Subject: Re: kernel convolution?
Posted by James Kuyper on Mon, 31 Jul 2006 15:45:06 GMT
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edward.s.meinel@aero.org wrote:
> No, a high-cut filter won't work. If you look at the FFT of a single
> star (star-->point-spread function, FFT(star)--> modulation transfer
> function), you will see that it contains information in ALL
> frequencies.

True; the best you can do by that method is to signficantly reduce and spread out the brightness of the stars, not eliminate them entirely.

> Here's a couple of ways to remove stars:
>
> 1) determine the centroid of each star and subtract the appropriately
> weighted point-spread function.

Small statistical variations between the image and the best-fit point-spread function will remain after performing such a subtraction. Because the star is a bright source against a dark background, those small residuals might be much brighter than the remaining background, and unlike the low-frequency components left over from the high-cut filter, they will be tightly centered around the original location of the star. I can't say from personal experience whether those residuals are a bigger problem than the residual low-frequency terms after using a high-cut filter.

> or
> 2) apply a median window filter with a width of about twice the width
> of the star.

That sounds like it should work. You'll still pick up any long tails of the PSF, but with a sufficiently large window, that should be a very small effect.