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Subject: Re: very fast spline interp function for heavy oversampling?

Posted by [R.G. Stockwell](#) on Wed, 21 Jun 2000 07:00:00 GMT

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Thanks Craig and Martin!

I've implemented the spl\_interp method and WOW, it is a factor of 36 faster than the SPLINE function call (for my program anyway).

So why doesn't the canned IDL routine spline.pro, just call these functions?

re: the "don't have time to do this" in my original message. I will be crunching

a lot of data tonight for a client, and one function call is a spline like this.

I did not want to add in my own untested coded immediately prior to this important crunching. This solution (spl\_interp) is great, it helps a whole lot! I may even be able to get to sleep tonight!

Cheers,  
bob

Craig Markwardt <craigmnet@cow.physics.wisc.edu> wrote in message news:onem5r10ay.fsf@cow.physics.wisc.edu...

>  
> "R.G. Stockwell" <stockwell@co-ra.comremove> writes:  
> snip  
>> Are there any user routines out there that can do this interpolation  
>> efficiently?  
>  
> I second Martin's suggestion. I went from SPLINE to SPL\_INTERP, and  
> never looked back. SPL\_INTERP is much faster, and appears to be less  
> prone to artifacts.  
>  
> Craig  
>  
> --  
> -----  
> Craig B. Markwardt, Ph.D.      EMAIL:   craigmnet@cow.physics.wisc.edu  
> Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response  
> -----

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Subject: Re: very fast spline interp function for heavy oversampling?

Posted by [Craig Markwardt](#) on Wed, 21 Jun 2000 07:00:00 GMT

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"R.G. Stockwell" <stockwell@co-ra.comremove> writes:

- > Greetings,
- >
- > I have a situation where I take a time series, and need to interpolate the
- > function to many more samples.
- > i.e. original time index = [1,2,3,4....10]
- > and I need samples at new time index =
- > [1.000,1.001,1.002.....9.999,10.000].
- >
- > The canned IDL routine spline() works great, but is slow. Unfortunately, I
- > don't have time to rewrite the interpolation to something more efficient.
- >
- > I don't want to use any linear scheme to interpolate, since I want a smooth
- > function (i.e. smooth "derivatives") around the data points. I would guess
- > that
- > it would be easy to efficiently calculate this interp with spline, perhaps
- > some vectorization could be put into the function. Or perhaps an
- > "upsample" function would work, but modifications would be needed as the
- > time series is not evenly sampled.
- >
- >
- > Are there any user routines out there that can do this interpolation
- > efficiently?

I second Martin's suggestion. I went from SPLINE to SPL\_INTERP, and never looked back. SPL\_INTERP is much faster, and appears to be less prone to artifacts.

Craig

--

-----  
Craig B. Markwardt, Ph.D.      EMAIL: [craigmnet@cow.physics.wisc.edu](mailto:craigmnet@cow.physics.wisc.edu)  
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response  
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Subject: Re: very fast spline interp function for heavy oversampling?

Posted by [pit](#) on Wed, 21 Jun 2000 07:00:00 GMT

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In article <7nS35.70\$482.44454@den-news1.rmi.net>,  
"R.G. Stockwell" <stockwell@co-ra.comremove> writes:

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You could try fourier interpolation by zero padding, i.e. calculating the FFT and insert zeroes (remember the ordering in the fft!) for the high frequency terms, then transform it back.

Peter

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~~~~~  
~~~~~

Dr. Peter "Pit" Suetterlin                    <http://www.astro.uu.nl/~suetter>  
Sterrenkundig Instituut Utrecht  
Tel.: +31 (0)30 253 5225                    [P.Suetterlin@astro.uu.nl](mailto:P.Suetterlin@astro.uu.nl)

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Subject: Re: very fast spline interp function for heavy oversampling?  
Posted by [Martin Schultz](#) on Wed, 21 Jun 2000 07:00:00 GMT  
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