Subject: Re: FFT+inverse FFT
Posted by Jeremy Bailin on Mon, 06 Dec 2010 14:16:07 GMT
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On Dec 5, 12:48 pm, Natalya Lyskova <natalya.lysk...@gmail.com> wrote:
> Hey! I'm a beginner at IDL and have problem with FFT. I'm trying to
> perform 2d-FFT but the code doesn't work properly even on test images.
> So I create an image, make the Fourier transform, then the inverse
> Fourier transform and finally I expect to get the initial image. But
> the resulting image is the initial one, reversed with respect to the
> center.
>
> My code:
> nx=256L
> x1=findgen(nx)-nx/2.0+1.0
> x2=findgen(nx)-nx/2.0+1.0
>
> ytest=fltarr(nx,nx)
> for i=0l,nx-1 do begin
> for j=0l,nx-1 do begin
> if (x1[i] le 20.0 and x1[i] ge 0.0 and x2[j] le 20.0 and x2[j] ge
> 0.0) then begin
> ytest[i,j]=1.0
> endif
> endfor
> endfor
>
> ; So the initial image is a squre in the right upper corner
>
> FFTtest=FFT(ytest)
> sh_FFTtest=SHIFT(FFTtest,nx/2.0-1.0,nx/2.0-1.0)
> inv_test=FFT(FFTtest,-1)
>
> ;The result is the square in the LEFT LOWER corner.
>
> I would be very grateful for comments/advices/solutions
>
> Thank for help,
> Natalya

As a side note, a better (both faster and more readable) way of
creating the original image instead of the double FOR loop is:

if (x1[i] le 20.0 and x1[i] ge 0.0 and x2[j] le 20.0 and x2[j] ge
0.0) then begin
ytest[i,j]=1.0

upperright = where(x1 le 20.0 and x1 ge 0.0 and x2 le 20.0 and x2 ge

0.0, nupperright)
if nupperright gt 0 then ytest[upperright]=1.0

-Jeremy.