Subject: Re: find a plane in a 3D plot
Posted by Wox on Fri, 12 Sep 2008 14:47:18 GMT
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On Fri, 12 Sep 2008 02:54:09 -0700 (PDT), Nicola
<nicola.vianello@gmail.com> wrote:

> I have to find a
> way to identify this plane and the direction perpendicular to this
> plane in the more accurate way as possible.

The code below is one way of doing things. The resulting plane is
defined with a normal vector and a point.

```
pro test
x=[1.,0,1,2,3,4]
y=[0.,1,1,2,3,4]
z=[2.,2,2,2,2,2]

; Orthogonal distance regression
; check e.g. http://mathforum.org/library/drmath/view/63765.html

; Centroid: orthogonal distance
; regression plane goes through it
n=n_elements(x)
data=transpose([[x],[y],[z]])
centroid=total(data,2)/n

data[0,*]-=centroid[0]
data[1,*]-=centroid[1]
data[2,*]-=centroid[2]

SVDC, data, W, U, V

smallest_singularvalue=min(W,ind)
plane_normal=reform(V[ind,*])

print,'Orthogonal distance regression plane'
print,'1. goes through: ',centroid
print,'2. has normal: ',plane_normal
end;pro test
```