
Subject: Re: convolution

Posted by [Chris\[5\]](#) on Tue, 20 May 2008 11:31:08 GMT

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On May 20, 12:49 am, Chris <cnb4s...@gmail.com> wrote:

> On May 19, 12:32 pm, sarah <sarahwiddeco...@yahoo.com> wrote:

>

>

>

>> On May 12, 9:31 pm, David Fanning <n...@dfanning.com> wrote:

>

>>> sarah writes:

>>>> x=make_array(1024)

>>>> sigma=15

>>>> mu =15

>>>> const=1/(sigma*sqrt(2*pi))

>>>> for i = 0,1024 do x[i]= array[0,*]

>>>> f= const*(EXP(-1.0*(x - mu)^2/(2*sigma^2)))

>

>>>> z = convol(array,array2,/center)

>>>> z = z*2

>>>> print,f

>>>> end

>

>>>> here is the message I get:% Out of range subscript encountered: X.

>>>> % Execution halted at: CONV1 29

>>>> /Users/Dave/Desktop/conv1.pro

>>>> % \$MAIN\$

>

>>>> I don't see why this doesn't work? I am very frustrated

>

>>> The problem is on this line:

>

>>> for l = 0,1024 do x[l]= array[0,*]

>

>>> 0 to 1024 is 1025 numbers. (Count them if you

>>> don't believe me.) But X is only big enough to

>>> hold 1024 numbers, so you are, uh, going out

>>> of its subscript range, as the error message

>>> suggests.

>

>>> But this line of code is completely unnecessary.

>>> Simply typing this is enough:

>

>>> x = Reform(array[0,*])

>

>>> Cheers,

>

```

>>> David
>
>>> --
>>> David Fanning, Ph.D.
>>> Fanning Software Consulting, Inc.
>>> Coyote's Guide to IDL Programming: http://www.dfanning.com/
>>> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
>
>> Thank you for your help! This did indeed solve my problem.
>
>> I have developed a new problem in my convolution. It seems i need to
>> convolve with a kernel.
>> I can only convolve two arrays and do not seem to be able to
>> incorporate the gaussian kernel I need into the convolution.
>
>> Is this a three way convolution? I do not know how to do this. I am
>> trying to convolve 2 datasets with a kernel.
>> I have tried the code below:
>
>> pro conv_nokern
>
>> Openr, lun, 'model.dat', /Get_Lun
>
>> Point_Lun, lun, 0
>> ReadF, lun, adim, bdim, num_columns
>> spec = fltarr(2, 1024)
>> readf,lun,spec
>> a = spec(0,*)
>> b = spec(1,*)
>> Free_Lun, lun
>> window,2,xsize=500,ysize=500,retain=2
>> plot,a,b,yrange=[0,1],xrange=[4265,4200]
>
>> openr,lun,'aataunorm.dat',/get_lun
>> Point_Lun, lun, 1
>> ReadF, lun, cdim, ddim, num_columns
>> data = fltarr(2, 1024)
>> readf,lun,data
>> c = data(0,*)
>> d = data(1,*)
>> window,4,xsize=500,ysize=500,retain=2
>> plot,c,d,yrange=[0,1],xrange=[4265,4200]
>> print,data
>
>> fconv=convol(b,d,/edge_truncate)
>> ;define convoution function
>> print,fconv
>

```

```

>> openw,1,'data.dat'
>> printf,1,a,fconv
>
>> fconv2=fconv/92.4259
>> window,6,xsize=500,ysize=500,retain=2
>> plot,a,fconv2,yrange=[0,1],xrange=[4265,4200]
>> close,1
>
>> end
>
> Say a and b are your vectors containing data, and you want to convolve
> with a gaussian of width sigma. Add the following code:
>
> sigma=31. ; whatever you want- make it odd though
>
> ker=findgen(ker)-(ker-1)/2.
> ker=exp(-ker^2/(2.*sigma^2)) ; turn it into a gaussian
> ker/=total(ker) ; and normalize it
>
> ;convolve a and b with ker
>
> aconvol=convol(a,ker,/edge_truncate)
> bconvol=convol(b,ker,/edge_truncate)
>
> hope this helps
>
> chris

```

woops, sorry. I made a typo in defining ker. Replace

```

sigma=31. ; whatever you want- make it odd though
ker=findgen(ker)-(ker-1)/2.

```

with this:

```

sigma=30 ; width of gaussian, even or odd
n=8*sigma+1. ;gaussian goes to +/- 4 sigma
ker=findgen(n)-(n-1)/2.

```

The rest should work. By the way, if you want to check what happened to your spectrum afterwards, try this

```

plot,a
oplot,aconvol,linestyle=2

```