
Subject: Re: How do I morph an image.

Posted by [David Fanning](#) on Sat, 07 Aug 2004 17:04:37 GMT

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Marc Reinig writes:

- > I need to compensate images for optical distortion (barrel, pincushion, ...)
- > in my system.
- >
- > I have a reference image (a grid of identifiable features) and I can tell
- > how the system is distorting it by comparing the reference image to the
- > captured, distorted image.
- >
- > Currently I have a table of points of the center of the original features
- > and a table of the center of these features in the distorted image. A
- > Matlab program is used to correct the images of interest based on these
- > tables.
- >
- > I need to integrate this process into my IDL code.
- >
- > Any pointers on how to morph an arbitrary image using these tables or
- > another technique would be appreciated.

There are at least two methods you can use to do this.

Suppose your input control points are in the vectors `xi` and `yi` and your reference control points are in the vectors `xo` and `yo`. You can do something like this with the `WARP_TRI` command:

```
s = Size(refImage, /Dimensions)
warpedImg = Warp_Tri(xo, yo, xi, yi, inputImage, $
  OUTPUT_SIZE=s, /QUINTIC)
```

(There may be other keywords to set depending upon the location and number of your control points, etc. I assume here four of your control points are in the corners of the image.)

Another method involves the `POLYWARP` and `POLY_2D` commands. First, use `POLYWARP` to get the coefficients required by `POLY_2D` for the warping:

```
POLYWARP, xi, yi, xo, yo, 1, p, q
```

Then use the `p` and `q` arrays to warp the image:

```
warpedImg = POLY_2D(inputImage, p, q, 1, s[0], s[1])
```

You can try both and see which is better for your application.

Cheers,

David

P.S. If you would like to e-mail the images to me, I would be happy to write an article about this and show the before and after results.

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David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
