
Subject: Re: polynomial fitting constrained to be non-decreasing

Posted by [Russell Ryan](#) on Tue, 21 Aug 2012 14:07:53 GMT

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On Monday, August 20, 2012 3:57:15 PM UTC-4, nata wrote:

> Hi All,

>

>

>

> I need an algorithm for polynomial fitting constrained to be non-decreasing. The idea is to have a polynomial expression fitting a set of points where its derivative is always positive.

>

>

>

> I found some information on the web but I would like to know if you have some code or ideas of how to implement that easily.

>

> Thank you for your help,

>

>

>

> nata

Hi N,

Have a look at `constrained_min.pro` distributed with IDL. The example they give is fitting a 4th order polynomial with constraints. It sounds like you've only got one constraint, and that the first derivative is ≥ 0 ?

-Russell

Subject: Re: polynomial fitting constrained to be non-decreasing

Posted by [natha](#) on Tue, 21 Aug 2012 14:43:30 GMT

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I don't think that the Generalized Reduced Gradient Method will solve the problem correctly... It seems to me that a least-square polynomial "criterion" is required in order to get a good fit. Otherwise, the constraints will be respected but the final solution won't be the best one.

The best algorithm I have found is explained here:

<http://www.jstor.org/stable/2984333>

My poor mathematical background is not helping much... Anyway, any help will be appreciated,

nata
