
Subject: Classification of objects in 2D image
Posted by [hahn](#) on Fri, 01 Dec 2000 08:00:00 GMT
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Hi,

I'm looking for a tool box to classify objects that occur in 2D images (TV quality). This could be part of biological cells as well as crystall structures.

A public domain supplement for IDL would be most welcome.

Thanks for any replies...

Norbert

Subject: Re: Classification of objects in 2D image
Posted by [hahn](#) on Fri, 15 Dec 2000 14:24:51 GMT
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Ben Tupper <pemaquidriver@tidewater.net> wrote:

> Hello,
>
> Could you describe the images you have in hand? I have a
> number of thought, but it helps to know where your staring
> point is.

The images are greyscale images of crystals viewed under a microscope. This is an attempt to classify the quality of food by dissolving some salt in milk and evaporating the liquid. Other components are removed too until the salt crystals are left over.

>
> Here are some questions that might determine the approach
> you take:
> -Are the images of 'natural' samples with lots of
> detritus/junk floating around?

There is little junk floating around when the experiment is correctly done.

> -Is the background uniform or varying?

The background is uniform in a single picture but varies from picture to picture. The threshold has to be adjusted

for each picture, but that seems to be manageable.

- > -Are the features detectable with a simple threshold
- > applied to the entire image, or do you need to consider
- > regional thresholding?

A simple threshold for the entire image should be sufficient.

- > -Do you have only one image per field of view or do you
- > have multiple images for each field of view?

There is only one image per sample of the fluid under test.

One of the major problems is that the crystals have a varying orientation from picture to picture. Other properties such as shape, size and clustering vary little within one class. So variations of shape, size and clusterings should be detected and grouped into various classes.

Norbert

Subject: Re: Classification of objects in 2D image
Posted by [Ben Tupper](#) on Mon, 18 Dec 2000 14:33:06 GMT
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Hello,

If I understand you correctly, you have the the image segmented into 'features' and 'background'. I do have an object (still in the development stage that will spit out 'feature' characteristics given a segmented image with only one 'feature'. I don't have it handy here, but I could send it to you soon.

One limitation it has (a least a limitation for me) is a 'good' way of finding the perimeter of the feature. I use the CONTOUR procedure on a binary version of the image. The results are OK for me, but IDL may not be calculating that perimeter the way you would want.

Ben

Norbert Hahn wrote:

- > Ben Tupper <pemaquidriver@tidewater.net> wrote:
- >

```
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> varying orientation from picture to picture. Other
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> within one class. So variations of shape, size and
> clusterings should be detected and grouped into various
> classes.
>
> Norbert

--
Ben Tupper
```

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Subject: Re: Classification of objects in 2D image
Posted by [Paul van Delst](#) on Mon, 18 Dec 2000 17:04:27 GMT
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Ben Tupper wrote:

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> for me, but IDL may not be calculating that perimeter the way you
> would want.

I thought that's what Sobel filters were for? Finding edges of features in images and such. An image consisting of crystals or crystal aggregates/clumps on a uniform background should show up well under edge enhancement.

paulv

--

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Subject: Re: Classification of objects in 2D image
Posted by [Ben Tupper](#) on Tue, 19 Dec 2000 01:46:11 GMT
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Hello,

Yes, Sobel filters and a lengthy list of other techniques are used. Which tool to use depends upon the quality of your image (signal/noise) and what you hope to pull out of the image. I have been astounded by the number of different techniques used (most of which sail right over me.) In this case, it sounds to me like Nobert has the image filtered to the point where features of interest stand out from the background. Now what is needed is a routine to make pretty much standard measurements of features size, orientation relative to horizontal, etc. Of course, I could have missed the boat and misread Nobert's needs.

Ben

Paul van Delst wrote:

>
>
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>
> paulv
>
> --
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