
Subject: Re: Is there a quick way to find the intersection of two lines?

Posted by [ben.bighair](#) on Tue, 05 Feb 2008 00:33:39 GMT

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On Feb 4, 7:08 pm, eyuc...@gmail.com wrote:

> Hi there,
>
> I have two sets of x-y data:
> x1=[1,2,3,4,5] y1=[3.2,7.4,8.2,9.3,7.9];
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> we can clearly see that there are four intersections, but it is not
> clear what are the x,y coordinates of these points.
>
> Is there an easy way to do it? Thank you very much.
>

Hi,

You might want to check out Paul Bourke's great online tidbits about geometry.

<http://local.wasp.uwa.edu.au/~pbourke/geometry/>

I have been chipping away at coding some of the algorithms he describes into IDL, but have been easily sidetracked. You're welcome to use what I have (mostly documented) as a starting point. My implementations come with zero warranty...

www.tidewater.net/~pemaquid/pb.zip

Cheers,
Ben

Subject: Re: Is there a quick way to find the intersection of two lines?

Posted by [eyuchen](#) on Tue, 05 Feb 2008 08:24:33 GMT

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On Feb 4, 4:33 pm, "ben.bighair" <ben.bigh...@gmail.com> wrote:

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```
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```
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intersection of two lines in principle, but actually doing it requires
some details such as narrowing down the interval that the two lines
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I just wonder if there are pre-made subroutines, since this is really
a job we often do. If there are none, I'll try to make one...

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> Cheers,
```

```
> Ben
```

Subject: Re: Is there a quick way to find the intersection of two lines?
Posted by [Wox](#) on Tue, 05 Feb 2008 10:45:45 GMT
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On Mon, 4 Feb 2008 16:08:16 -0800 (PST), eyuchen@gmail.com wrote:

```
> Hi there,
```

```
>
```

```

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> Is there an easy way to do it? Thank you very much.
>
> Eugene

```

I got carried away and made something with Ben's suggestion. Maybe there's a better way, but it's a start.

```

function segmentintersect,L1x,L1y,L2x,L2y,xy=xy

; code:
; 0: not intersecting
; 1: intersect in 1 point
; 2: parallel
; 3: coincident

denom=float(L2y[1]-L2y[0])*(L1x[1]-L1x[0])-(L2x[1]-L2x[0])*( L1y[1]-L1y[0])
numa=(L2x[1]-L2x[0])*(L1y[0]-L2y[0])-(L2y[1]-L2y[0])*(L1x[0] -L2x[0])
numb=(L1x[1]-L1x[0])*(L1y[0]-L2y[0])-(L1y[1]-L1y[0])*(L1x[0] -L2x[0])

if denom eq 0 then code= (numa eq 0 and numb eq 0)+2 $
else begin
  ua = numa / denom
  ub = numb / denom

  code= ua ge 0 and ua le 1 and ub ge 0 and ub le 1
  if code then
    xy=[L1x[0]+ua*(L1x[1]-L1x[0]),L1y[0]+ua*(L1y[1]-L1y[0])]
  endelse

return,code
end;function segmentintersect

```

```
;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

pro segtest

```
x1=[1,2,3,4,5]
y1=[3.2,7.4,8.2,9.3,7.9];
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y2=[3.1,5.2,6.2,7.3,7.5,8.6,9.6,8.7,7.4]
window
plot,x1,y1,psym=-2
oplot,x2,y2,psym=-2

n=n_elements(x2)
y2_1=interpol(y1,x1,x2)
b=y2_1 gt y2
interval=where(b[0:n-2]-b[1:*],ct)
if ct ne 0 then begin
  xy=fltarr(2,ct)
  for i=0,ct-1 do begin
    j=interval[i]
    L2x=x2[j:j+1]
    L2y=y2[j:j+1]
    j=value_locate(x1,L2x)
    k=0
    repeat begin
      L1x=x1[j[k]:j[k]+1]
      L1y=y1[j[k]:j[k]+1]
      code=segmentintersect(L1x,L1y,L2x,L2y,xy=tmp)
      b=code eq 1
      if b then begin
        xy[*,i]=tmp
        plots,[tmp[0],tmp[0]],,[0,tmp[1]],/data
      endif
      k++
    endrep until b or (k eq 2)
  endfor
endif

end;pro segtest
```

```
;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

Subject: Re: Is there a quick way to find the intersection of two lines?
Posted by [ben.bighair](#) on Tue, 05 Feb 2008 14:00:31 GMT

On Feb 5, 3:24 am, eyuc...@gmail.com wrote:

> On Feb 4, 4:33 pm, "ben.bighair" <ben.bigh...@gmail.com> wrote:

>

>> On Feb 4, 7:08 pm, eyuc...@gmail.com wrote:

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>> www.tidewater.net/~pemaquid/pb.zip

>

Hi,

I think the routines you are looking for might be found in the pb.zip

collection I shared. You might need to work them in a sequence testing each segment of polyline A against polyline B, but the functions are all there.

Cheers,
Ben
