Report

Introduction

This report discuss about the Image Morphing. Morphing, short for metamorphosing, refers to an animation technique in which one image is gradually turned into another. Its a transformation of one image to another by the gradual distortion of corresponding points.

Discussion

Two major steps are done for image morphing:
1. Feature Mapping.
2. Cross Dissolving.

1. Feature Mapping:

In this process we use given tie points of each features of both images and map them so that while each feature fade in and fade out at respective positions which otherwise may not look good. For feature mapping I used Delaunay triangulation method. In this method we first triangulate the different features of images using given tie points and then further match the corresponding triangles of both the images and intermediate images. We find the corresponding points in intermediate images using the below formula.

$$(x,y) = (p,q) * t + (r,s) * (1-t)$$

where (x,y), (p,q) and (r,s) are coordinate points of intermediate, first and second images respectively.

2. Cross Dissolving:

In this process the pixel value of intermediate image is calculated using the below formula:

$$pixel\_value(x,y) = pixel\_value(p,q) * t + pixel\_value(r,s) * (1-t)$$

Inputs:

Images and its feature tie points in a text file. The name of the text file should be same as the image name followed by .txt.
Example: if name of image is IMAGE.JPG then name of the file should be IMAGE.JPG.TXT

compiling and execution details is given in program readme portion.

Output:

output morphed sequence of images.

Results:

For given tie points and images image morphing is observed. One GIF example is attached with this report.

Some observations:

Tie points of each image set them accordingly so that features comes out in alignment means features of both images fade in and fade out synchronously.
This teaches that we should map respective features before cross dissolving so that synchronization remains intact.

Apart from this when only face tie points are given then I am getting only face image in the image morphing output, which is also attached with the report.