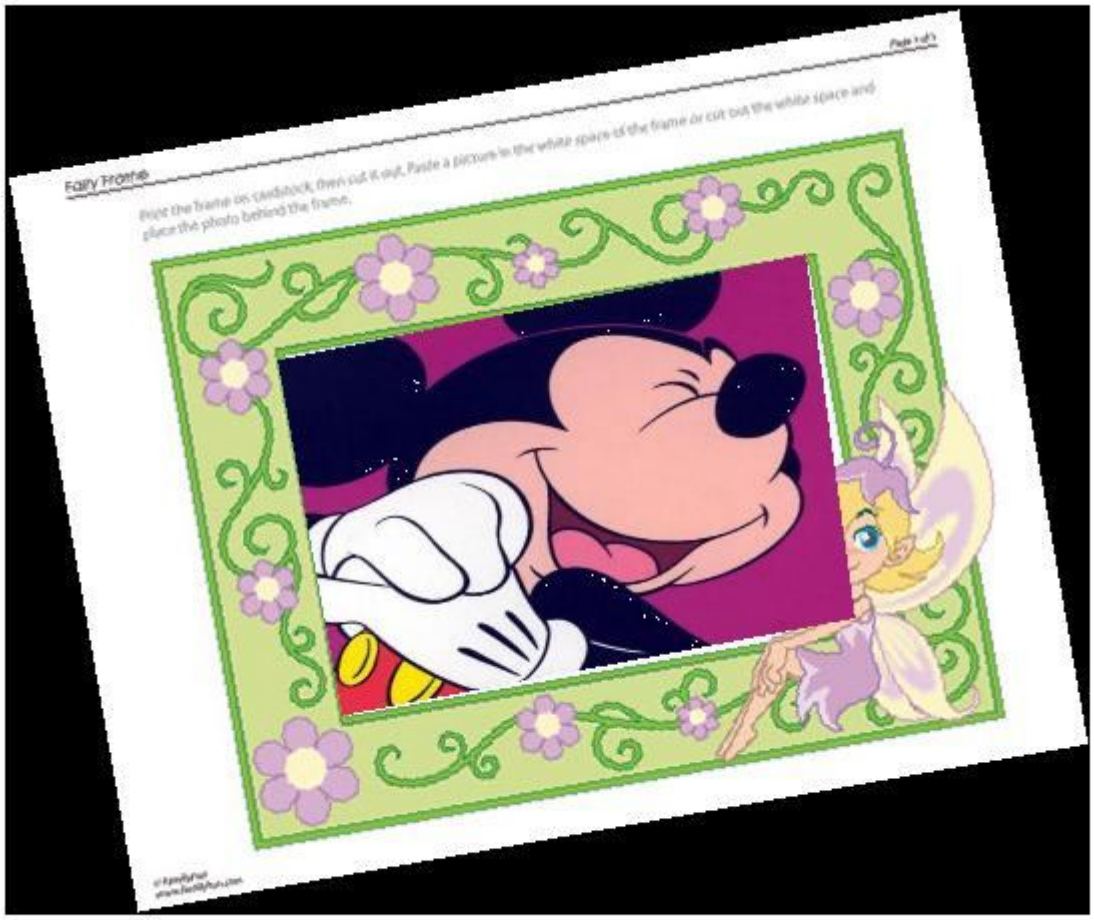
4) I rotated the photo frames several times to show the frame how move over various frames in video .Mickey mouse and fairy image are taken to show the results.

Print the frame on cardstock, then cut it out. Paste a picture in the white space of the frame or cut out the white space and place the photo behind the frame.





Print the frame on cardstock, then cut it out. Paste a picture in the white space of the frame or cut out the white space and place the photo behind the frame.


Fairy Frame
Print the frame on cardstock, then cut it out. Paste a picture to the white space of the frame or cut out the white space and
place the photo behind the frame.

Print the frame on cardstock, then cut it out. Paste a picture in the white space of the frame or cut out the white space and place the photo behind the frame.