
Subject: Re: xerr

Posted by [laxsri](#) on Thu, 18 Dec 2008 19:51:12 GMT

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Thanks all!

I shall look up the orthogonal regression Wox...I guess, I thought this would have been implemented in IDL by somebody! (yea...lazy too)!

Good day

Lakshmi

On Dec 18, 9:35 pm, Wox <s...@nomail.com> wrote:

> On Wed, 17 Dec 2008 12:27:59 -0800 (PST), lakshmi <lax...@gmail.com>

> wrote:

>

>> I've been using mpfitfun to fit measured values of period (y) and

>> distances (x) in a linear equation $y = a + bx$.

>> I would like to know if we can include the measured uncertainties in x

>> values too?

>

> What you're looking for is called "Total least squares" or "orthogonal

> regression". Here is a reference + code you can use, translate to IDL

> and hopefully share it with use :-).

>

> Article:<http://www.iop.org/EJ/abstract/0957-0233/18/11/025>

> Matlab (off course) code:<http://www.mathworks.com/matlabcentral/fileexchange/17466>

>

> It uses the method of the Lagrange Multipliers, so it should be

> possible to add constraints to the slope and intercept.

>

> If you're lazy: here's a simple code (not tested and without

> calculating errors) using info from <http://mathforum.org/library/drmath/view/63765.html>. Change

> fixintercept to 1 when you want to fix the intercept.

>

> pro odr

> n=100

> x=findgen(n)+RANDOMN(seed,n)

> rico=1.2

> intercept=3

> fixintercept=0b

> y=rico*x+intercept+RANDOMN(seed,n)

>

> print,'Rico:',rico

> print,'Intercept:',intercept

>

> ; Centroid: orthogonal distance

```
> ; regression line goes through it
> n=n_elements(x)
> data=transpose([[x],[y]])
> centroid=total(data,2)/n
>
> ; Optional: Fix intercept
> if fixintercept then centroid=[0,intercept]
>
> data[0,*]-=centroid[0]
> data[1,*]-=centroid[1]
>
> SVDC, data, W, U, V
>
> smallest_singularvalue=min(W,ind)
> normal=reform(V[ind,*])
>
> rico=-normal[0]/normal[1]
> intercept=-rico*centroid[0]+centroid[1]
>
> print,'ODR...'
> print,'Rico:',rico
> print,'Intercept:',intercept
>
> window
> plot,x,y,psym=1
> oplot,x,rico*x+intercept
> end
```
