Subject: Re: Wiener filter
Posted by James Kuyper Jr. on Fri, 21 Dec 2001 20:26:27 GMT
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Richard Tyc wrote:

...

> Thanks for your help. I now understand the process a little better but I too
> am still unclear on the noise amplitude estimation. I don't quite follow
> your idea of "sum of two separate curves" and then using regress().
>
> I have stumbled into a fairly sophisticated subject her. Could you point me
> to some references that may explain your idea in more detail ?
> The paper does refer to : "Digital Image Processing" by Gonzales which I
> have on order AND "Numerical Recipes: the art of scientific computing" by
> Press, Flannery et al which I should be able to find around here.
> Any others?

Well, everything I've ever read about the subject is in "Numerical
Recipes". If you can find that, I can't give you any better citations.
The book itself contains three citations in that section which you could
follow up on. That idea of "sum of two seperate curves" is explained
graphically in Figure 12.6.1. Whether or not you can use regress()
depends upon whether the combined curve is linear in the unknown
parameters of the individual curves. If it's non-linear in the unknown
parameters, you'll have to use more sophisticated fitting techniques.

Note: I've apparantly made a notational error while explaining this.
$S(f)$ is the fourier transform of signal you want to extract; I'd been
implying that it was the fourier transform of the signal plus the noise.
He actually uses $C(f)$ for that purpose. I'm sorry for causing any
confusion! This shows you how often I've actually used this technique! I
know a lot of things about a lot of nifty numerical techniques that I've
never been able to put to actual use. :-(