Subject: Re: find the maximum diameter of an object in an image
Posted by Andrew Cool on Mon, 10 Oct 2005 20:03:16 GMT
View Forum Message <> Reply to Message

Jeff N. wrote:
> Hi folks,
>
> I have some CT data (of meteorites, not people) that I'm extracting
> slices of. The actual images I'm taking slices of are images where
> grains in the image have been set to 1, and everything else set to
> 0....so these are binary images. What I want to do is take a slice out
> of the CT volume, find the grains in the slice (which I'm doing with
> David Fanning's FIND_BOUNDARY() function), and then find the longest
> straight line that you can draw through the object (that goes from one
> boundary, through the center point, and then to the opposite boundary),
> which is its maximum diameter. FIND_BOUNDARY() gives me both the
> outline of the object and the center point, so I have that to work
> with. It also gives me perimeter and area, so I'm wondering if there
> isn't some kind of geometry trick that I haven't thought of that will
> get me what I need. If I do a principal components analysis on the
> boundary coordinates, wouldn't that be the maximum diameter?
>
> If anyone can point me in the right direction, or has some code they'd
> like to share, I'll be very grateful.
>
> Thanks,
> Jeff

Hi Jeff,

It's 0500 here, I've been up since 0330 with a bad sinus headache, and
I'm no math-head, but I'll have a go anyway...

I assume that you have the coordinates for every point on the
perimeter?

```
for every point do
  calculate dist to centre
  calculate angle to centre (0..359 deg say)
  store dist in an array data[angle]
end
```

The diameter at say 45deg is then data[44] + data[44+180]
(avoid wrapping beyond 359 of course)

I guess you only need to check from 0..179 anyway, half way around
the perimeter?

Should be easy to pull out the maximum in a one liner from there.

Not flash, not hires, but should work?

Cheers,

Andrew (who's on his third coffee...)
