Subject: Re: How to detect ellipse intersection
Posted by pgrigis on Fri, 07 May 2010 14:10:42 GMT
View Forum Message <> Reply to Message

On May 7, 4:53 am, oupin <hhb1...@gmail.com> wrote:
> I have hundreds and thousands ellipse, which includes center
> coordinates and major/minor axis and azimuth of major axis. Now I want
> to detect which pairs ellipse intersect, how can I realize this
> program using IDL?

first, select pairs that could possible have an intersection
(i.e. distance between centers less or equal the larger of the
two semimajor axes) - no point in bothering with far apart pairs.

second, find the intersection points. I guess they are given by
a 4th degree equation (since each ellipse is 2nd degree, and there
can obviously be from 0 to 4 intersections), so you should be
able to solve it exactly... but some smart geometer may have a better
approach :)

Ciao,
Paolo

Subject: Re: How to detect ellipse intersection
Posted by pgrigis on Fri, 07 May 2010 14:24:19 GMT
View Forum Message <> Reply to Message

On May 7, 10:10 am, Paolo <pgri...@gmail.com> wrote:
> On May 7, 4:53 am, oupin <hhb1...@gmail.com> wrote:
>
>> I have hundreds and thousands ellipse, which includes center
>> coordinates and major/minor axis and azimuth of major axis. Now I want
>> to detect which pairs ellipse intersect, how can I realize this
>> program using IDL?
>
> first, select pairs that could possible have an intersection
> (i.e. distance between centers less or equal the larger of the
> two semimajor axes) - no point in bothering with far apart pairs.
^^^^^^^^^^^^^^^^^^^^

times 2 of course :)

>
> second, find the intersection points. I guess they are given by
> a 4th degree equation (since each ellipse is 2nd degree, and there
> can obviously be from 0 to 4 intersections), so you should be
> able to solve it exactly... but some smart geometer may have a better
> approach :)

>
> Ciao,
> Paolo

Subject: Re: How to detect ellipse intersection
Posted by penteado on Fri, 07 May 2010 14:25:36 GMT
View Forum Message <> Reply to Message

On May 7, 11:10 am, Paolo <pgri...@gmail.com> wrote:
> first, select pairs that could possible have an intersection
> (i.e. distance between centers less or equal the larger of the
> two semimajor axes) - no point in bothering with far apart pairs.

No, the distance should be less or equal to the sum of the two
semimajor axes.

Another selection which may also reduce the number for which the
complicated test is needed is to find those with distances less than
the sum of the two semiminor axes, since these intercept regardless of
their orientation.

Subject: Re: How to detect ellipse intersection
Posted by ben.bighair on Sat, 08 May 2010 18:58:19 GMT
View Forum Message <> Reply to Message

On May 7, 10:25 am, pp <pp.pente...@gmail.com> wrote:
> On May 7, 11:10 am, Paolo <pgri...@gmail.com> wrote:
>
>> first, select pairs that could possible have an intersection
>> (i.e. distance between centers less or equal the larger of the
>> two semimajor axes) - no point in bothering with far apart pairs.
>
> No, the distance should be less or equal to the sum of the two
> semimajor axes.
>
> Another selection which may also reduce the number for which the
> complicated test is needed is to find those with distances less than
> the sum of the two semiminor axes, since these intercept regardless of
> their orientation.

Hi,

You might be able to adapt this description for intercepting circles
in a plane.

http://local.wasp.uwa.edu.au/~pbourke/geometry/2circle/

Cheers,
ben
