
Subject: Re: How to calculate the abscissa values for the given vertical values
Posted by duxiyu@gmail.com on Tue, 06 Oct 2009 07:55:04 GMT
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On Oct 5, 6:26 pm, "Jean H." <jghas...@DELTHIS.ucalgary.ANDTHIS.ca> wrote:

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> dux...@gmail.com wrote:
>> Y is a time series and X is the sampling time.
>> Both X and Y are discrete.
>> I don't know the analytical form of the relation bewteen X and Y.
>
>> To get the vertical value NY for a given time NX, I can use 'NY =
>> interpoly(Y, X NX)'.
>> Similarly, I want to get the correspondent time CX for a fixed
>> vertical value CY.
>> But the values of correspondent time are not unique. CX should be not
>> a scalar but an array.
>> So I cannot use 'CX = interpoly(X, Y, CY)' to get these values.
>
> You may do it by hand...
>
> x = findgen(1000)/1000*4*pi
> y = cos(x)
>
> Ytarget = 0
>
> ;Find the 2 consecutive points that are > and < of the Y threshold value
> ;(don't forget to deal where a point = the value)
>
> Xidx = where((y gt Ytarget and shift(y,1) lt Ytarget) or (y lt Ytarget
> and shift(y,1) gt Ytarget), count)
>
> then you can do a linear interpolation to find Xsolution
>
> ;y = ax+b
> a = (y[xidx] - y[xidx+1]) / (x[xidx] - x[xidx+1])
> b = y[xidx]-a*x[xidx]
> Xsolution = (yTarget - b)/a
>
> Jean
```

Thank you very much! ^_^
