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Subject: Re: A Contour Tracking Problem  
Posted by [jgrimmond](#) on Tue, 08 Jun 2010 04:20:24 GMT  
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On Wed, 2 Jun 2010 06:56:36 -0700 (PDT), Chip Eastham  
<[hardmath@gmail.com](mailto:hardmath@gmail.com)> wrote:

> On Jun 2, 9:04am, jgrimmond@yahoo.com wrote:  
>> I would very appreciate if I could get help on this problem. It is  
>> mostly an imaging problem, but may involve some mathematical  
>> issues. Hence the crosspost. Rather than be very general, I  
>> will explain the actual example I am confronted with to keep  
>> things simpler and clearer.  
>>  
>> I have an image (digitally acquired), that represents the  
>> contours of an unknown function. In this particular case, the  
>> contours are interference fringes of a thin film and hence  
>> represent contours of constant film thickness. I now wish  
>> to get a map of the actual thickness, given that I know  
>> the real thickness at some reference point and I can somehow  
>> differentiate between going 'uphill' vs 'downhill'. This is just  
>> the reverse of the usual plotting problem where one \*knows\*  
>> a function  $z = z(x, y)$  and then gets a contour plot of  $z$ .  
>> Assume that we can process the image to the point that  
>> we have just black or white regions and so we can clearly  
>> determine when a fringe is crossed while moving along a  
>> particular direction.  
>>  
>> While one can keep track of contour crossings as one moves  
>> along a straight line, the part that I cannot get a handle on  
>> is how to keep track of the contours and know when one is  
>> back at a contour that one has already crossed. In my case,  
>> the contours are closed and there are multiple local maxima  
>> and minima to deal with.  
>>  
>> Any pointers will be appreciated.  
>>  
>> Thanks.  
>>  
>> J. Grimmond  
>  
> Do you have colors of polarization to tell  
> when you are going "uphill" vs. "downhill"?

Unfortunately, no.

J. Grimmond

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