Subject: FFT and Convolution
Posted by cabrera on Thu, 24 Jul 2003 07:55:06 GMT
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Hi,

I have to do a wavelet transformation of a set of 140x150 images with a Gabor wavelet. Has some bodysome code how does it?

For the moment i'm using the convolution theorem between the image and a 140x150 array with the wavelet fonction.

```
>    fft_imagearray   = FFT(imagearray,-1)                    ; using
>    fft_waveletarray = FFT(waveletarray,-1)                   ; convolution
>    conv_array = FFT(fft_imagerray*fft_waveletarray, 1)       ; theorem
>    imagearray = abs(conv_array)
>    imagearray = shift(imagearray,-n21x,-n21y)
```

I'm surprised that to have a correct image of the convolution i need to shift the image. I'm doing a direct and an inverse FFT, so the shift in the frequency domain should be cancelled by itself. When i look in convolve.pro of the astron library i see that they have to do the same thing (if i correctly understand the code). What surprises me more is that if i make this "imagearray = float(FFT(fft_imagearray1, 1))" I do not need to reverse the image to see it correctly.

Other thing I do not understand is why in convolve.pro the convolution is multiplied by n_elements(array). For the same reason if I do two inverse operations, normally the normalisation farctor should not be necessary.

Thanks in advance.

Juan