Subject: Re: mpfit: multivariate fit
Posted by Dave[3] on Tue, 08 May 2007 14:23:57 GMT
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Thanks hradilv, that does help. I also found that I could get it to work if I expand the dimensions and make everything a vector prior to fitting. I'd be interested in knowing from Craig if your fix is ok as I greatly prefer it to the fiddling below.

```
function trans, K, X=x, Y=y, err=err, forward=fw

  kk = reform(K, 3, n_elements(k)/3)
  xx = reform(x, 3, n_elements(x)/3)

  model = KK # xx

  model = reform(model, n_elements(model))

  if keyword_set(fw) then return, model else return, (y-model)/err
end

; MAIN

; Attempt to estimate the transformation matrix given a set
; of observed cartesian vectors and a set of known cartesian
; vectors.

n = 1000 ; number of 'observations'

v = [1.0d, 0.15, 0.5] ; template vector
xyz_obs = dblarr(3,n) ; observations
for i=0, n-1 do $
  xyz_obs[*,i] = v+0.01*randomn(seed,3)

xyz_known = dblarr(3,n) ; known values (trivial scaling)
for i=0, n-1 do $
  xyz_known[*,i] = v*2.0d

; Estimate the transformation matrix, T
T0 = identity(3, /DOUBLE) ; initial guess transformation matrix
f = {x: reform(xyz_obs,3*n), $
     y: reform(xyz_known,3*n), $
     err: 0.01}
T = mpfit('trans', reform(T0,3*3), functargs=f, COVAR=S2, /NOCATCH)
T = reform(T, 3, 3)

; Residuals
res = trans(reform(T,3*3), X=reform(xyz_obs,3*n), /FORWARD) - $
```

```
  reform(xyz_known,3*n)

T_known = identity(3) * 2.0d
res_known = trans(reform(T_known,3*3), X=reform(xyz_obs,3*n), /
FORWARD) - $
  reform(xyz_known,3*n)
```
