Subject: Cross-correlating images
Posted by Brian Handy on Sun, 01 Feb 1998 08:00:00 GMT
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Hello,

I'm trying to cross-correlate a series of images with a little home-brewed cross-correlation routine I mostly dug out of Numerical Recipes (FORTRAN, Second Ed., pg. 538). The routine, short as it is, looks like this:

```
function fft_corr, a, b
sz = (size(a))[1:2]
fft_a      = fft(a, 1)
fft_b_conj = conj(fft(b,1))
return, float(fft(fft_a * fft_b_conj, -1)) / (sz[0]*sz[1]/2)^2
end
```

The problem is this thing doesn't normalize right. If I do an autocorrelation, meaning result=fft_corr(a,a), I should get a result back with a maximum value of 1.0 at the origin. I thought the normalization by #of pixels and the factors of 2 would solve the problem, but to no avail.

So, if I have a string of images that I want to cross-correlate, if the first image isn't coming up with a maximum of 1.0, I'm not sure how to normalize the rest of the cross-correlations either -- would I divide by the curve for the autocorrelation? I'm confused.

I want this 3D effect this method gives me. I know IDL has some prepackaged correlation routines, but they're all one-dimensional and I need the extra information. Any suggestions would sure be appreciated!

Thanks,

Brian
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