Subject: Re: Radon parameters
Posted by Timm Weitkamp on Tue, 27 Jul 2004 07:30:11 GMT
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On 26.07.04 at 18:28 +0100, Tim Yates wrote:

> Dear all,
>
> This sort of question has come along before, but I'm still not able to give
> the correct parameters to the RADON function.
>
> The situation is as follows. I have 73 experimentally obtained projections
> of an object, each 193 by 193 pixels. This should give me 193 sinograms,
> each 193 by 73 pixels. For each sinogram, I wish to produce a
> backprojection, and I can do this using the obsolete RIEMANN command, but
> I'd like to do so with the RADON function eg,
>
> IDL> bp = RADON(/backprojection, sinogram, THETA=theta, RHO=rho)
>
> The 73 projections were taken over an angular range -70 degrees to +74
> degrees, with 2 degree increments. I am thus setting 'theta' using,
>
> IDL> theta=(2*FINDGEN(73) - 70) * !DTOR
>
> But, what of rho? I think that this should be a vector of 73 elements, but I
> can't fathom the rationale behind how it should be formed. RADON reports
> that "ARRAY, RHO, or THETA dimensions are incompatible", and I'm pretty sure
> the RHO's to blame.

Tim,

rho should be a named vector with as many elements as there are pixels in each (1D) projection. Thus, if the sinograms are centered around the axis of rotation, then you should set rho to (FINDGEN(193) - 192 / 2.0) (otherwise you may apply an offset to this that allows for the eccentricity).

The number of elements of rho can be one of the reasons for the error message you receive; another might be the dimension ordering of the sinogram. Sinograms passed to RADON should have the dimensions [<no of pixels>, <no of projections>]. Thus, if the error persists, try backprojecting TRANPOSE(sinogram) instead of sinogram.

Hope this helps,

Timm

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