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#!/usr/bin/env python
""" boundy a python bound detection program
"""

import sys
from numpy  import *
from v4 import vx

of=' '
vxif=' '
clist = vx.vxparse(sys.argv,  "if= of= -v  - ")
exec (clist )

if 'OPT' in locals():
   print ("boundpy program")
   print ("if= input file")
   print ("of= output file")
   print ("[-v] verbose mode")
   exit(0)

if 'OPTv' in locals():
   optv=1
else:
   optv=0

inimage = vx.Vx( vxif )
im = inimage.i
tmimage = vx.Vx( inimage )
tmimage.embedim((1,1,1,1))
tm = tmimage.i

for y in range(im.shape[0]):
    for x in range(im.shape[1]):
        # 8 connected foreground 4 connected background
        if tm[y+1,x+1] > 0: # If current pixel is foreground. +1 because of embed
            if tm[y+1,x+2] == 0 or tm[y+1,x] == 0 or tm[y,x+1] == 0 or tm[y+2,x+1]
            == 0: # If one of surrounding pixel is 0
                im[y,x] = 255 # Set pixel to 255 as it is boundary
            else: # If not a boundary pixel
                im[y,x] = 128 # Set pixel to 128 as it is interior

if optv:
   print (im)

inimage.write( of)
```