
Subject: Re: Array has too many elements?

Posted by [JD Smith](#) on Mon, 22 Dec 2003 22:01:30 GMT

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On Mon, 22 Dec 2003 14:35:55 -0700, Jonathan Greenberg wrote:

> I'm working with a fuzzy set classifier I found an article on that
> subdivides a dataspace into subspaces of smaller and smaller divisions.
> So, for instance, if you have 2 attributes and 2 divisions per
> attribute, you have an array that has 2^2 elements. Most datasets
> really need about 25 subdivisions per attribute, and, say, 6 attributes
> to start getting good classification, so this problem blows up VERY
> quickly (e.g. 25^6 elements for the problem I just described). One of
> the issues is that I need to extract a maximum value from the 25^6
> array, which, it now looks like, i'll have to do in stages (e.g.
> subdivide the array into fixed size subsets, check each subset for max
> value and write to a new array, and then determine the max value for
> this new array). Doable, but obviously involves rewriting a lot of
> code.
>
> This, by the way, is why I brought up the supercomputer thread --
> manipulating arrays (even if I do get the programming bugs sorted out)
> of this size will be silly to do with a desktop PC. I hope IDL modifies
> how they deal with large arrays in the future -- since remote sensing
> images are getting bigger as the spatial, extent and spectral resolution
> gets higher, this problem is only going to get worse.

Hmmm, I'm not sure about your desktop PC, but that's only a .9GB
array... nothing to get bothered by:

```
IDL> big=randomu(sd,replicate(25L,6)) & print,size(big,/DIMENSIONS) & t=systime(1) &  
m=max(big,pos) & print,systime(1)-t & print,m,pos  
      25      25      25      25      25      25  
      1.7971461  
      1.000000  68392329
```

on a two-year old dual processor Athlon system with 1GB RAM. Give me
a fast new pair of processors and 4GB of RAM, and this would be a
cake-walk, as long as you're careful to keep extra copies of the array
to a minimum. If you're desperate for speed, MAX is easy to write in
C: just read in chunks at a time about the size of your memory and
loop through.

JD
