
Subject: Re: Variance in sub-sections?

Posted by [Alex Schuster](#) on Mon, 18 Feb 2002 15:41:45 GMT

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Joshua Nipper wrote:

> I have a 512x512 image, and I would like to calculate the mean/variance
> in a 3x3 neighborhood around every pixel. What would be the easiest way
> to do this w/out for loops?

For the mean, you can use `smooth()` : `m = smooth( img, 3 )`.

Or using `convol`:

`k = ( intarr( 3, 3 ) + 1 ) / 9.0` ; 3x3 kernel, all elements set to 1/9

`m = convol( img, k )`

The variance is $\text{total}((x_{\text{mean}} - x_i)^2) / n$, so just subtract the mean image, square all elements, and use `convol()` to sum up 3x3 local pixels around each element:

`v = convol( (img-m)^2, k )`

Alex

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