
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
