

# SDC Morphology Toolbox

for use with MATLAB<sup>®</sup> 5

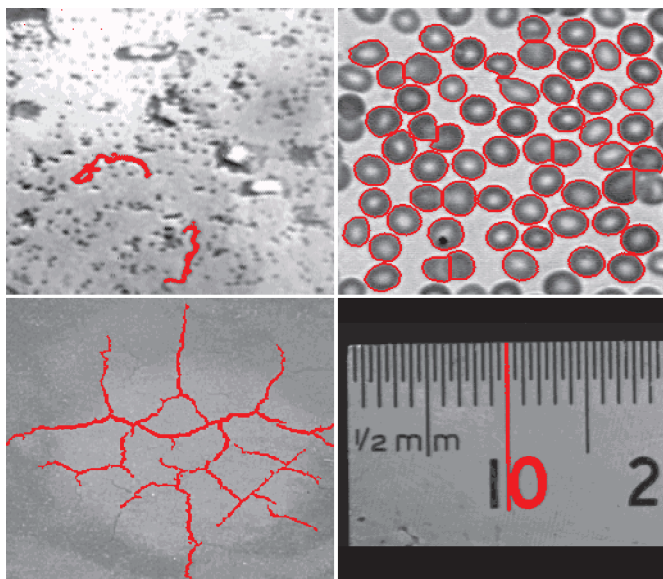


A collection of state-of-the-art gray-scale morphological image processing tools

## OVERVIEW:

The SDC Morphology Toolbox for MATLAB 5 is a powerful collection of the latest state-of-the-art gray-scale morphological tools that can be applied to image segmentation, non-linear filtering, pattern recognition and image analysis. It includes powerful segmentation functions such as watershed and connected filters based on reconstruction.

The SDC Morphology Toolbox comes with several scripts showing the morphological solution to many real-life image processing problems. Many illustrative images in the field of machine vision, medical imaging, desktop publishing, document processing, food industry, agriculture, etc., are included in the toolbox.



*Clockwise from upper left: Detecting filarial worms in a microscopic image, detecting blood cells, detecting cracks in dry soil, detecting faults in production line.*

## HIGHLIGHTS:

Most operators work for binary and gray-scale images (uint8 and uint16)

- Image (2D), volume or sequence processing (3D) and signal processing (1D arrays)
- Support for structuring elements in decomposed form (faster algorithms)
- Planar and non-planar structuring elements
- Fast queue-based algorithms for distance transform, watershed, reconstruction, labeling, area-opening, etc.
- Fast binary operations using intrinsic 32 bit parallel operations
- Cubic grid image model
- Connectivity defined by structuring element
- Most functions are compiled mex-files

## MAIN CLASSES OF OPERATORS:

- Gray-scale Dilation and Erosion
- Morphological Filters: opening, closing, alternating sequential filters
- Connected Operators: watershed from markers, watershed by similarity, reconstruction, labeling, regional maxima and minima, area opening, h-dome
- Distance Transforms, including geodesic
- Residues: gradient, contour, top-hat
- Hit-Miss: skeletonization, skiz

## REQUIREMENTS:

SDC Morphology Toolbox depends on MATLAB version 5 or above. It does not depend on any other toolbox. The mex files are compiled for Windows 95/NT or above, for Intel/Linux and for Sun/Solaris.

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