Subject: Re: How to eliminate smaller blob from label_region image
Posted by Wout De Nolf on Mon, 22 Aug 2011 08:13:14 GMT
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On Sun, 21 Aug 2011 22:40:24 -0700 (PDT), vijay s
<vijayans.in@gmail.com> wrote:

> hi all,
>
> I used label_region to get individual blob id for each region.
> But few of my blobs are very small in area wise and
> i want to eliminate those from my images and retain blobs of larger
> area (say pixel area gt 10). How can i eliminate unwanted smaller
> blobs?
>
>
> thanks in advance.

By using the HISTOGRAM function:

```
; Minimum number of blob pixels
npix_threshold=10

; Get image
 path=FILEPATH('pollens.jpg',SUBDIR=['examples','demo','demod ata'])
READ_JPEG, path, image

; Get blob indices
b = LABEL_REGION(image gt 150)

; Get population and members of each blob
h = HISTOGRAM(b, REVERSE_INDICES=r)

; Regions with small number of pixels
ind = where(h lt npix_threshold,ct)

; Remove the small regions
for i=0l,ct-1 do b[r[r[ind[i]]:r[ind[i]+1]-1]]=0
```

Obviously, some indices will be missing since you zero'ed them out.
You might want to fix that. It might not even be necessary to set the
small blob indices to zero. It all depends on what you will do with
the blob indices.

Subject: Re: How to eliminate smaller blob from label_region image
Posted by David Fanning on Mon, 22 Aug 2011 12:37:37 GMT
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Wox writes:

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> On Sun, 21 Aug 2011 22:40:24 -0700 (PDT), vijay s
> <vijayans.in@gmail.com> wrote:
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> Obviously, some indices will be missing since you zero'ed them out.
> You might want to fix that. It might not even be necessary to set the
> small blob indices to zero. It all depends on what you will do with
> the blob indices.

This is the method used by the Blob_Analyzer, and it makes
it trivial to deal with blobs below a specific size.

```
theBlobs = Obj_New('Blob_Analyzer', biLevelImage)
nBlobs = theBlobs -> NumberOfBlobs()
FOR j=0,nBlobs-1 DO BEGIN
   indices = theBlobs -> GetIndices(j, COUNT=count)
   IF count LE 10 THEN Continue

   .... ; Else, do your thing.

ENDFOR
```

You can find information on the Blob_Analyzer here:

http://www.idlcoyote.com/ip_tips/blobanalysis.html

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: How to eliminate smaller blob from label_region image
Posted by vijay s on Tue, 23 Aug 2011 06:30:15 GMT
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hi,

thanks for the help and that works fine, now i have the required
blob (only 2 blob, both are separated and adjacent to each other).
Now i want to merge both and make as a single blob and want to find
the new center.

thanks

Subject: Re: How to eliminate smaller blob from label_region image
Posted by Wout De Nolf on Tue, 23 Aug 2011 11:18:20 GMT
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On Mon, 22 Aug 2011 23:30:15 -0700 (PDT), vijay s
<vijayans.in@gmail.com> wrote:

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> hi,
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> blob (only 2 blob, both are separated and adjacent to each other).
> Now i want to merge both and make as a single blob and want to find
> the new center.
>
> thanks

What do you mean by "new center"? I suppose the center of mass of the
combination of the two blobs? If you know you must have two blobs, you
don't need to remove the small blobs. Just get the blob index of the
two largest blobs and calculate the center of mass of the combined
blob.

```
; Get image
 path=FILEPATH('pollens.jpg',SUBDIR=['examples','demo','demod ata'])
READ_JPEG, path, image

; Get blob indices
b = LABEL_REGION(image gt 160)

; Get population and members of each blob
h = HISTOGRAM(b, REVERSE_INDICES=r)

; Blob indices of the two largest blobs
h[0]=0 ; background
ind=(reverse(sort(h)))[0:1] ; two largest
ind=b[r[r[ind]]] ; get blob indices

; Get the center of mass of the combined blob
b=b eq ind[0] or b eq ind[1]
totalMass = Total(b)
s=size(b,/dim)
xcm = Total( Total(b, 2) * lindgen(s[0]) ) / totalMass
ycm = Total( Total(b, 1) * lindgen(s[1]) ) / totalMass

; Show result
loadct,3
tvscl,b
tmp=indgen(11)-5
plots,xcm,ycm+tmp,/device,color=150
```

plots,xcm+tmp,ycm,/device,color=150
print,'Center of mass: ',xcm,ycm

Subject: Re: How to eliminate smaller blob from label_region image
Posted by David Fanning on Tue, 23 Aug 2011 12:02:47 GMT
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vijay s writes:

> thanks for the help and that works fine, now i have the required
> blob (only 2 blob, both are separated and adjacent to each other).
> Now i want to merge both and make as a single blob and want to find
> the new center.

This is typically done with DILATE, if the two blobs are close enough to each other. There is a pretty good section on using these morphological operators (including how to eliminate small blobs) in my last book, if you are interested. It's on sale through the end of the month. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: How to eliminate smaller blob from label_region image
Posted by rogass on Wed, 31 Aug 2011 12:00:20 GMT
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On 22 Aug., 10:13, Wox <s...@nomail.com> wrote:
> On Sun, 21 Aug 2011 22:40:24 -0700 (PDT), vijay s
>
> <vijayans...@gmail.com> wrote:
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> Obviously, some indices will be missing since you zero'ed them out.
> You might want to fix that. It might not even be necessary to set the
> small blob indices to zero. It all depends on what you will do with
> the blob indices.

Yep, and to put all things together:

```
function cr_remove_regions_fast,mask,small=small,verbose=verbose
small = ~n_elements(small)? 10 : 1>small
verbose =       ~n_elements(verbose)?   0       :       1
t0  = systime(1)
 l  = label_region(mask,/ulong,/all_neighbors)
 h  = histogram(temporary(l),reverse_indices=r)
 wh  = where(h,nl)
 for i=1l,nl-1l do $
  mask[((ind=R[R[wh[l]] : R[wh[i]+1]-1]))] *= $
              total( mask[ind]) lt small? 0 : 1
 undefine,r,ind,wh; D. Fannings nice undefine routine
if verbose then print,'Filtered regions: ',nl-1l,' in: ',systime(1)-
t0,' s'
return,mask
```

Cheers

CR
end