Subject: Re: Rotate volumes
Posted by Martin Downing on Mon, 17 Sep 2001 09:28:25 GMT
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Ouch - that code caused rather a large amount of memory to be used for your
256 cubes - try this which allows you to break the job into feasible chunks
A 64cube takes 0.6sec, but 256cube takes 50sec per transform on my laptop
though (which is not good as the inner function of a registration!!!! :(

good luck anyhow

Martin

```
===============
function transform_image3d, image, rotation = rot, $
    scale=scale,translate=translate, centre_rot=centre_rot, chunks=chunks,$
    t3dmat=t3dmat
; transform a 3d image volume
 s = size(image)
 sx=s(1) & sy=s(2) & sz=s(3)
 st = sx*sy*sz
 imageT = image
 ; get transform matrix
 if undefined(t3dmat) then begin
  if undefined(rot) then rot =[0,0,0]
  if undefined(centre_rot) then $
     centre_rot=[(sx-1)/2.0,(sy-1)/2.0,(sz-1)/2.0]
  if undefined(translate) then translate =[0,0,0]
  if undefined(scale) then scale =[1,1,1]
  t3d, /reset,trans= -centre_rot
  t3d, rot=rot, trans= centre_rot + translate, scale=scale
  t3dmat = !p.t
 endif
 ; do transformation
 if undefined(chunks) then chunks =1
 iter = st/chunks
 for i0 = 0L, (st-1), iter do begin
  ; account for possible odd last chunk
  bufsize = iter < (st-i0)
  ;generate image coordinates
  i = i0+lindgen(bufsize) ; temp array = vector indices
  coords = [ [(i mod sx)],[((i / sx) mod (sy))],$
               [(i /(sx*sy))],[replicate(1b, bufsize)]]
  coords = (coords#t3dmat)
  imageT[i0:i0+bufsize-1] = interpolate(image, coords(*,0), coords(*,1),$
       coords(*,2), missing=0)
 endfor
 return, imageT
```

```
end

pro test,s, rot=rot, chunks=chunks

if undefined(s) then s = 256
if undefined(chunks) then chunks = 32
if undefined(rot) then rot = [20,10,45]
vol = rebin(bytscl(dist(s,s)),s,s,s, /sample)
t0= systime(1)
vol = transform_image3d(vol, rot = rot, chunks=chunks)
t1= systime(1)
print, "done in ", t1-t0, " sec"
; Display volume:
XVOLUME, vol

end
==================================
```

---

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"Martin Downing" <martin.downing@ntlworld.com> wrote in message
news:Aabp7.24911$Pm5.5585206@news2-win.server.ntlworld.com.. .

```
>  Hi Bob,
>  Is this code any help or have I missed the point?
>
>  ========================================
>  function transform_image3d, im, rotation = rot,
>  scale=scale,translate=translate, centre_rot=centre_rot
>  ; translate an image volume using interplote
>  s = size(im)
>  ; for clarity:
>  sx=s(1)
>  sy=s(2)
>  sz=s(3)
>  if undefined(rot) then rot =[0,0,0]
>  if undefined(centre_rot) then centre_rot
=[(sx-1)/2.0,(sy-1)/2.0,(sz-1)/2.0]
[cut]
```