
Subject: Re: filling holes in blobs quickly

Posted by [Karsten Rodenacker](#) on Thu, 18 Apr 2002 17:02:00 GMT

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May be this routine does what you like. However, there should be background touching the image border!

Regards

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;+
```

```
; NAME:
```

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;
```

```
MM_FILL_NEW
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```
; PURPOSE:
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```
Fills holes
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```
; CATEGORY:
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```
Image processing
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```
; CALLING SEQUENCE:
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```

```
result = MM_FILL_NEW(mask)
```

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```

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;
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```
; INPUTS:
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```
;
```

```
mask:
```

```
An image from which only pixels ne 0 are considered
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```
; OPTIONAL INPUTS:
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```
;
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```
;
```

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none
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;
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```

```
; KEYWORD PARAMETERS:
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```
EIGHT:
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```
Neighborhood used is 8-connected (def. 4)
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```

```
see label_region
```

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```

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```

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;
```

```
; OUTPUTS:
```

```

;
;
A filled byte mask image
;
;
;
; OPTIONAL OUTPUTS:
;
;
none
;
;
;
; COMMON BLOCKS:
;
;
none
;
;
;
; SIDE EFFECTS:
;
;
label_region is used
;
;
;
; RESTRICTIONS:
;
;
;
;
; PROCEDURE:
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;
;
;
;
; EXAMPLE:
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;
;
;
;
; MODIFICATION HISTORY:
;
;
;   Wed Oct 1 09:11:34 1997, Karsten Rodenacker
;   <rodena@gsf.de>
;
;
;
;
;
;
;-
FUNCTION MM_FILL_NEW, inp, ALL = all, _EXTRA=ext
  b = byte(inp NE 0)
  l = label_region(1b-b, _EXTRA=ext)
  bg = where(histogram(byte(l*mm_bord(b,2,val=1, /del, all = all))) ne
0, cbg)
  hl = uindgen(max(l)+1)
  hl[bg] = 0
  return, b OR (hl[l] NE 0)
; print,cbg, bg

```

```
; IF cbg GT 1 THEN FOR i=1, cbg-1 DO BEGIN
;   I[where(I EQ bg[i])] = 0
;   tvscl, I
; ENDFOR
; return, b OR byte(I NE 0)
end
```

Doug Martin wrote:

```
> I'm sure this is a well solved problem, but:
> I'm trying to fill in holes inside of domains (blobs) quickly. The
> domains are in a binary image, and are bright.
>
> Right now, I search for dark regions - the holes (label_region);
> pick out those of a small size (histogram and where);
> and then fill them in (a FOR loop through the where values, since I
> don't know how to get where to compare to every value in a vector).
>
> This is slow, and I strongly suspect there is an intelligent way to do
> this: fill in all dark blobs up to a certain size.
>
> Thanks for any help,
>
> Doug Martin
> University of Texas at Austin
>
```

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Karsten Rodenacker ()

-----:~)

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