
Subject: Re: array convol optimizationv slow now
Posted by [David Fanning](#) on Mon, 13 Jul 2009 22:57:17 GMT
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newerjazz writes:

> I have an array of [2,100,000,000] corresponding to x, y and
> 100,000,000 particles. I need to render these particles as gaussian
> spots at x, y locations
>
> Currently, I run a for loop through each particle and render each
> particle in this for loop; it takes forever.

Not to mention it probably takes a display screen
the size of a city block to render the mess in
the kind of resolution that allows you to actually
make something of it.

Have you tried plotting a few hundred (maybe even
a few thousand) random points to see if you can draw
the same conclusions you were drawing by plotting all
the points?

Cheers,

David

--

David Fanning, Ph.D.
Coyote's Guide to IDL Programming (www.dfanning.com)
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: array convol optimizationv slow now
Posted by [newerjazz](#) on Mon, 13 Jul 2009 23:10:15 GMT
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Thanks David,

each particle is a single molecule of protein; we need to visualize
all the proteins to get meaningful interpretation.

i can look at 1/10 of the particles by reducing the field of view but
it's still slow.

do you have any suggestions of getting the x,y locations on the image
w/ an array operation instead of a for loop?

Thanks!

newerjazz

On Jul 13, 3:57 pm, David Fanning <n...@dfanning.com> wrote:

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>> 100,000,000 particles. I need to render these particles as gaussian
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Subject: Re: array convol optimizationv slow now

Posted by [David Fanning](#) on Mon, 13 Jul 2009 23:26:02 GMT

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newerjazz writes:

> each particle is a single molecule of protein; we need to visualize
> all the proteins to get meaningful interpretation.

How does that work? If I put 100 million dots on my screen, things
get a little blurry. (Of course, my eyes aren't what they used to
be, admittedly.)

> do you have any suggestions of getting the x,y locations on the image
> w/ an array operation instead of a for loop?

No, I can't think of any way to do this an an array. :-(

Cheers,

David

--

David Fanning, Ph.D.

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Subject: Re: array convol optimizationv slow now

Posted by [Chris\[6\]](#) on Mon, 13 Jul 2009 23:53:53 GMT

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On Jul 13, 1:26 pm, David Fanning <n...@dfanning.com> wrote:

> newerjazz writes:

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>> all the proteins to get meaningful interpretation.

>

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>> w/ an array operation instead of a for loop?

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> Cheers,

>

> David

> --

> David Fanning, Ph.D.

> Coyote's Guide to IDL Programming (www.dfanning.com)

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I've written a routine called densitymap which makes smoothed surface density maps based on the position of 2d sources. You might want to check it out (it has been moderately debugged)

<http://www.ifa.hawaii.edu/users/beaumont/code/>

It uses a different smoothing scheme (it uses the distance to each pixel's n-th nearest neighbor to estimate the surface density).

If you use it, you should probably download the IDL astronomy user's

library, as well as

http://www.ifa.hawaii.edu/~beaumont/code/beaumont_library.tar
to avoid dependency issues.

Otherwise, you could use `hist_2d` to pixellate the locations of each point, and then convolve the histogram with a gaussian

Chris

Subject: Re: array convol optimizationv slow now
Posted by [newerjazz](#) on Tue, 14 Jul 2009 15:31:15 GMT
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Thanks Chris,

I will try `hist_2d` to see if it helps.

Dave, we know the x,y position down to subpixel resolution; so instead of say plotting particles on a 512x512 grid; we plot it on 5120x5120 grid (if our resolution is 1/10 of a pixel). In practice our resolution is down to 1/100th of a pixel. Depending on how many particles are packed into a pixel or a voxel since I actually have z resolution too; the image can look either sharp or blur.

cheers,
newerjazz

On Jul 13, 4:53 pm, Chris <beaum...@ifa.hawaii.edu> wrote:

> On Jul 13, 1:26 pm, David Fanning <n...@dfanning.com> wrote:

>

>

>

>> newerjazz writes:

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> point, and then convolve the histogram with a gaussian
>
> Chris
