Subject: Re: Smoothing Spline -- any existing efficient routines?
Posted by Neil B. on Mon, 16 Aug 2010 17:48:36 GMT
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On Aug 12, 9:53 am, Dave Poreh <d.po...@gmail.com> wrote:
> On Aug 12, 6:25 am, "Neil B." <neil.h.bh...@gmail.com> wrote:
>
>
>
>> Hi,
>
>> I am trying to find the continuum of various stellar spectra. The
>> noise of these spectra are fairly non-intrusive and there aren't many
>> outliers (spikes due to calibration errors etc.).
>
>> The arrays I am working with contain about 40000+ elements.
>
>> I want to essentially turn the spectra into some linear function, so I
>> can remove any curvature in the observed data.
>
>> I know of the procedure Spline_smooth (http://astro.uni-tuebingen.de/
>> software/idl/astrolib/math/spline_smooth.html). However, this
>> function as the restriction tag in its header suggests, is extremely
>> slow.... It takes about 40 minutes to process a 1000 element sub-
>> array. The speed issues in this program are due to the fact that it
>> does not use Cholesky Decomposition. Further more, when I try the
>> routine on the 40000 element array I receive an error message that
>> informs me that there are too many elements in the array...
>
>> Does anyone know of an efficient version of this routine.
>

This worked fairly well and ran very quickly. The only issue I found
is that it follows the absorptions a little too much. Perhaps this
just means I need to find the best parameters...

Thank you very much. This was a very fast routine!

>> Or is there a better way for determining the continuum of a spectrum?
>
>> Thanks very much in advance.
>
> You can use SAVGOL filter for smoothing. It is a built in function and
> quiet fast.
> From help:
> The SAVGOL function returns the coefficients of a Savitzky-Golay
> smoothing filter, which can then be applied using the CONVOL function.
> The Savitzky-Golay smoothing filter, also known as least squares or

> DISPO (digital smoothing polynomial), can be used to smooth a noisy
> signal.
> Cheers
> Dave
