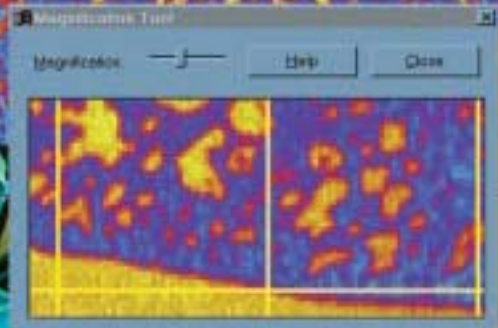# Powerful image analysis for your PC

Creating Innovative Solution

www.solutions4u-asia.com

**SigmaScan® Pro
5.0 for Windows**
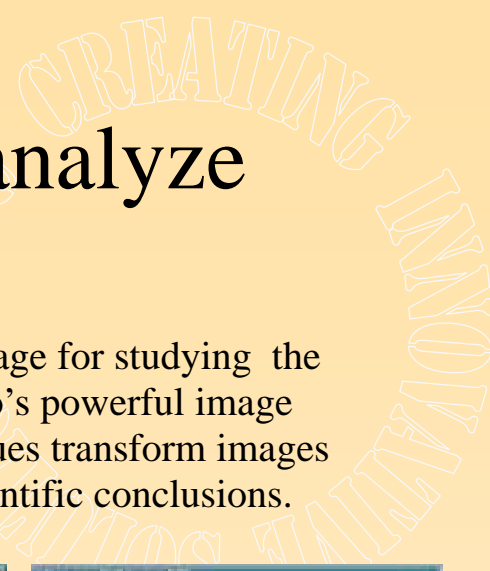
Easily count, measure and analyze your digital images

SigmaScan Pro provides a complete image-analysis package for studying the structure and size of visual information. SigmaScan Pro's powerful image analysis, enhancement and expert manipulation techniques transform images into reliable statistics, understandable graphs and valuable scientific conclusions.
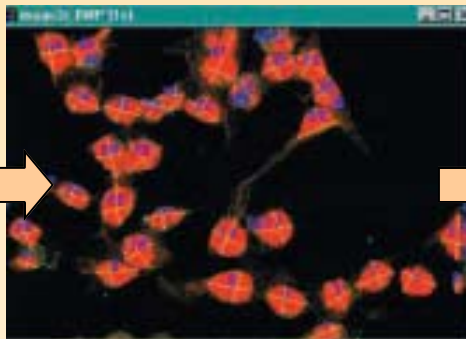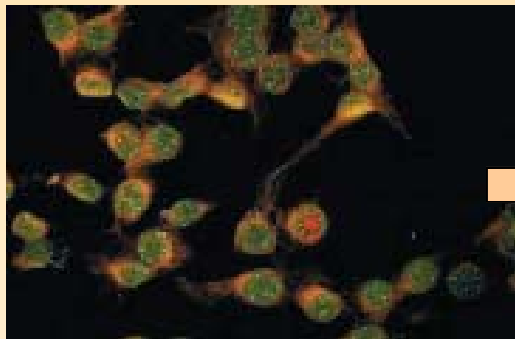
*Turn any image*   *into analytical results and*   *meaningful data and statistics.*

Powerful measurement tools

Choose from 50 powerful mathematical transforms to measure the image objects as you mark them with points, lines or areas for instant analysis.

For automated highlighting of image objects, use light density or color selection from the analysis histogram. SigmaScan Pro's powerful edge and line tracking option automatically traces the edge of an object and collects running measurements, so you save time marking the desired items. And, to automate repetitive tasks, use SigmaScan Pro's built-in Keyboard Macro Recorder.

With SigmaScan Pro, you can automatically count, label, and measure up to 64,000 objects at a time. You can also collect area, perimeter, slope, major or minor axis, shape factor, angles and many other measurements simultaneously.
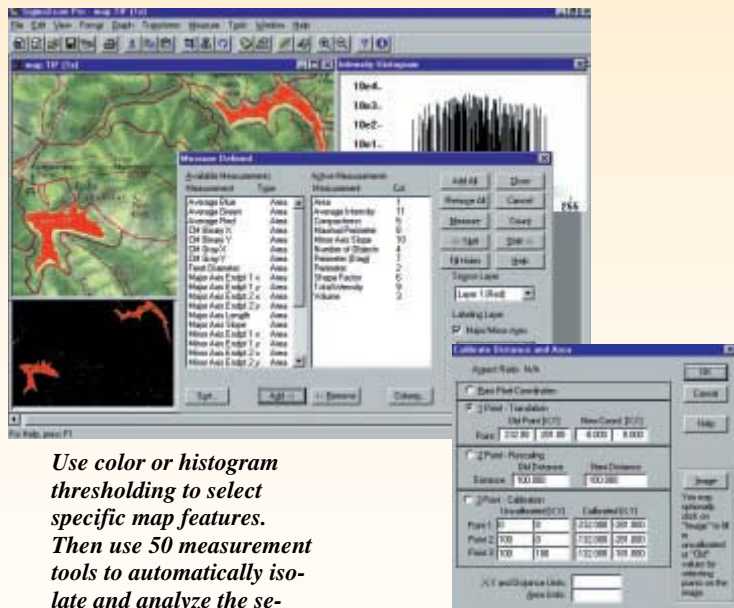
Use color or histogram thresholding to select specific map features. Then use 50 measurement tools to automatically isolate and analyze the selected features.

SigmaScan Pro's four calibration options, including raw pixel, 1D single point translation, 2-D linear distance, and 3-D area, provide multiple ways to quantify your measurements.

Improve images with sophisticated filtering

SigmaScan Pro's many image-enhancement tools make it easy to clean up and improve your digital images. You can remove noise or sharpen contrast with the built-in filters (convolution, ranking, binary and histogram remapping) for better clarity.

Use Image Math to remove noise and highlight features by adding, subtracting or averaging the pixel intensities of different images. With Lookup Tables, you can add color patterns to your monochrome images or convert color images to grayscale.

SigmaScan Pro also includes image processing procedures, such as clearfield equalization, pseudo-color and binary filters to clearly define image highlights.
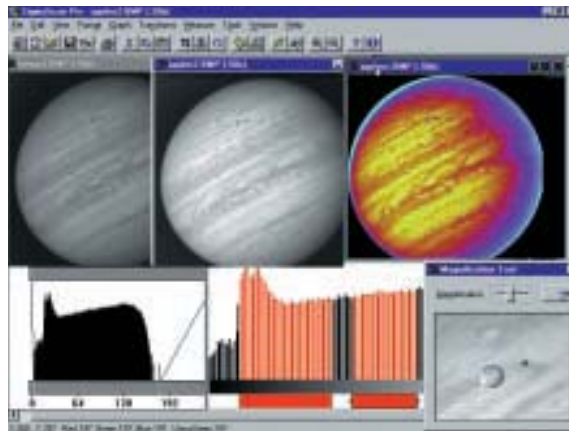
A black and white image of Jupiter is contrast enhanced and colorized with pseudo-color Lookup Tables. You can clearly see the moon, Io, in the image magnifier.
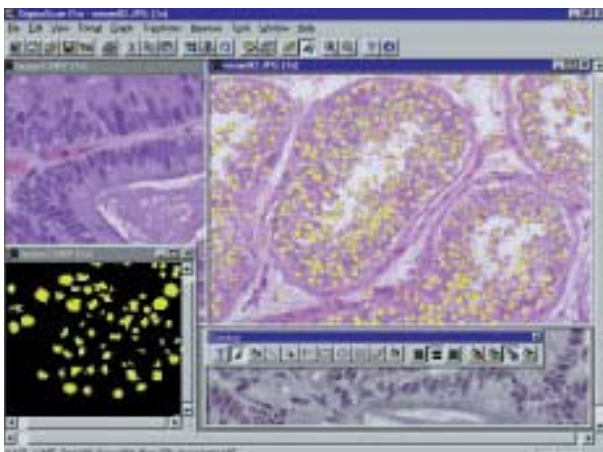
A stained microscope specimen of cancerous growths is analyzed for size and shape. The drawing tools are used to highlight key areas for presentation and analysis.

## Easily manipulate and annotate your images

SigmaScan Pro's four non-destructive overlay layers let you mark, zoom, paste, clear, mask, rotate, flip, annotate or define measurement parameters for specific features. The drawing tools, including text, boxes, grids, ovals and more, are easy to use. Simply choose all tools from the floating Annotation Toolbar.

To help easily identify image objects, SigmaScan Pro labels each object either directly on screen or in the status bar. To further identify objects and their corresponding measurements, use Object Number Reporting, picking out unwanted image objects from the spreadsheet. One mouse click cleans up your analysis, removing unwanted objects and measurements. And, to ensure consistent analysis, the spatial and intensity calibration information transfers between images.

Develop solid conclusions with advanced data analytical capabilities

SigmaScan Pro enables you to program your own enhancements, transforms and calculations to customize operations, speed repetitive tasks and create specialized analysis transforms. In addition, the built-in graphing capabilities let you plot your data quickly, so you can easily see your conclusions.

And for more in-depth graphing and statistical analysis, all spreadsheet data are compatible with both SigmaPlot and SigmaStat.
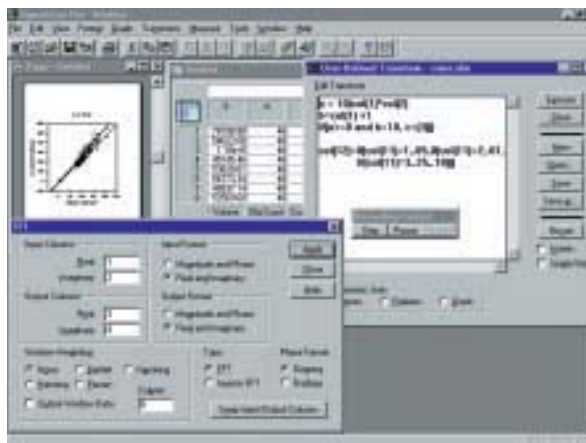
Advanced features include column statistics, task macro recorder, programmable analysis transforms, graphing capabilities, FFT transforms, and easy data export to SigmaPlot and SigmaStat for advanced graphing and statistics.

Solutions 4U offers a wide range of software solutions for scientists and engineers

- **SYSTAT**,® Unparalleled research-quality statistics and graphics
- **SigmaPlot**,® Exact graphs for exact science
- **SigmaStat**,® Advisory statistical companion to SigmaPlot
- **SigmaScan**® **Pro**, Powerful image analysis
- **TableCurve 2D and 3D**,™ Automated equation discovery and curve fitting
- **PeakFit**,™ Automatically separate and fit up to 100 peaks
- **AutoSignal**,™ Easy signal analysis

Learn more about SigmaScan and other Systat products
Contact our office enquiry@solutions4u-asia.com
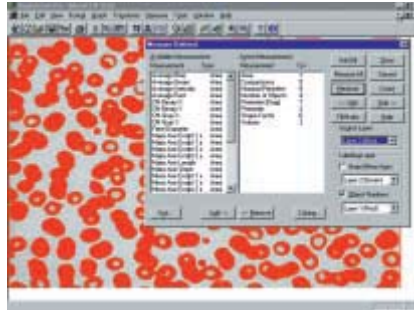or visit us at www.solutions4u-asia.com/SigmaScan.html

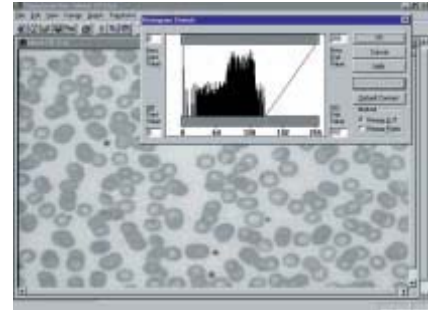# An imaging task: from start to finish with SigmaScan Pro

STEP 1 — Open the image or capture it
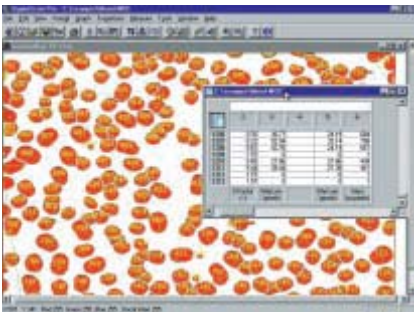
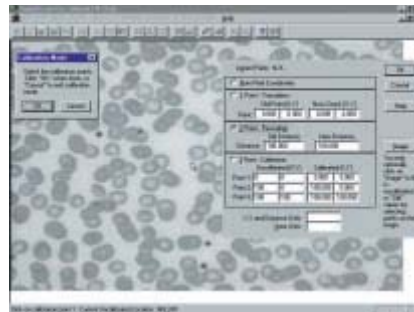**STEP 2** — Enhance the image quality

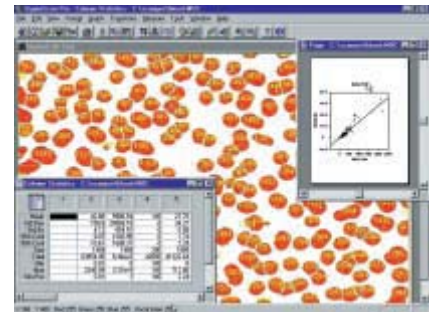**STEP 3** — Calibrate the distance with the measurement tool

STEP 4 — Select the desired measurement tools
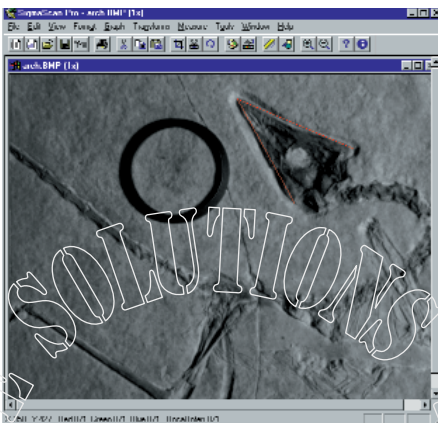
STEP 5 — Your results are automatically marked on the screen and collected in the spreadsheet

STEP 6 — Use the column statistics and graphing capabilities to turn data into conclusions

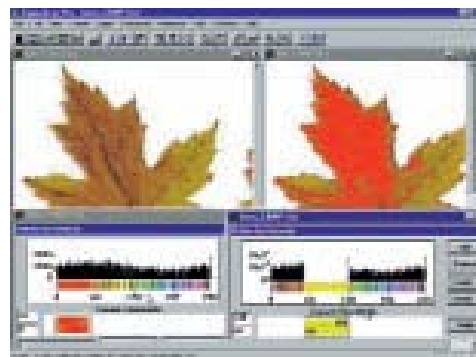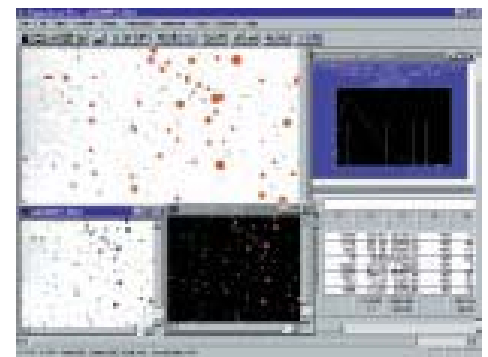# Comprehensive image-analysis tools for a wide range of applications

Archeology
Collect fossil measurements easily and accurately from photographs of image files.
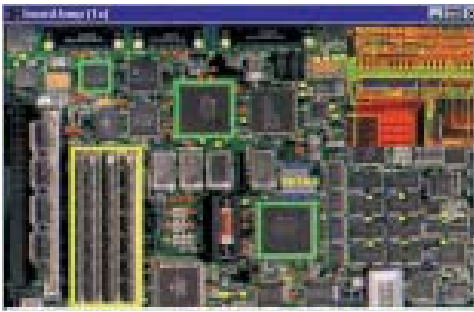
Biology
Obtain diagnosis of disease from accurate leaf color measurements.

Chemistry
Measure particle size and shape from microscopic slides or micrographs. Here, the size data is fitted with TableCurve 2D to obtain an exact curve fit.

Comprehensive image-analysis tools for a wide range of applications

Electrical engineering
Printed circuit board design, analysis and annotation is simplified from a photo or scanned image. Exact positions and connections are easy to measure.
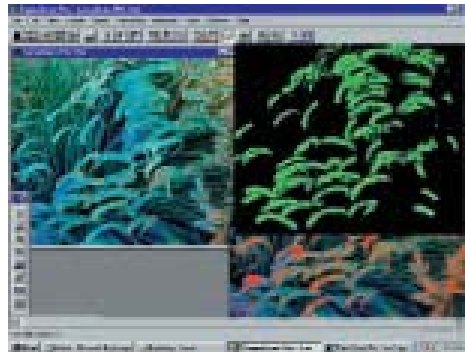
Electron microscopy
Obtain accurate size and area measurements from video input of detailed structures.

Arial/Satellite photography
Accurately determine areas or distances from photographs, and highlight specific areas, such as roads and greenery.

SigmaScan Pro specifications

Input options
- Capture images with any TWAIN compatible device or frame grabber board
- Open image files TIFF, TGA, TCX, BMP and JPEG
- Load 1, 4, 8, 16, 24 or 32-bit color images
- Load 1, 4 and 8-bit grayscale images
- Open data files SigmaPlot, Lotus, Excel, Quattro, DBF, DIF and ASCII
- Open saved SigmaScan Pro sessions (.SES)

Image editing
- Cut, copy and paste
- Crop, duplicate and restore
- Image information

Image annotation
- Text, lines, arrows, rectangles, ovals, concentric circles, grids, fill, unfill, erase
- Multiple pen sizes
- Undo
- mage masking and reverse masking
- Object elimination

Image processing
- Color to monochrome conversions
- Monochrome Lookup Tables (LUTs)
- Pseudo-color LUTs
- Clearfield equalization
- Pseudo-clearfield equalization

- Image math (add, subtract, average)
- Image splice
- Image rotation: 90, 180, 270 degrees
- Image flipping: along horizontal axis, along vertical axis
- Mask image
- Intensity histogram
- Histogram stretch
- Convert to grayscale
- Color thresholding
- Gray filters
- Median, ranking, average, gradient
- Prewitt (East & North), Laplace (4 & 8), Sobel (magnitude and phase), Roberts, user defined

View options
- Zoom in
- Zoom out
- Magnification tool: from 1 (no zoom) to 32 (32X normal size)

Measurements
- Measure defined (automatic measurements)
- Trace measurement options
- Fill measurement options
- Edge/Line tracking options
- Fast object count

Spatial measurements
- Perimeter, area, shape factor, compactness, feret diameter, number of pixels, center of mass, major/minor axes length, slope, end points, and volume for

axially symmetric objects
- Spatial calibration: 1, 2 and 3 point
- Intensity calibration: linear and nonlinear
- Copy calibration data
- Fill holes

Intensity measurements
- Average over an area, line width average, pixel intensity, total intensity, hue, and saturation
- Line measurements: slope, angle, distance
- Point measurements: tally, XY coordinates
- Object ID numbers
- Object number reporting

Layer (binary) functions
- Four non-destructive overlay layer colors
- Multiple thresholds per image
- Binary filters
- Erosion: normal, split objects, preserve shapes, keep residuals
- Dilation: normal, don't merge objects, preserve shapes, dilate residues
- Special
- Delete single pixels, save object edges, delete all objects touching the image edge
- Layer math: AND, OR, XOR, NOT, copy, clear
- Object labeling
- Major/Minor axes, object number

Data handling
- Data worksheet: 65,000 rows and 16,000 columns
- Column statistics
- Mean, std. deviation, std. error, 95% and 99% confidence intervals, size, total, min/max value, min. positive value, missing values

Transforms
- Create user-defined transforms using over 50 math functions (trigonometric, number, range, accumulation, random number generator, precision, statistical, area, distance and more)
- Fast Fourier transforms (FFT): object classify

Data plotting
- Y vs. row number, Y vs. X, multiple Y vs. X
- Regression lines
- Grid lines
- Scatterplot, line plot, symbols and lines plot
- Graph and axes titles
- Linear or logarithmic scaling

Output options
- Save image: BMP, TIFF, PCX and JPEG
- Save data: SigmaPlot, Lotus, Excel, ASCII

Solutions*4U*
Creating Innovative Solutions