

## Re: Best Method of Combining estimates

**Source:** <http://sci.tech-archive.net/Archive/sci.math.num-analysis/2004-12/0025.html>

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**Date:** 11/23/04

Date: Tue, 23 Nov 2004 12:30:16 +0000 (UTC)

In article <11783d36.0411230026.796ccbd3@posting.google.com>,

jon@pidham.vispa.com (Jonathon) writes:

>I posted this at sci.math, and got no answers. Maybe it is too  
>applied. Can anyone here help?

>

>

>I have inherited a processing scheme that looks for features of a  
>certain size in an image. This is done by applying a series of  
>filters, each of which has a maximum output at a certain feature size  
>and whose output drops off at bigger and smaller sizes. At present,  
>size detection is carried out by simply selecting the filter with the  
>greatest output.

>

>The outputs of the filters are fairly smooth, and overlap  
>significantly. The outputs are proportional to image contrast, which  
>can vary significantly from image to image.

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>I would like to try to get a bit more accuracy from the existing  
>processing scheme. I thought of some method of looking at the ratios  
>of the output of the 'maximum' filter to those of the filters on  
>either side. This gives me two numbers that should allow some form of  
>'interpolation' for a more accurate result.

>

>I could run the filters with features of different lengths and get  
>enough information for a 2-D lookup table for each filter (1-D for the  
>ones at the ends), but I can't help thinking that first, there should  
>be a more elegant (and storage-efficient) way of doing this; second,  
>it might be useful to be able to extend the scheme to more than just  
>the ones either side, and that would mean a many-D lookup table; and  
>third, someone must have done this before.

>

>Does anyone have any suggestions, references, links, hints, etc?

>

>Thanks in advance,

>

>Jon

sci.math.num-analysis: Re: Best Method of Combining estimates

sounds as if a least squares fit using radial basis functions and a variable number of nodes (until the fit is sufficiently good) should be the right way to go. the problem is that variable peak position makes this a nonlinear fit which may be nasty, but this depends on the data. codes for interpolation with radial basis functions is in <http://www.netlib.org/toms/660> and .../790 but there seems to be no fit program ready for use  
hth  
peter