Subject: Re: IDLy approach to splatting points on a grid?
Posted by MarioIncandenza on Fri, 24 Nov 2006 18:52:18 GMT
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Jonathan,

This problem sounds worth some attention. I'm missing a few details, so I hope I don't obfuscate the thread. I am going to assume that 1) your problem actually is 2-D, and 2) you really want square windows (not radii? really?), and 3) each particle has BOTH a radius of influence AND a value it contributes. These assumptions are probably wrong, but...

I generally brainstorm these with the following thought experiment:

"If memory was no limitation, how would I solve the problem?"

In this case, like this:

```
particle_x; particle x-coords
particle_y; particle y-coords
particle_r; particle size of window (R=2 => 5x5)
particle_v; particle values
n_particles=n_elements(particle_r); number of particles
nx_grid; x-dim of grid
ny_grid; y-dim of grid
;make HUGE arrays
big_x = rebin(lindgen(nx_grid),nx_grid,ny_grid,n_particles)
offset_x = temporary(big_x) - $
            rebin(particle_x,nx_grid,ny_grid,n_particles)
big_y =  rebin(transpose(lindgen(ny_grid)),nx_grid,ny_grid,n_particle s)
offset_y = temporary(big_y) - $
            rebin(transpose(particle_y),nx_grid,ny_grid,n_particles)
 big_r=rebin(reform(particle_r,[1,1,n_particles]),nx_grid,ny_ grid,n_particles)
 big_v=rebin(reform(particle_v,[1,1,n_particles]),nx_grid,ny_ grid,n_particles)
; Make a binary array of "influenced' cells;
yesno = (offset_x le big_r) * (offset_y le big_r)
; That's easy to modify to use radii instead
answer= yesno * big_v
```

Obviously, memory limitations present a problem. But if you looped the problem over values of R or V, you need only 3 giant arrays, and if you chunked the problem according to what you could fit in memory, I expect you could get something acceptably fast.

I'd like to see how this gets resolved. We all need more practice with REBIN/REFORM magic.

Good luck,

Edward H.