

CmpE 464 – Fall'09 – Project 5

Morphing

You can use MATLAB in this project.

The aim of this project is to morph an image into another image. Morphing is combination of warping and blending. For morphing an image, first we select control points from the input image and their corresponding points in the base image.

Task: Given a source image and a target image, generate in-between images by morphing. To do that, you need to:

- generate source and target triangles in respective images
- warp the pixels in the triangles
- and blend to generate in-between images. Note that blending needs to be done from both directions.

A simple application can be to morph from a cartoon face to your own face; or from one shape to the other.

If you have "Image Processing Toolbox" installed in MATLAB you can use "cpselect" function for selecting control points.

Otherwise, you can use "ginput" function.

Example use of "cpselect" and "ginput" functions:

```
[xyinput_out, xybase_out] = cpselect(img0,img1,'Wait', true);
```

```
[x,y] = ginput(n);
```

You can use MATLAB Help for details about using these functions.

Also, you can use "delaunay" function for triangulating the selected control points.

Example use:

```
TRI = delaunay(xyinput_out(:,1), xyinput_out(:,2));
```

See MATLAB Help for more information.

Use reverse mapping in warping. In reverse mapping, we generate the mapping from the input image to the base image, then use this mapping to warp base image to the input image. If we use forward mapping, many pixels can map to the same destination pixel or some destination pixels may not be covered. By using reverse mapping, we overcome these situations.