Subject: Re: Need help with vector processing. Posted by Brian Jackel on Wed, 11 Feb 1998 08:00:00 GMT

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## S Penzes wrote:

>

- > Hi one and all,
- > I am looking for a smart solution to a problem that keeps
- > occuring and that I can't seem to find a smart solution for.
- > The goal is to find a solution that minimizes compute time
- > (ie no loops). Given a vector=[0,0,6,7,8,8,7,0,0,7,8,0,0]
- > and the fact that I have a window that is 3 wide, how do I
- > process vector so that any data that is greater than 5 and
- > stays that way for more than 3 indexes remains and everything
- > else is set to 0.

>

> vector -> process -> [0,0,6,7,8,8,7,0,0,0,0,0,0]

One way is to use the ERODE and DILATE operators, which can find the mimimum or maximum values in a sliding window. For example:

```
IDL> print,test
```

```
0 0 6 7 8 8 7 0 0 7 8 0 0

IDL> print,ERODE(test,[1,1,1],/GRAY)
0 0 0 6 7 7 0 0 0 0 0 0 0

IDL> print,DILATE(test,[1,1,1],/GRAY)
0 6 7 8 8 8 8 7 7 8 8 8 0
```

when combined they can be used to "erode" islands smaller than the window width, then re-expand the edges of anything that survives:

which is pretty close to what you wanted. Then just do

```
IDL> islands= DILATE(ERODE(test,[1,1,1],/GRAY),[1,1,1],/GRAY) IDL> print,test*(islands GT 0)  
0  0  6  7  8  8  7  0  0  0  0  0
```

and you're home free. It's funny, erode and dilate have been in IDL for quite a while now, but it's only in the last couple of months that I've realized how useful they can be. Hope this helps.

**Brian Jackel** 

ps. in your statement of the problem you mention that values of 5 or less should vanish, but I've assumed you've already removed them with something like test= test\*(test GT 5)