Subject: Re: Radon forward projection problem
Posted by Vontobel Peter on Wed, 23 Apr 2008 07:42:07 GMT
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On 22 Apr., 17:07, Wox <nom...@hotmail.com> wrote:
> Hi All,
>
> I'm trying to implement an alternative for the FBP(filtered
> backprojection) method for reconstructing objects measured in
> tomography experiments. It's supposed to give less noisy tomograms.
>
> Anyway, it's called OSEM and it's some iterative procedure using
> forward and backward projection until the real sinogram and the
> calculated sinogram are close.
>
> For the projection, I use IDL's radon function. But I noticed
> something strange with the forward projection. Try the code below. It
> calculates the sinogram of a tomogram which is an image with all
> pixels equal to 1. If you look at the result, something strange is
> going on in the corners of the sinogram image. Does anyone know what
> causes it and whether it is an intrinsic radon transform problem?
>
> I would like to get rid of it, because this "estsinogram" is
> calculated in each iteration of the OSEM (only in the first iteration
> on an image with 1's) and used to normalize the measured sinogram
> before adapting the tomogram. The resulting tomogram has some
> artifacts because of it.
>
> Thanks in advance,
>
> Wout
>
> pro test
> ; Detector
> N=80
> projcen=(N-1)/2.
>
> ; Angles
> anglestart=0.
> anglerange=180.
> NAngles=anglerange/2.
>
> angleinc=anglerange/(NAngles-1)
> angles=anglestart+angleinc*findgen(NAngles)
> angles*=!pi/180
>
> ; Reconstructing an object with 1's
> tomogram=replicate(1.,N,N)

> estsinogram=radon(tomogram,theta=angles,xmin=-projcen,RMIN=-projcen,drho=1,NRHO=N,/LINEAR)
>
> loadct,0
> window
> tvscl,not bytscl(rebin(estsinogram,NAngles*3,N*3,/sample))
> end

Hi

please compare your sinogram with the following:

estsinogram=radon(tomogram,rho=rho,theta=theta,ntheta=nangle s)

compare the rho and theta values and read the IDL radon help pages.

HTH

Peter
