Subject: Re: Convolution, IDL & Numerical Recipes
Posted by R.G. Stockwell on Tue, 05 Nov 2002 13:34:42 GMT
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Hector Aceves wrote:
> "R.G. Stockwell" <sorry@noemail.now> wrote in message
news:<3DC28954.7060605@noemail.now>...
>
>> Perhaps you want to use the following keywords:
>> Check out the help file to see the effects the keywords
>> have on how the arrays line up to be convolved.
>> (Note: you must explicitly set center=0, or else it defaults
>> to 1)
>>
>> z=convol(a,k,center=0,edge_wrap=1)
>>
>> a 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 0
>> k 1 0 0 0 0 0 0 0 0
>>
>> z 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 0
>>
>>
>> Cheers,
>> bob stockwell
>
>
> Dear Bob...
>
> It works well with the kernel [1,0,...]
> But when I tried the actual examples of Numerical Recipes it did not
> give me the same results:
>
> a=[0,0,0,0,0,1,1,1,1,1,0,0,0,0,0,0]
> k=[0,0,1,1,1,1,0,0,0]
>
> z=convol(a,k,center=0,edge_wrap=1)
> IDL> print,z
> 0 0 0 0 0 0 0 1 2
> 3 4 4 3 2 1 0
> IDL>
>
> With Numerical Recipes gives..
>
> 0 1 1 1 1 1 0 1 2 3 3 3 2 1 0 0
>
> which seems ok!

If by "ok" you mean "completely wrong" then I agree with you. :)

Correllating two "boxcars" gives you a "triangle".
Perhaps you typed in the wrong "k" in your numrec code?

a=[0,0,0,0,0,1,1,1,1,1,0,0,0,0,0,0]
k=[1,1,1,0,0,0,0,0,1]

z=convol(a,k,center=1,edge_wrap=0,edge_trunc=1)

0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 0
1 1 1 0 0 0 0 0 1

0 1 1 1 1 1 0 1 2 3 3 3 2 1 0 0

Also, keep in mind, as J.D. mentioned, that IDL convol is
a correlation with center=0, and a convolution with center = 1
(among other things).

You'd probably be better off to write your own 10 line piece of
code to perform the exact operation you want.
Actually, I might even do that, but I have a lot of other work to do,
so it's gonna be a while.

I'd use an fft to do it, and if you want no edge wrap, just zeropad.

Cheers,
bob