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Subject: correlation matrix

Posted by [kevinlausten](#) on Wed, 11 Jun 2003 19:04:29 GMT

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I have written code to create the correlation matrix of a data cube, however, it seems to run slower than I would expect. I am I doing anything inefficiently?

```
for r = 0, (nrows-1) do begin
  for c = 0, (ncols-1) do begin
    ;sum = 0
    for bb = 0, (nbands-1) do begin
      ref(bb) = in_cube(bb, c, r)
      ; 'ref' equals 'back_cube' for all values of 'bb' at location
      ; (c, r)
    endfor
    ;print, ref
    temp = ref#transpose(ref)
    ; 'temp' equals the product of 'ref' and the transpose of 'ref'
    sum = sum + temp
    ; 'sum' is a running total of the value of 'temp' at location
    ; (c, r)
  endfor
endfor
final0 = fltarr(nbands, nbands)
; 'final0' is a floating point array of size (nbands, nbands)
n = npixels
; 'n' is a variable equal to 'npixels'
final0 = sum/n
; final0 is correlation matrix
Thanks
Kevin
```

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Subject: Re: correlation matrix

Posted by [Craig Markwardt](#) on Thu, 12 Jun 2003 01:18:09 GMT

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kevinlausten@hotmail.com (Kevin M. Lausten) writes:

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>       ref(bb) = in_cube(bb, c, r)
```

```
> ; 'ref' equals 'back_cube' for all values of 'bb' at location  
> ; (c, r)  
> endfor
```

Whatever the IN\_CUBE() is, it will be the limiting factor in your snippet, since it is in the innermost loop. If you can vectorize IN\_CUBE over BB then your routine should be faster.

Good luck,  
Craig

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Craig B. Markwardt, Ph.D.      EMAIL: [craigmnet@cow.physics.wisc.edu](mailto:craigmnet@cow.physics.wisc.edu)  
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response  
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