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1: #define MASK -2{comentário}
2: #define WSHED 0
3: #define INIT -1
4: entrada: imi /*imagem de entrada*/
5: saída: imo /*imagem de saída*/
6: imd /*imagem de trabalho*/
7: Inicialização:
8: corrent_label  $\leftarrow$  0
9: corrent_dist  $\leftarrow$  0
10: imo  $\leftarrow$  INIT
11: imd  $\leftarrow$  0
12: Organiza pixels de imi em ordem crescente de níveis de cinza
13:  $h_{min} \leftarrow \text{MIN}(\text{imi})$ ,  $h_{max} \leftarrow \text{MAX}(\text{imi})$ 
14: for  $h=h_{min}$  to  $h_{max}$  do
15:   for  $\forall p \mid \text{imi}(p)=h$  do
16:     imo(p)  $\leftarrow$  MASK
17:     if  $\exists p' \in N_G(p) \mid (\text{imo}(p') > 0)$  ou  $(\text{imo}(p') = \text{WSHED})$  then
18:       imd(p)  $\leftarrow$  1
19:       fifo_add(p)
20:     end if
21:   end for
22:   current_dist  $\leftarrow$  1
23:   fifo_add(pixel_ficticio)
24:   loop
25:     p  $\leftarrow$  fifo_first()
26:     if p= pixel_ficticio then
27:       if fifo_empty()=TRUE then
28:         BREAK
29:       else
30:         fifo_add(pixel_ficticio)
31:         current_dist  $\leftarrow$  current_dist+1
32:         p  $\leftarrow$  fifo_first()
33:       end if
34:     end if
35:     for  $\forall p' \in N_G(p)$  do
36:       if imd(p') < current_dist and  $(\text{imo}(p') > 0 \text{ OR } \text{imo}(p') = \text{WSHED})$  then
37:         if imo(p') > 0 then
38:           if imo(p)=MASK OR imo(p)=WSHED then
39:             imo(p)  $\leftarrow$  imo(p')
40:           else

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41:         if imo(p)≠imo(p') then
42:             imo(p)←WSHED
43:         end if
44:     end if
45: else
46:     if imo(p)=MASK then
47:         imo(p)←WSHED
48:     end if
49: end if
50: else
51:     if imo(p')=MASK AND imd(p')=0 then
52:         imd(p')←current_dist+1
53:         fifo_add(p')
54:     end if
55: end if
56: end for
57: end loop
58: for  $\forall p \mid \text{imi}(p)=h$  do
59:     imd(p) ← 0
60:     if imo(p)=MASK then
61:         current_label ← current_label+1
62:         fifo_add(p)
63:         imo(p)=current_label
64:         while fifo_empty()!=false do
65:             p' ← fifo_first()
66:             for  $\forall p'' \in N_G(p')$  do
67:                 if imo(p'')=MASK then
68:                     fifo_add(p'')
69:                     imo(p'')←current_label
70:                 end if
71:             end for
72:         end while
73:     end if
74: end for
75: end for

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