Subject: Re: Smoothing Spline -- any existing efficient routines?
Posted by d.poreh on Thu, 12 Aug 2010 13:53:46 GMT
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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.
>
> 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