Subject: Re: Convolution, IDL & Numerical Recipes
Posted by aceves on Thu, 07 Nov 2002 01:02:59 GMT
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JD Smith <jdsmith@as.arizona.edu> wrote in message
news:<pan.2002.11.05.22.42.57.734458.26650@as.arizona.edu>...
> On Tue, 05 Nov 2002 06:34:42 -0700, R.G. Stockwell wrote:
>
>> 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.
>
> Have a look at the NASA-library's CONVOLVE, which explicitly takes all
> these IDL-native "features" into account, uses FFT when appropriate, and
> may save you the trouble of writing one yourself.
>
> JD

Thanks to everyone... I think I got it now.

Hector
