Re: Need help with method of least squares

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- *From*: toni.lassila@xxxxxxxxx

- *Date*: Tue, 5 Aug 2008 01:11:30 −0700 (PDT)

On Aug 5, 3:17 am, pereges <Brol...@xxxxxxxxx> wrote:

> Ok, I'm from computer science and I really don't understand this part.
> Linear least squares require that you take the square of difference
> between right and left hand sides of every equation and then sum it
> up, and then find the minimum of the function. If there are two
> unknowns x and y then you find the partial derivative of this function
> with respect to x first to find value of x and then with respect to y
> to find out the value of y. But in my case my unknowns are partial
> derivatives themselves. So how to differentiate ??

You have an unknown 2x2 matrix, call it X, and three linear systems
of the type X u_i = v_i, i=1,2,3 where the vectors u_i and v_i are
known. Compile these vectors as column vectors of two 2x6 matrices,
call them U and V. Then you have six equations, which can be given
in matrix form as X U = V. Multiply from the right with U' and get
X (UU') = VU'. This is the normal equation for the least−squares
problem and can be solved uniquely if U has full row rank. Solve for
each row of X in turn.
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