Subject: Deconvolution procedures...Anybody have any?
Posted by howp on Tue, 10 Mar 1992 17:53:05 GMT
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Hello. I am using IDL to analyze data for my thesis. Unfortunately, I have not found a general deconvolution procedures. I have used an inverse FFT to perform this, but from what little I understand an inverse FFT assumes that the array being transformed is periodic, and my data is not necessarily so. I was wondering DOES ANYBODY HAVE A GENERAL DECONVOLUTION PROCEDURE? Maybe IDL already has one, but I haven't found it.

Thanks.

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********** **********
* Wit is... brevity *
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Subject: Re: Deconvolution
Posted by Achim Hein on Thu, 17 Apr 1997 07:00:00 GMT
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Eddie H. Snell wrote:
>
> I've been trying to write (unsuccessfully) a simple routine to
> deconvolute a known signal from a measured stream of data giving
> a data set without the effects of the known signal.
>
> The method I have been using is a simple fft of the measured
> data and known signal, dividing the fft's by each other then
> doing the reverse fft. This doesn't work too happily (it looks
> like ailiasing may be taking place and I need a filter). I
> have looked through the IDL libraries for simple deconvolution
> module but have not found one. has anyone tackled this problem
> before and come up with a working solution :)
>
If your signal is known, why don't you look for the one ore some more maximum peaks (depends on) while correlating the measured stream with the known signal. If there is the searched signal in your measured stream you will get a kind of peak if you correlate the noisy stream

with the known signal structure. That's called auto-correlation.
You can do this in the frequency domain by multiplying stream with the conjugate complex of the known signal...
You are trying to deconvolute the signal by a kind of inversefiltering in the frequency domain, so beware of zero padding to avoid additional aliasing effects.
I think in principal the way you do it should work (zeropadding) but generally filtering noisy signals with inverse structures is quite simple but not very succesful way of filtering - unless you can reduce the noise.

Cheers

Achim Hein
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