

SUSAN Low Level Image Processing

Research by [Stephen M. Smith](#).

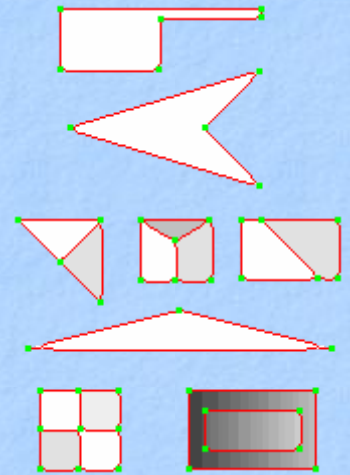
SUSAN is an acronym for Smallest Univalve Segment Assimilating Nucleus. The SUSAN algorithms cover image noise filtering, edge finding and corner finding. For information on applying SUSAN nonlinear noise reduction to 3D images, see [here](#).

Published Paper

The [SUSAN principle](#) is the basis for algorithms to perform edge detection, corner detection and structure-preserving image noise reduction. Papers on SUSAN have been published in [BMVC92](#), [ICPR96](#) and [IJCV](#), and a [patent](#) has been granted. For a complete report on SUSAN either download the PostScript ([susan.ps.gz](#) - 1 Meg / [susan.ps](#) - 8 Megs) or view the html:

[Low level image processing - title page](#)

- [1D feature detection](#) ("edges" etc.)
- [2D feature detection](#) ("corners" etc.)
- [Structure-preserving image noise reduction](#)



Note on Thinning

I have also written a short note describing the thinning algorithm used in SUSAN edge detection. Either download the PostScript ([thinning.ps](#) - 76K) or [view the html](#).

Source Code

The source code for SUSAN is available in a self-contained C program which inputs and outputs PGM format images of any size, performing any of the three SUSAN algorithms. The source code is [here](#). Instructions for compiling and running are included in the file. Please email me (steve@fmrib.ox.ac.uk) if you download the code so that I can send out program updates easily.

Note: the program is © Copyright 1995-1999, Defence and Evaluation Research Agency, UK. DERA has now become [QinetiQ](#), who until recently held the patent on SUSAN, which now now lapsed.

Test Image

You can also download my PGM format test image ([test.pgm](#) - 64K / [test.pgm.gz](#) - 1K). To find all features set t=10.