Subject: Re: kernel convolution?
Posted by James Kuyper on Fri, 28 Jul 2006 21:09:59 GMT
View Forum Message <> Reply to Message

adisn123@yahoo.com wrote:
> Hello,
>
> I tried FFT(discrete fast fourier transform) on my spcial image and
> used several different kinds of filtering application.
>
> What I wanted FFT to do was that FFT removes both very low frequency
> and high frequencies.
>
> I thought if I do this filtering with FFT, that I could get rid of
> stars in my images, but
> actually it turned out to be it does not, but rather reduce the
> intensity.
>
> In my understanding, it is because FFT does fourier transform pixel by
> pixel, thus if a star
> lies on several pixels, say 5 x 5, FFT of this would give both medium
> high freuqency around the star
> edge and very high frequency at the center of the star. Thus, removing
> low and high frequencies using filter would reduce the center intensity
> of the star, but still it would give me the residuals of the star.

I can't see any benefit from removing the low frequencies. However,
removing the high frequencies should do the job quite nicely, if you do
it right. If your imaging system spreads a point source like a star
over an 5x5 pixel area, and your images are 500x500, the ratio of those
two size scales is 100. Therefore, removing all frequency components
above 50 should do the job. I would guess that you weren't filtering
the right frequencies; the frequencies you're removing with the low
frequency portion of your filter may in fact be the only ones you want
to keep.

> So, I'm thinking some other method such as kernel convolution (CONV
> function in IDL).
> I'm not sure how this works exatly. If some one know about this or
> other possible method that I can choose, please reply me.

Convolution can be used to smooth out an image, but that would replace
each star with a smeared-out version of itself. Re-binning to a lower
resolution would achieve a similar result, and would be significantly
faster. If you want to actually remove the stars, filtering out the
high frequencies should work better.