
Subject: Fitting an ellipsoid with MPFITEXPR
Posted by [johan\[1\]](#) on Fri, 07 Jan 2011 23:53:52 GMT
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I need to fit an ellipsoid to data acquired. I was thinking of using the mpfit routines and have the following:

By supplying the eigenvalues and eigenvectors I generate the ellipsoid with the following function:

```
*****  
*****
```

```
function Ellipsoid, evals, evec
```

```
no_prof_lat = 24  
no_prof_lon = 32
```

```
u = indgen(no_prof_lon)*2*!pi/(no_prof_lon-1)  
v = indgen(no_prof_lat)*!pi/(no_prof_lat-1)-!pi/2
```

```
x = evals[0]*transpose(sin(u)#cos(v))  
y = evals[1]*transpose(cos(u)#cos(v))  
z = evals[2]*replicate_array(sin(v),no_prof_lon)
```

```
return, evec # transpose([[x[*]], [y[*]], [z[*]]])
```

```
end
```

```
*****  
*****
```

I created the following calling routine:

```
*****  
*****
```

```
pro fit_ellipsoid
```

```
restore, 'points.dat' ; a (3,768) array of extracted points
```

```
x = findgen(768)*(70./768)  
y = findgen(768)*(66./768)  
z = findgen(768)*(100./768)
```

```
XVal = transpose([[x],[y],[z]])
```

```
evals = [71.1, 66.1, 100.2]
```

```
evec = [  
        $  
        [-0.07, -0.10, 0.99], $  
        [-0.43, -0.90, -0.12], $
```

```
[ 0.90, -0.44, 0.03]]
```

```
expr = 'Ellipsoid(X, P[0:1])'
```

```
; Cannot concatenate
```

```
start = [evals, evec]
```

```
result = MPFITEXPR(expr, XVal, extracted_points, 1, start)
```

```
end
```

```
*****
```

```
*****
```

The problem with this routine is that I cannot concatenate the start values into a single array, maybe I on the wrong track in specifying the start values?

The other question is whether the routine MPFITEXPR is really suited for this problem? I do not have dependent and independent values and created the XVal to act as the independent values but it seems a bit superficial to me.

Am I on a wild goose chase or can this work?
