Subject: Re: MIP routine
Posted by phil on Wed, 27 Sep 1995 07:00:00 GMT
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In article <44bl6f$20n@usenet.INS.CWRU.Edu> miller@amber.uh.cwru.edu (David A. Miller) writes:

> Does anyone know of a routine in IDL that will allow the user to do a maximum intensity projection of a
> 3-D data set? I have not been able to find anything using IDL help, although I may not be looking for the
> right routine name. Any insight in this area would be greatly appreciated.
>

Dave,

I have written just such a routine and it follows below.

```
function mip,steps,images,id=id
;+
; NAME: MIP
;
;
; PURPOSE:
;     Performs a maximum intensity projection on a given 3D volume
;
; CATEGORY:
;     Image processing.
;
; CALLING SEQUENCE:
;     Result = mip(steps, images [,id = id])
;
; INPUTS:
;     steps: Number of rotations to perform from 0->180 degress.
;    images: The 3D volume to perform the mip upon
;
; KEYWORD PARAMETERS:
;        id: The id of a text widget to send informational statements
;            This is to allow compatiblity with widget calls to mip.
;            If not specified statements are sent to the IDL window.
;
; OUTPUTS: none
;
; COMMON BLOCKS: none
;
; SIDE EFFECTS: A call to ROT is issued to perform the rotations.
;
; RESTRICTIONS: images must be a 3D stack.
```

```
;
; PROCEDURE:
;       Rotates each slice of volume and the perform the MIP algorithm.
;
; EXAMPLE:
;       Straightforward
;
; MODIFICATION HISTORY:
;       Version 1.0 Created by Phil Williams 5/15/95
;-

info = size(images)
rows = info(1) & cols = info(2) & imgs = info(3)
rot_images = intarr(rows,cols,imgs)
temp = intarr(cols,imgs,rows)
mip1 = intarr(cols,imgs)
mips = intarr(cols,imgs,steps)

;perform the rotation!
delta_angle = 180./float(steps)
for a = 0,steps-1 do begin
  angle = delta_angle*float(a)
  if Keyword_set(id) then begin
    widget_control,id,set_value = "Angle: "+strcompress(angle)
  endif else begin
    print,'Angle: ',angle
  endelse
  for i = 0,imgs-1 do begin
    if Keyword_set(id) then begin
      widget_control,id,set_value = 'Rotating slice:'+strcompress(i)
    endif else begin
      print,'rotating slice',i
    endelse
    rot_images(*,*,i) = rot(images(*,*,i),angle,missing=0)
  endfor

  if Keyword_set(id) then begin
    widget_control,id,set_value = 'Performing mip'
  endif else begin
    print,'Performing mip'
  endelse
  for i=0,rows-1 do begin
    j=0
    for k=0,imgs-1 do begin
      temp(*,j,i)=rot_images(*,i,k) ;use images here to get original mip!
      j=j+1
    endfor
  endfor
```

```
  for j=0,cols-1 do begin
    for k=0,imgs-1 do begin
      mip1(j,k)=max(temp(j,k,*))
    endfor
  endfor
  mips(*,*,a) = mip1
endfor
return,mips
end

;--------end
```

Hope this helps. Let me know if you have any problems.

Phil
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/** ****************/
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