Subject: Re: array dimensions and subscripts Posted by Craig Markwardt on Tue, 27 Apr 2004 15:06:36 GMT View Forum Message <> Reply to Message

Benjamin Hornberger

 denjamin.hornberger@stonybrook.edu> writes:

> Hi all,

- > I have a 3d data array A (n_columns, n_rows, n_data) where columns and
- > rows make up an image and for each pixel in the image I recorded n data
- > different data values.

- > Then I have a 1d array B with n_data entries, and I want to subtract B
- > from A such that for each element in A, the element from B in the
- > corresponding data channel is subtracted. Obviously, A-B won't work. I

This has been covered several times. A good place to start is JD's dimension juggling tutorial (http://www.dfanning.com/tips/rebin magic.html).

REBIN/REFORM, which is what you would need to do, is easy enough. However, it is also straightforward to use a FOR loop. In my own opinion, if you can do enough subtractions in a single FOR loop iteration, then it will be fast.

At that stage, it's up to you to decide which method is more elegant and maintainable.

Craig

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response

Subject: Re: array dimensions and subscripts Posted by David Fanning on Tue, 27 Apr 2004 15:07:18 GMT View Forum Message <> Reply to Message

Benjamin Hornberger writes:

- > I have a 3d data array A (n columns, n rows, n data) where columns and
- > rows make up an image and for each pixel in the image I recorded n_data
- > different data values.

> Then I have a 1d array B with n_data entries, and I want to subtract B

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> from A such that for each element in A, the element from B in the
> corresponding data channel is subtracted. Obviously, A-B won't work. I
> can imagine two ways:
>
> 1. For loop
> result = fltarr(n columns, n rows, n data) :: initialize
> for i=0, n_data-1 do results[*, *, i] = A[*, *, i] - B[i]
> 2. Blowing up B to 3d (which I can't manage to do without a for loop
> either)
> B1 = fltarr(n_column, n_rows, n_data)
> for i=0, n_data-1 do B1[*, *, i] = B[i]
> result = A - B1
>
> But these solutions don't seem very elegant and efficient to me. Is
> there any way to make it work with a single array operation using the *
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> subscript, or something similar?

While you are waiting for an answer, I'd browse the Dimensional Juggling Tutorial. I have a feeling it is going to be mentioned somewhere in the answer. :-)

http://www.dfanning.com/tips/rebin_magic.html

Cheers,

David

David Fanning, Ph.D. Fanning Software Consulting

Coyote's Guide to IDL Programming: http://www.dfanning.com/