Subject: Re: coherence test implementation
Posted by eddie haskell on Thu, 13 May 1999 07:00:00 GMT
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Mark Rehbein wrote (paraphrased):
>
> I'm doing what some people call a coherence test.
> I have implemented this the following way:
>
> for y=1, lines-1 do begin
> for x=1, pixels-1 do begin
> matrix=ch4(x-1:x+1, y-1:y+1)
> stats=moment(matrix, sdev=sdev)
> sddevimage(x,y)=sdev
> endfor
> endfor
>
> Can the code be more efficient if I use array and matrix operations?

Mark,

I took a shot at it, tried a couple ideas, including reordering the original array into a [9,x] array (multiple elements where needed) and doing a stdev calculation on all the rows simultaneously. In addition to enlarging the original array by a factor of almost 9 (bad), it only seemed to slow things down (also bad).

If you only need the standard deviation of each submatrix, you can save a lot of time by only calculating that particular moment directly:

```
for y=1,lines-1 do for x=1,pixels-1 do begin
  matrix=ch4[x-1:x+1,y-1:y+1]
  n = n_elements(matrix)
   sddevimage[x,y]=sqrt(total((matrix-(total(matrix)/n))^2)/(n- 1))
endfor
```

When I tested this it ran 10x faster than the case using moment, which, whilst not what you asked for, is a significant speed increase.

Cheers,
eddie

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