Subject: Re: Wiener filter
Posted by jeyadev on Tue, 18 Dec 2001 20:30:54 GMT
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In article <9vllbg$po7$1@canopus.cc.umanitoba.ca>,
Richard Tyc <richt@sbrc.umanitoba.ca> wrote:
> Has anyone developed a Wiener filter algorithm for image processing in IDL
> (and be willing to share it ???)
> My image processing handbook by John Russ does not have it ??
> A paper that describes it says it produces a "minimum least-squares error
> between the "true" uncorrupted image and the noisy, measured version" It
> makes use of the power spectral density of the image.
>
> Any help appreciated.....

I am note sure what you mean by 'filter'. The Wiener spectrum is
defined by precisely what you quote: it is the square of the
Fourier transform of the (density) fluctuations.

Let D(x,y) be the initial data in real space, i.e. your image.
Let the average density be denoted by <D>.

Let d(p,q) be the Fourier transform of D(x,y) - <D>, i.e.

$$d(p,q) = FT\{ D(x,y) - \langle D \rangle \}$$

Then, the Wiener spectrum is given by

$$W(p,q) = |d(p,q)|^2 = | FT\{ D(x,y) - \langle D \rangle \} |^2$$

I do not see how this can be viewed as a filter. It is merely the
square of the amplitudes of the Fourier transform of the fluctuations
from the mean.

Am I missing something in your question?
--

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