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

>

- > David W. Fanning, Ph.D.
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Subject: Re: In Praise of HISTOGRAM
Posted by David Fanning on Sat, 13 Apr 2002 13:43:45 GMT
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David Fanning (david@dfanning.com) was dumb enough to write the other day:

- > 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?

Uh, it was pointed out to me that HIST_2D was doing this since about 1938 or so. I feel a bit like Columbus re-discovering the New World. :-(

Cheers.

David

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