Subject: Re: Inverse FFT
Posted by Streun Andreas on Mon, 16 Dec 2002 18:01:04 GMT
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Colin Ault wrote:
> I have a signal f_t, which I then take the FFT of to produce its
> corresponding spectral components. I then want to manually compute its
> inverse FT, rather than using the IDL FFT(.../inverse) function.
>
> The reason for this is that I want each spectral component to
> propogate at different velocitys over a time period t. Hence, when the
> signal is recombined t seconds later, the signal *should* look
> different.
>

Hi Colin,

I'm not sure if I understood the problem, but I don't see the reason
why you can't use the standard FFT: You transform to frequency
domain, apply your function to the spectrum, for example
a filter, and transform back to time domain. Of course, you have
to work on the complex frequencies, not on the absolute values
(i.e. power spectrum) in order not to loose phase informations
for backtransformation.
Attached find a code fragment, where I wanted to see how a
time signal looks, if I consider only significant frequencies
(i.e.with absolute values above some threshold). Maybe that's
related to your problem.

Best regards,
Andreas

```
; get profile of image
    p =total(roi,1)

; and show it
    plot, p

; make fft
    f =fft(p,1)

; get absolute value of [complex] fft
    fa=abs(f)

; define filter threshold relative to maximum
    filter=0.1
```

```
; filter fft by deleting all frequencies lower than threshold
    ff=f
    ff[where(fa lt filter*max(fa))]=0.0

; inverse fft to make filtered profile
    pf=fft(ff,-1)

; show filtered profile
    oplot, pf, color=250

; show absolute fft, but only the first channels
    plot, fa[0:100]

; show filtered fft too
    ffa=abs(ff)
    oplot, ffa[0:100], color=250
```
