

The automatic choice for counting, measuring and analyzing your digital images

SigmaScan Pro provides a complete image analysis package for studying the structure and size of visual information. SigmaScan Pro's powerful image analysis, data manipulation techniques transform images into reliable statistics, understandable graphs and valuable scientific conclusions.

SigmaScan Pro includes an extensive list of features that apply to a wide range of applications:

- Count bacterial cells for growth studies
- Measure the area of tumor cross-sections
- Determine the projected area of conifer needles
- Analyze intensity bands on gels
- Isolate typographic map features
- Characterize microstructural flaws in steel
- Any other general image measurement or analysis application

SigmaScan Pro's sophisticated enhancement techniques improve image quality and remove unwanted features, optimizing the image to your specifications. A powerful library of more than 50 measurement options collects your results in a convenient Microsoft® Excel spreadsheet format. Use built-in column statistics, classify your data or choose from 140 worksheet functions to develop meaningful conclusions. Best of all, beginners learn quickly through an intuitive interface.

SigmaScan Pro also provides the power to create custom macros to automate repetitive tasks. Not a programmer? No problem. Record macros with the point and click macro recorder. Experienced users and programmers can apply the VB-based macro language to create custom interfaces or seamlessly link SigmaScan Pro to other applications, such as SigmaPlot.

“SigmaScan Pro makes image measurements so easy that I'll never go back to my old, expensive system.”

—Rick Lemaster, Scientist

The Essential Desktop Tools for Scientists and Engineers™

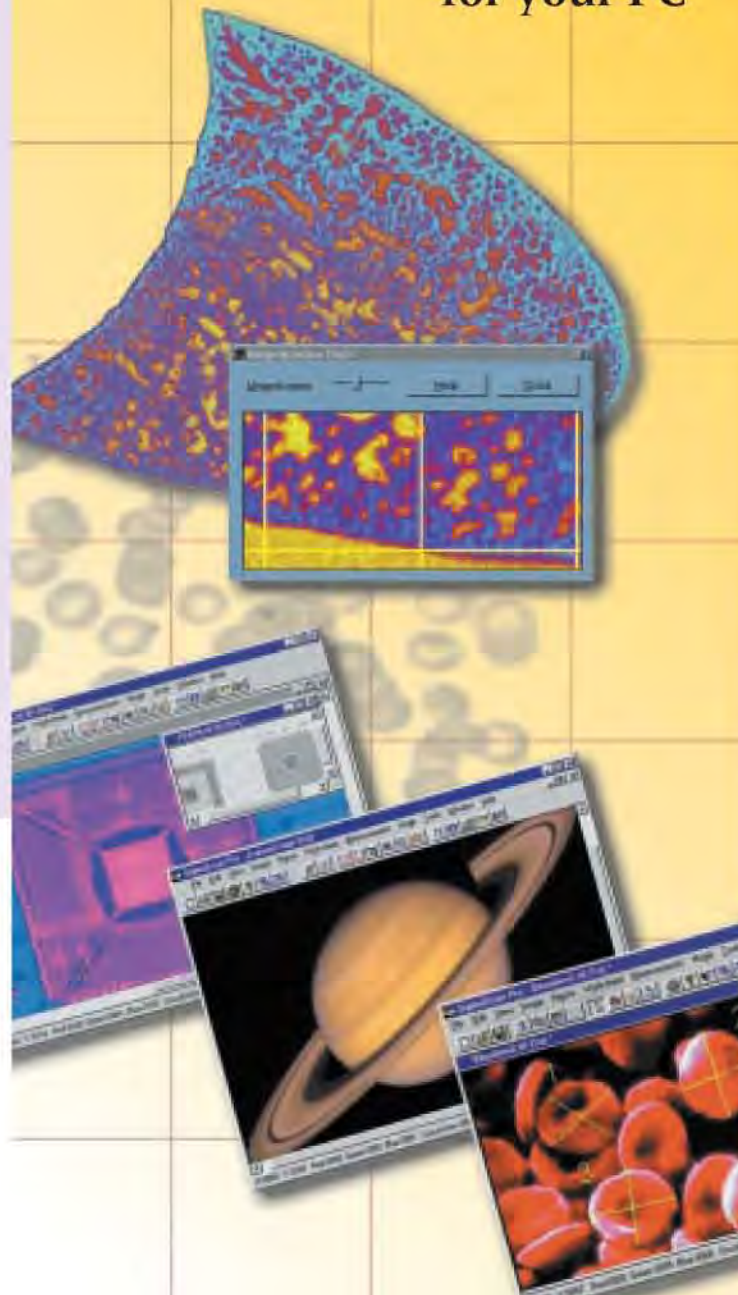
- **SYSTAT**®, Unparalleled research-quality statistics and graphics
- **SigmaPlot**®, Exact graphs for exact science
- **SigmaStat**®, Advisory statistical software
- **SigmaScan Pro**, Powerful image analysis for your PC
- **TableCurve 2D**®, Automated curve fitting and equation discovery
- **TableCurve 3D**®, Automated surface fitting and equation discovery
- **PeakFit**®, Automated peak separation and analysis
- **SigmaGel**®, Affordable, fast and convenient gel analysis
- **SamplePower**®, Easily determine accurate sample sizes
- **StatXact**®, Statistical software for small-sample categorical and nonparametric data
- **LogXact**™, Breakthrough software for small-sample logistic regression
- **Trial Run**™, Comprehensive experimental design and analysis made easy
- **Amos**™, Powerful, easy-to-use, structural equation modeling
- **SPSS Diamond**™, A revolutionary way to explore your data
- **Neural Connection**®, Better models faster
- **DeltaGraph**®, Easy, all-purpose charting
- **DBMS/Copy**™, Fast accurate data transfer
- **AnswerTree**™, Build better profiles easily

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SigmaScan Pro

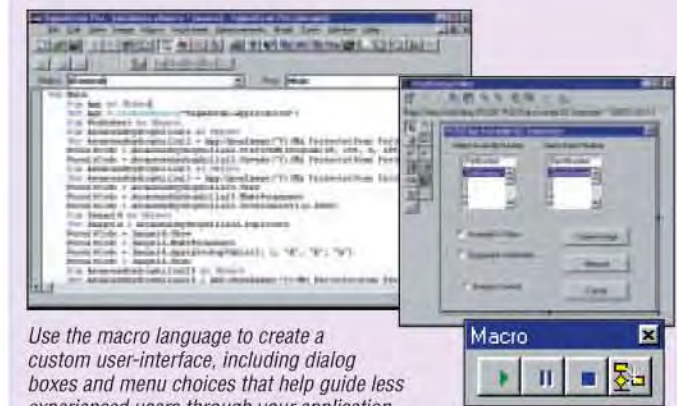
Powerful image analysis for your PC



Automatically count, measure and analyze your digital images

SigmaScan Pro's automation features save you valuable research time

Automate repetitive image analysis tasks in no time using SigmaScan Pro's easy-to-learn macro language. Record quick and powerful image enhancement, measurement and analysis routines using SigmaScan Pro's point and click macro recorder.



Use the macro language to create a custom user-interface, including dialog boxes and menu choices that help guide less experienced users through your application.

Execute a series of steps once then apply the sequence to other images to effortlessly perform complex analyses and data manipulation. Or, use built-in macros as provided or modify them for automating tasks such as counting and measuring objects, or splicing images.

Employ SigmaScan Pro's Online Macro Language Reference, which provides a complete overview of all macro commands and their functions, to develop powerful macros that save valuable research time.

Access SigmaScan Pro Seamlessly

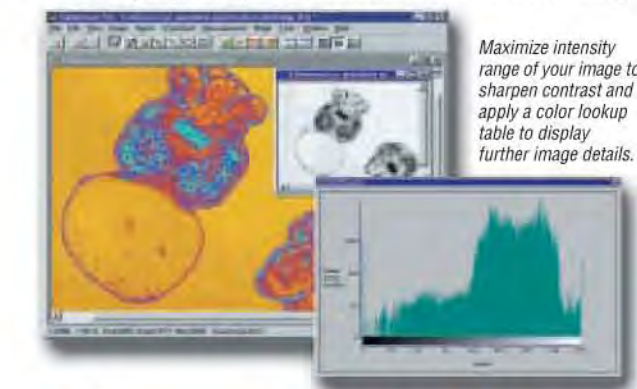
Call on SigmaScan Pro's functionality from external sources that have Visual Basic embedded, including Microsoft Word and Excel or custom software applications. For example, you can run a Visual Basic script in MS Word or Excel that calls on SigmaScan Pro to perform image analysis tasks. SigmaScan Pro's OLE automation provides unlimited flexibility.

Choose from a vast set of image types and sophisticated enhancement techniques

SigmaScan Pro's comprehensive list of image types ensures image compatibility — including 10 and 12-bit grayscale images. You can convert images to different types, paste or splice images from one type to another, or modify pixel resolution while maintaining the aspect ratio of the image.

The powerful Histogram Stretch option lets you sharpen the contrast of color or grayscale images with one click. Other enhancement techniques allow you to correct background lighting effects, apply color templates to grayscale images for highlighting hidden features or employ mathematical filters to add, remove, erode or dilate objects on an image.

Plus, SigmaScan Pro's Image Math functions let you remove noise and highlight features by adding, subtracting, or averaging the pixel intensities of different images.

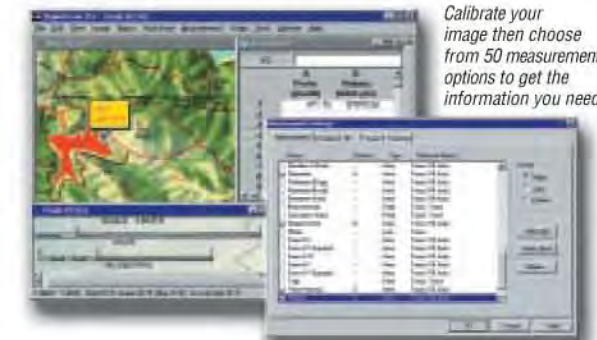


Maximize intensity range of your image to sharpen contrast and apply a color lookup table to display further image details.

Quickly convert images to useful data with powerful measurement techniques

Select from a library of more than 50 powerful measurement options to convert images into analytical data. Separate, count and number up to 64,000 image objects using powerful built-in algorithms and collect the data in a convenient spreadsheet where object numbers correlate to spreadsheet row numbers.

Five non-destructive overlay planes allow you to collect measurements such as intensity, hue, saturation, distance, perimeter, slope, angles, area, volume and center of



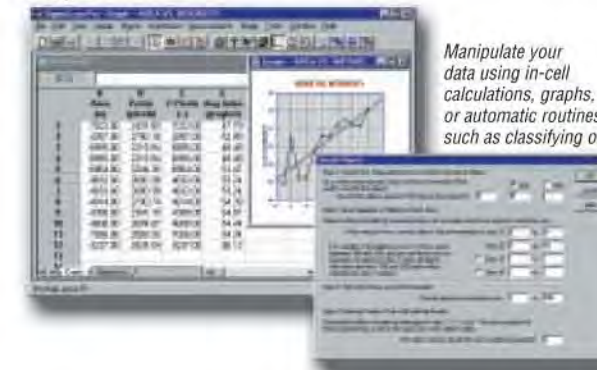
Calibrate your image then choose from 50 measurement options to get the information you need.

mass simultaneously. Powerful edge and line tracking tools allow you to quickly outline objects and collect running measurements, so you save time marking the desired items. Guarantee accuracy by calibrating distance, area and intensity values.

Develop meaningful conclusions with advanced data analysis capabilities

Use built-in column statistics to organize data and develop solid conclusions. Sort and classify your measurement results or eliminate unwanted objects from your data with a single click. Choose from 140 worksheet functions to transform your data, show important relationships using the plot function or export files to advanced graphing packages such as SigmaPlot.

Need to give a presentation? Emphasize key features using the full-color annotations overlay. Add text, arrows, shapes and highlights; move or resize your annotations, then save or print your annotated image.



Manipulate your data using in-cell calculations, graphs, or automatic routines such as classifying objects.

Powerful image analysis tools for a wide range of applications

SigmaScan Pro 5.0 features:

Image Input/Output options

- Capture images with any TWAIN-compatible device
- Open image files: AWD* BMP, CAL* CMP* CUR* DIC* EPS, EXF* FPX* FXS* ICA* ICO* IMG* JPEG, MAC* MSP* PCT* PCX, PhotoCD* PNG* PSD* RAS* TGA, TIF, WMF* WPG*
- Save image types: AWD* BMP, CAL* CMP* CUR* DIC* EPS, EXF* FAX* FPX* FXS* ICA* ICO* IMG* JPEG, MAC* MSP* PCT* PCX, PNG* PSD* RAS* TGA* TIF, WMF* WPG*
- Load 1, 4, 8, 16, 24 or 32-bit color images
- Load 1, 4, 8, 10* or 12*-bit grayscale images
- Open data files Microsoft Excel XLS, TXT and MOC (Scan 4)

Image editing

- Cut, copy, paste and clear
- Crop, duplicate, restore, compare*
- Paste and splice images of different types*
- Resize*
- Resample*
- Specify pixel depth of new images*
- Convert images to different types*

View options

- Zoom in, zoom out
- Magnification tool: from .03125x – 32x
- Image rotation: 90, 180, 270, any angle*
- Image flipping: horizontal or vertical axis
- Intensity histogram
- Select image background color
- Image information

Image processing

- Color to grayscale conversions
- Monochrome Lookup Tables (LUTs): standard, sawtooth, rectangle
- Color Lookup Tables (LUT): rectangle, red, blue, green spirals, sawtooth
- Clearfield equalization

- Pseudo-clearfield generator
- Image math: add, subtract, average, minimum*, maximum*, multiply*, divide*
- Color thresholding
- Invert intensity values
- Change resolution
- Standardize color palette
- Color corrections*: gamma halftone, hue, saturation, color separations
- Intensity corrections: brightness*, contrast*
- Histogram stretch: grayscale, color*

Filters — standard grayscale

- Add noise*
- Average
- Despeckle*
- Emboss*
- Gradient
- Laplace
- Line segment detection*
- Median
- Mosaic*
- Oilify*
- Posterize*
- Prewitt
- Sharpen
- Shift and differences*
- Sobel
- User defined

Image layers

- Five* non-destructive overlays
- Save image overlays
- Thresholds: color or intensity
- Image masking
- Overlay math: AND, OR, XOR, NOT, copy
- Object numbering
- Object labeling: major/minor axis

Overlay filters:

- Erosion: normal, split, object, keep residues, preserve shape
- Dilation: normal, don't merge, dilate residues, preserve shape
- Special: delete residues, boundary, delete edge objects, fill holes

Measurements

- Trace measurements mode
- Fill measurements mode
- Track Edges/Lines: tracking speed, tracking stability, sampling grid, sample every n points

- Count: number of objects, number of pixels, object number reporting
- Calibrate intensity: 2-point or multiple-point
- Spatial Calibration (1, 2 or 3D) **Point:**
 - Tally
 - XY coordinates
- **Spatial:**
 - Area
 - Center of mass — gray or binary
 - Compactness
 - Cumulative distance
 - Distance
 - Feret diameter
 - Major/minor axis measurements: endpoint, perimeter, shape factor
 - Slope
 - Perimeter
- **Intensity:**
 - Pixel intensity values
 - Average or cumulative over an area
 - Red, green, blue intensity values or average red, green blue over an area
 - Line width average
 - Hue
 - Saturation

- non-numeric values
- In-cell formulas: more than 140 worksheet functions*
- Spreadsheet data compatible with SigmaPlot, SigmaStat, SYSTAT and TableCurve
- Save output as Microsoft Excel* XLS file*
- Save output as TXT file

Macro Language*

- Visual Basic-compatible programming using built-in macro language interface
- Macro recorder to save and play-back operations
- Full automation object support — VB, C++, Excel
- Run built-in macros or create and add your own scripts
- Add menu commands and create dialog boxes
- OLE automation — server and client

Data Plotting

- Y versus row number
- Y versus X
- Multiple Y versus X
- Plot symbols or lines
- Regression lines, grid lines
- Input graph and axes titles
- Linear or logarithmic scale

System requirements

- Pentium® processor/ Microsoft® Windows® 95, 98 or NT; minimum 16MB RAM (64MB recommended), SVGA monitor, 800 x 600 resolution, minimum 256 colors (True Color recommended), 15MB hard disk space

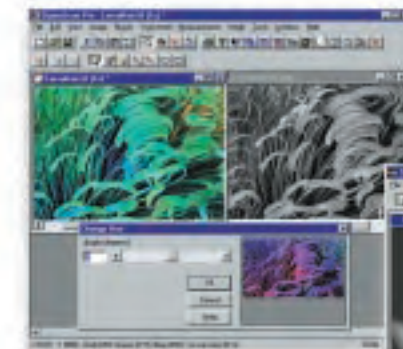
Worksheet

- Data worksheet: 256 columns x 16, 384 rows
- Insert, delete, go to cells
- Format cells*: font, alignment, border, pattern, protection, validation
- Classify objects
- Automatic Column Statistics: mean, standard deviation, standard error, 95% and 99% confidence intervals, size, minimum/maximum value, minimum positive value,

* — New in SigmaScan Pro 5.0! Upgrade Today!

Electron Microscopy

Obtain accurate size and area measurements from video input of detailed structures.



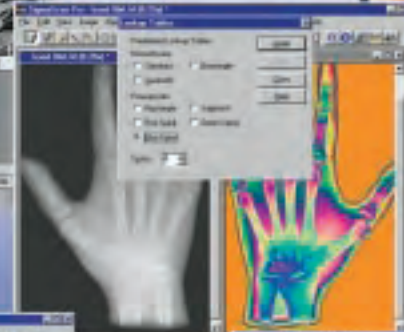
Physics/Astronomy

Turn astrophysical images into qualitative data and descriptive presentations.



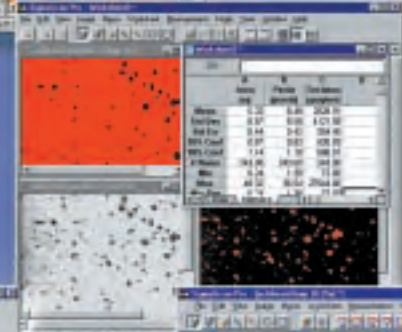
Medical Research

Apply color lookup tables to grayscale images to highlight image features that aid in your diagnosis.



Chemistry

Measure particle size and shape from microscopic slides or micrographs. Column statistics in the worksheet display your ranges automatically.



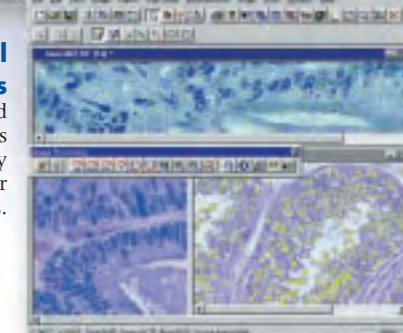
Aerial/Satellite Photography

Accurately determine areas or distances and highlight specific areas, such as roads and greenery.



Biological Sciences

Quickly count and measure cells, organisms or features. Apply automation to your growth studies.



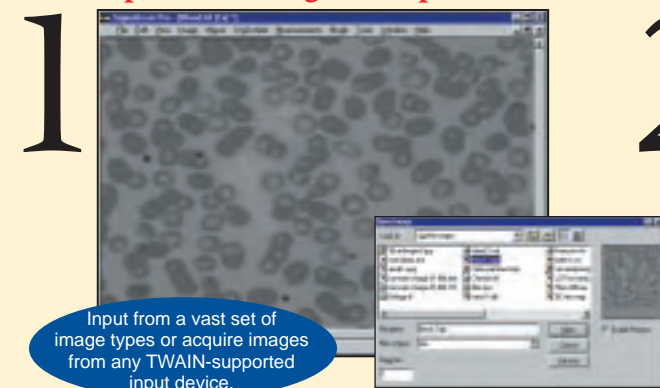
Engineering/Manufacturing

Printed circuit board design, analysis and annotation is simplified from a photo or scanned image. Exact positions and connections are easy to measure.



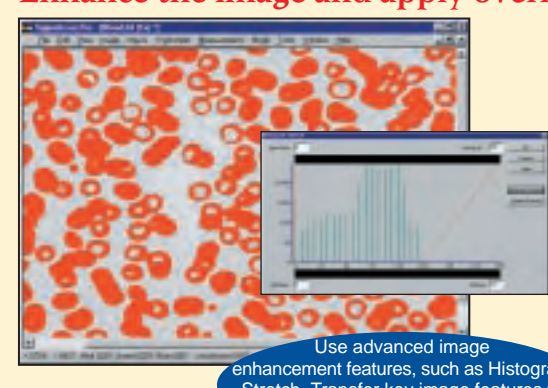
Sample Imaging Task: from start to finish

1 Open the image or capture it



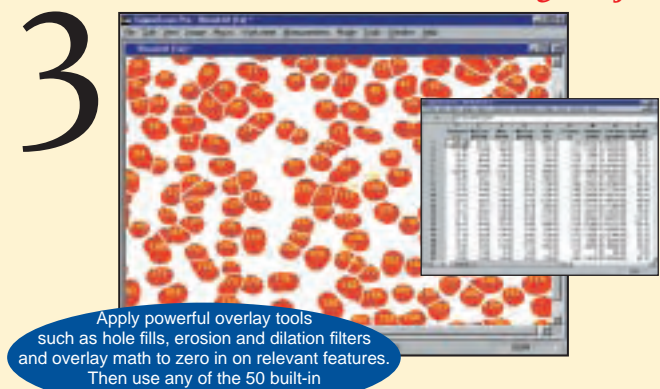
Input from a vast set of image types or acquire images from any TWAIN-supported input device.

2 Enhance the image and apply overlay



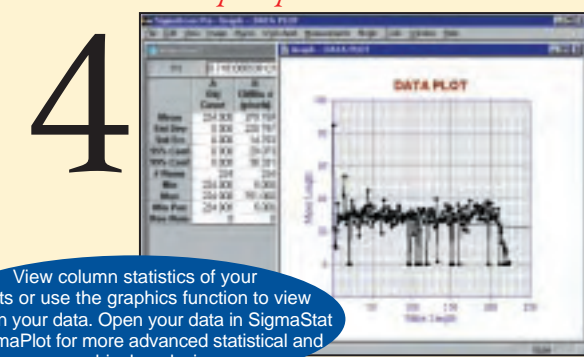
Use advanced image enhancement features, such as Histogram Stretch. Transfer key image features to one of five measurement overlays.

3 Count and measure the image objects



Apply powerful overlay tools such as hole fills, erosion and dilation filters and overlay math to zero in on relevant features. Then use any of the 50 built-in measurement methods.

4 Analyze your results



View column statistics of your results or use the graphics function to view trends in your data. Open your data in SigmaStat or SigmaPlot for more advanced statistical and graphical analysis.

As a scientist, engineer or technician, you're often faced with problems that are difficult to measure but easy to photograph. SigmaScan Pro provides a complete PC image solution for scientists — everything from image collection to data analysis. These powerful image analysis tools serve a multitude of scientific applications, including: optical microscopy, X-ray enhancement, cell counting and sorting, surface analysis, particle distribution, printed circuit board inspection, surface flaw detection and isolating typographic map features. And SigmaScan Pro offers complete compatibility; you can capture

images from any TWAIN-supported device. You can open, modify and save common image files as such as BMP, JPEG, Mac PICT, PCX, TGA and TIFF. SigmaScan Pro is also compatible with many other file types you may encounter, including PhotoShop PSD, EPS and RAS. Plus, SigmaScan Pro's easy-to-use interface is designed specifically for scientists and technicians who don't have the time or desire to become imaging experts — helping you quickly gain the information you need from your images and saving you valuable research time.