Subject: Re: histogram 3D
Posted by Dick Jackson on Wed, 23 Nov 2016 20:00:34 GMT
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On Wednesday, 23 November 2016 05:42:05 UTC-8, fvel...@gmail.com wrote:
> Dear:
> I love programing in IDL, and I would like to plot a 3D histogram like this
> http://cloud.originlab.com/www/resources/graph_gallery/images_galleries_new/3DBarsWithZColorMap_opengl.png
>
> do you think is it possible? Some suggestions for starting?
> Thanks guys
> Fher

Hi Fher,

Yes, I think it's possible, and not terribly difficult. Here's a start:

```
PRO Histogram3DDisplay

n = 10
w = 1 ; 0.9999

oAxes = ObjArr(3)
oBoxes = ObjArr(n, n)
oFrames = ObjArr(n, n)

FOR axisI=0, 2 DO oAxes[axisI] = IDLgrAxis(axisI, RANGE=[0, n])

; Connectivity list for a rectangular solid:
poly =  [4,0,1,5,4,4,1,2,6,5,4,2,3,7,6,4,3,0,4,7,4,3,2,1,0,4,4,5,6,7 ]

FOR x=0, n-1 DO FOR y=0, n-1 DO BEGIN

  z = RandomU(seed) * n
  color = [RandomU(seed)*256, RandomU(seed)*256, RandomU(seed)*256]

  verts = [[x+w,y+w,0],[x,y+w,0],[x,y,0],[x+w,y,0], $ ; Bottom face
          [x+w,y+w,z],[x,y+w,z],[x,y,z],[x+w,y,z]]   ; Top face
  oBoxes[x, y] = IDLgrPolygon(verts, POLYGONS=poly, ALPHA_CHANNEL=0.75, $
                          COLOR=color)
  oFrames[x, y] = IDLgrPolygon(verts, POLYGONS=poly, STYLE=1)
ENDFOR

; Default colorbar has x size of 24, y size of 256
oColorbar = Obj_New('IDLgrColorbar', /SHOW_OUTLINE, /SHOW_AXIS, /THREED)
oColorbarModel = IDLgrModel()
oColorbarModel.Add, oColorbar
```

```
oColorbarModel.Scale, n/256., n/256., n/256. ; Scale to match plot size
oColorbarModel.Translate, n*1.5, 0, 0        ; Shift to right of plot

XObjView, [oAxes, oBoxes[*], oFrames[*]], STATIONARY=oColorbarModel

END

; Notes:
;
; I find that I have to click the window to get the display to draw
; (might be just on my setup).
;
; If you change window size, click the Reset button in the toolbar to set
; display axes right.
;
; Do View:Set Drag Quality:High for full-motion goodness.
;
; Note that the semi-transparency looks better from some angles than others,
; due to how transparency rendering is handled (don't be surprised if some
; old-timers chime in, saying something about pimentos). Reordering the faces
; in the 'polygons' array could solve this for viewing from a particular
; segment of space.
;
; Change 'w' from 1 to 0.9999 to avoid some artifacts of rendering coplanar
; faces.
;
; Using a colortable with XObjView is tricky: it's stationary, but it's part
; of the scene, so scene rotation is not centered on the plot.
;
; Dick Jackson, www.d-jackson.com
```

Check up on IDLgrColorbar and the TICKTEXT property of IDLgrAxis for more of what you see in that image you referred to.

I was going to suggest starting a Plot3D window (newer Function Graphics), then adding the coloured boxes into that, but I couldn't track down how to add them to the *data* space of that graphic. (Can anyone help here? Might this result in better rendering?) To add things into a Function Graphics *window* (which won't let you rotate them, etc.), you can do:

```
IDL> myPlot = Plot3D()
IDL> myPlotWindow = myPlot.Window
IDL> myPlotWindow, Add, <models, objects, etc.>
```

... or see examples here:
http://www.harrisgeospatial.com/Company/PressRoom/Blogs/IDLDataPointDetail/TabId/902/ArtMID/2926/ArticleID/14264/Combining-Object-Graphics-and-New-Graphics.aspx

Hope this helps!
-Dick

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