Subject: Re: faster convol on local subsets?
Posted by Yngvar Larsen on Tue, 06 Dec 2011 14:23:07 GMT
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On Dec 6, 12:17 am, Andre <note....@gmail.com> wrote:

> I did not yet find time to check the implementation that Yngvar
> suggested but tried http://idlastro.gsfc.nasa.gov/ftp/pro/image/convolve.pro
> which also implements convolution in the Fourier domain. Still its
> slower than the native IDL convolution.

This is not my experience. I typically got a speedup by a factor of
10-100 for some applications where the kernels are quite large.

> According to a comment in
> their code IDL 8.1 has a CONVOL_FFT() which seems worth a further try
> after I got the update.

I didn't know that. Thanks for the tip!

> Last I also tried to convolve at each position only with desired
> kernel. The code looks more or less like this
>
> m=half_kernel_size
> nc= number of columns of the input
> nr = number of rows of the input
>
> for i=m, nc - m-1 do begin
> for j=m, nr - m-1 do begin
> patch=img[i-m:i+m, j-m:j+m]
> kernel=kernel_store[*,*, (max_loc[i,j])]
> temp = convol(patch, kernel])
> response[i,j] = temp[m, m]
> endfor
> endfor

You are calculating the 2D convolution of PATCH and KERNEL, and then
picking out only one element. You could try to calculate this element
by hand, which should be a linear operation.

What is the typical dimension of KERNEL_STORE?

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Yngvar