Subject: Re: Avoiding FOR loops (version googleplex.infinity)
Posted by Tom McGlynn on Wed, 09 Apr 2008 15:18:15 GMT
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On Apr 8, 5:41 am, Gaurav <selfishgau...@gmail.com> wrote:
> Unfortunately, Michael's method fails for my array which is quite
> large (it being an image). Some of the images are pretty massive (at
> around 10k by 10k pixels).
>
> I am still tring to make the best out of Jim's method which somehow
> makes use of Convolution and that is supposed to be good. I would love
> to hear more responses.
>
> Thank you,
>
> Gaurav

Dear Guarav,

One thing you might keep in mind is that there is nothing wrong or necessarily inefficent using for loops. You just need to make sure that you are doing enough within each loop to amortize the cost of interpreting the statements. E.g., for the very large images you are dealing with you might try something as simple as the little (largely untested) function below. I doubt it's optimal, but it's reasonably fast for 10Kx10k images (~20 seconds for a 5x5 box). I suspect that a cleverer algorithm would be able to use the memory cache more efficiently, but with 100 million comparisons per loop iteration for a 10K image, the loop overhead is not going to be an issue!

Regards,
Tom McGlynn

```
function comparebox, input, boxsize

  sz = size(input)
  if sz[0] ne 2 then begin
    print,'Input not 2-D array'
    return, 0
  endif

  nx = sz[1]
  ny = sz[2]

  if nx lt boxsize or ny lt boxsize then begin
    print,'Box too large for input'
  endif
```

```
  output = intarr(nx,ny)

  offset = boxsize/2
  for i=-offset,offset do begin
    mnx = 0      > (-i)
    mxx = (nx-1) < (nx-1-i)
    for j=-offset,offset do begin
      mny = 0      > (-j)
      mxy = (ny-1) < (ny-1-j)

      if (i ne 0 or j ne 0) then begin
          output(mnx:mxx,mny:mxy) = output(mnx:mxx,mny:mxy)+ $
              (input(mnx:mxx,mny:mxy) eq input(mnx+i:mxx+i, mny+j:mxy
+j))
      endif
    endfor
  endfor
  return, output
end
```