
Subject: Re: Convolving a vector with the 2nd derivative of a Gaussian
Posted by [MC](#) on Thu, 30 Dec 2010 06:09:01 GMT

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On Dec 30, 8:37 am, johan <j...@skvera.co.uk> wrote:

> I am trying to do something that must be straightforward but I don't
> seem to get my head around it.
>
> I have a vector, say
> A = [20, 20, 20, 21, 26, 48, 88, 105, 182, 182, 241, 245, 241, 182,
> 182, 105, 88, 48, 26, 21, 20, 20, 20]
>
> I want to convolve it with the 2nd derivative of a Gaussian with a
> sigma of 10.
>
> Is the CONVOL of IDL suitable and how do I construct the kernel?
>
> Help will be greatly appreciated.

The second derivative of $\exp((-x^2)/a)$ is

$-(2/a)\exp((-x^2)/a) + (4x^2/a^2)\exp((-x^2)/a)$

(if my basic calculus has not failed me).

You can make "x" by (say) $x = \text{findgen}(24) - 12$. the constant "a" in the above is given in Wikipedia (etc.) in terms of sigma -look it up.

Yes, convol works. I suggest that such basic IDL programming questions suggest you need to try the IDL tutorial. You really need to do this for yourself to start to understand functions and procedures.

Good luck.

MC
