Subject: Sparse LABEL_REGION
Posted by James Preiss on Tue, 30 Nov 2010 02:23:57 GMT
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Hi Everyone,

I just finished programming a sparse version of LABEL_REGION for IDL. It uses a list of array the foreground array indices instead of the array itself. There is a main IDL program, some helper IDL programs, and two C files that do the heavy lifting. I've put the whole thing on Google Code at http://code.google.com/p/sparseblob/ including a compiled 32-bit Windows DLL, or you can compile it yourself with MAKE_DLL or a plain C compiler.

This is a pretty esoteric program: it becomes useful when:

1) there are few foreground elements compared to the total size of the array,
2) you need to do region labeling over and over again on subsets of the same foreground elements.

Here's the example that motivated its creation: a 3D array containing an image of a blood vessel network, with 0 representing the background and positive integers representing the travel time from the root. I needed to label all regions with time 1, then all with time 2, etc... but the vessels are only about 1/200 of the array. LABEL_REGION was working over the whole thing each time instead of just looking at the subset of the 1/200 with the right time value. I experienced probably 100x speedup, maybe more, after making the change.

Anyway, if this sounds interesting to you, please download it and try it out. There's a zip file on the download section of my Google Code page: http://code.google.com/p/sparseblob/downloads/list . Instructions on how to install and use the program are included in the README. The software is very much untested and probably is missing some error checking, so I would appreciate any feedback.

James Preiss