Subject: Re: In Praise of HISTOGRAM
Posted by G Karas on Fri, 12 Apr 2002 18:44:53 GMT
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that sounds very interesting david.
i have been busy with images and histograms
for a very long time now.. and sometimes IDL
crushes on me, because of 'out of memory' probs..

i will try your solution with this one, might help :)

thanks for the excellent tip!

"David Fanning" <david@dfanning.com> wrote in message
news:MPG.1720c0a738f663b898988a@news.frii.com...
> Folks,
>
> I used to think the WHERE function was pretty neat. But
> lately (I.e., this morning) I have become a convert and
> sing in praise of the HISTOGRAM function.
>
> I had as a task to compute a density plot from two
> images. This is a pixel-wise comparison in which the
> X axis contains the values of image 1 (0 to 255) and the Y axis
> contains the values of image 2 (0 to 255). The Z direction of the
> plot contains the number of times these two images have this same
> pair-wise relationship. In other words, if the pixel value of image 1
> is 10 and the pixel value of image 2 is 20, how many pixels are
> there that have 10 in image 1 and 20 in image 2.
>
> Because I had never done this before, I proceeded in my
> usual plodding way. My first attempt (which I thought was
> pretty slick) computed histograms of the two images and
> used reverse indices to obtain the indices of the images
> that contained a particular value. Then I did a set intersection
> between the two vectors of indices to find out how many were
> in common. This method took only 48 minutes on these rather
> large (2199 x 2380) images. :-(
>
> Oh, dear. I heard that ENVI did this sort of think almost
> instantaneously. Didn't *anyone* download that SAVE file
> cracker of Craig's!?
>
> My colleague, Dave Burridge, and I put our heads together.
> There must be a trick to be discovered here.
>
> Hang on a minute! What if we create an integer array, put
> one image in the low bits and the other image in the high

> bits. Won't each pixel have a unique number value? Then,
> what if we take a histogram of that? Won't that give us
> a vector of 2^16-1 values? And what if we reform that
> into the 256 by 256 array we are looking for?
>
> Wham, bam. Less than 0.3 seconds later there was the
> result! If that first time through hadn't have taken
> 48 minutes I wouldn't have believed it.
>
> I don't know if I've ever said this before, but I
> LOVE IDL!
>
> Cheers,
>
> David
>
> --
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