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Subject: pixel coordinates of a line

Posted by [marc schellens\[1\]](#) on Thu, 28 Jun 2001 06:29:16 GMT

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Hello everybody,

I want to extract pixels along a line.

I know start and endpoint (ie. I draw the line in top of the image).

How to get the pixel values? Do I have to do it 'by hand'?

thanks,  
marc

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Subject: Re: pixel coordinates of a line

Posted by [Struan Gray](#) on Mon, 02 Jul 2001 10:47:06 GMT

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A blast from the past. I'm old enough to have had to write my own graphical user interface from scratch. I did so on a curious HP Pascal Workstation, which had a graphics library based on HPGL, but the plotting was \*one\* \*hundred\* times slower than if you just stuffed pixels into the display memory yourself.

Anyway, my algorithm for drawing a line was this:

First clip the line (if necessary) using geometry-derived algebra like Tom's, this gives you  $(x_1, y_1)$  and  $(x_2, y_2)$ , the screen coordinates of the line that will actually be drawn.

Then find out which of  $(x_2 - x_1)$  and  $(y_2 - y_1)$  had the largest magnitude, this gives you the number of pixels, since there will be one pixel for each integer value of this coordinate.

Finally, loop through the coordinates for whichever axis had the longest span, adding the index times the line's slope to the other coordinate. Using integer maths made the rounding off automatic and fast. In IDL you could do this step as a matrix operation with an index matrix.

Struan

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