


OPTIMAS™

From Images to Answers™

OPTIMAS brings a new level of performance and programmability to your imaging applications.

 MEDIA
CYBERNETICS®
The Imaging Experts™

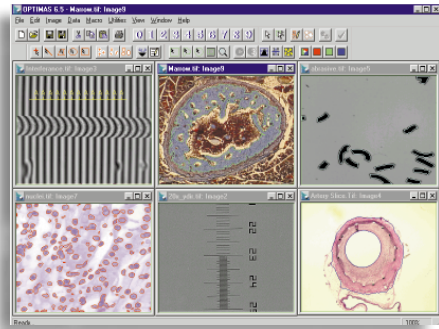
A microscopic image of cells, likely fibroblasts, showing a network of green filaments and red puncta. The cells are arranged in a somewhat circular pattern, with some larger, more rounded cells and many smaller, elongated ones. The background is dark, making the fluorescent structures stand out.

Since 1987, Optimas software has helped scientists and engineers to extract vital information from images. This information is propelling discoveries in science, creating breakthroughs in product development, and improving manufacturing quality control. The software combines the power of a comprehensive image analysis toolset with the flexibility of developer's package in one easy-to-use environment.

Optimas can be used for any life science research or industrial application where image analysis helps users to understand processes, make comparisons, or identify objects. This powerful software is designed for scientists, researchers, laboratory technicians, and QA/R&D engineers who use microscopes and other image acquisition devices to acquire, process, and analyze images. The software includes a full range of counting, sizing, statistical, and image enhancement tools that increase productivity. Unlike manual methods or existing systems which are either too expensive or difficult to use, Optimas is a powerful development environment that delivers reliable, repeatable results at an affordable cost.

Optimas is backed by a worldwide network of authorized dealers who are experts in image acquisition, processing, and analysis. They can assemble a system that meets your imaging needs and provide the best technical support in this industry. When facing a tough application and a tight deadline, this kind of support can mean the difference between failure and success. *So, choose the software that provides the solutions you need — OPTIMAS.*

Optimas gives you the power to turn images into answers

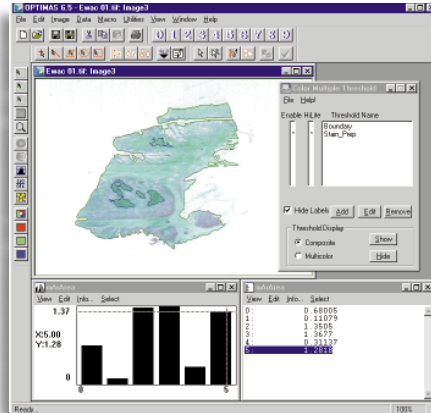


TOOLS TO CAPTURE AND MANAGE ANY IMAGE

Optimas simplifies the acquisition process with a seamless interface that allows you to connect to almost any image capture source. But image capture and display are often just the beginning of an image analysis solution. To solve tough problems, you need powerful image processing tools. Optimas provides a comprehensive set of image processing tools that are presented in menus and dialog boxes. To give you optimum control, image processing techniques are macro-recordable and can be customized to suit your requirements.

ACCURATE MEASUREMENTS AND REPEATABLE RESULTS IN 4 EASY STEPS

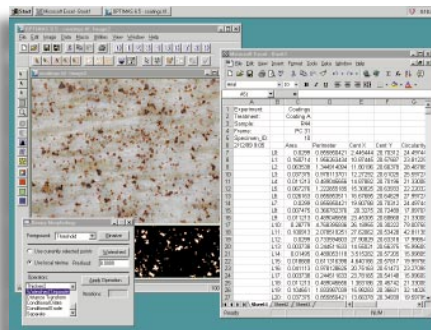
1. First, identify the features you want to measure. You can use tools that draw, trace, or even automatically recognize features.
2. Next, select a set of measurements. The Optimas measurement list includes hundreds of measurements and even lets you define your



Analysis tools let you identify and measure features automatically.

own. Pre-defined measurement sets are available for particle counting, object classification, densitometry, gauging, critical dimension measurement, object tracking, and more.

3. When you're ready, export the measurements to an ASCII file or send them directly to Microsoft Excel.



Optimas can capture and format data, create analysis spreadsheets, and produce custom reports with built-in data report templates.

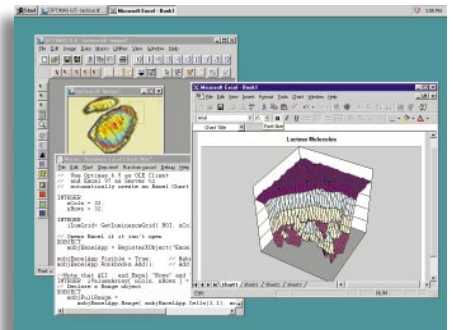
4. Begin automating your application by recording a macro, then replay the macro or place it in a menu. If you prefer, you may use one of several

application macros that are already pre-packaged by Media Cybernetics for you. Application macros include:

- ▶ Percent activity analysis
- ▶ Particle Counting, motion analysis
- ▶ Volume fraction through a z-series
- ▶ Motion detection
- ▶ Luminance surface plotting

THERE IS NO BETTER TOOL FOR CREATING CUSTOM APPLICATIONS

Optimas lets you quickly design and implement custom applications. You can easily record and edit scripts of Optimas commands. Non-programmers can understand and edit macro commands, and programmers enjoy the C syntax and vector processing capabilities that offer better performance than interpreted C or Basic.



To get a head start on application development, you can cut and paste functions from libraries of macro source code that are included with Optimas. Or, you can select any macro

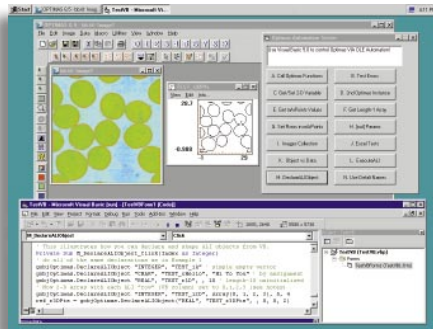
The **power** you want, the *flex*

command name and jump to online help. Each of the nearly 400 macro commands includes detailed descriptions of parameters, return values, related topics, and (best of all) source code examples you can cut and paste into your application.

But Optimas' rich development environment offers much more than macro scripting. You will find tools for creating custom image processing and measurement routines, commands for communication and device controls, all of the mathematical operators normally found in C, plus high level vector, matrix, and frequency domain mathematics. Optimas can now operate as an Object Linking and Embedding (OLE) Client or Server, increasing the possibilities for seamless application development between dozens of other Windows applications! For controlling other Windows programs and libraries, you can call external functions in Dynamic Link Libraries (DLL's).

CUSTOM USER INTERFACE DEVELOPMENT

Optimas also includes custom user interface development tools. You can draw dialog boxes in any Windows resource tool and instantly link them to any Optimas function. For more control, you can write programs in your favorite development environment such as Visual Basic and Visual C++.



You can create custom applications to drive Optimas from Visual Basic, or place Optimas images directly in Visual Basic forms.

THE BEST SUPPORT TEAM BEHIND YOU

Solving problems is easier with technical support from Media Cybernetics backing you up. You can get integration, installation, and application development services through your Authorized Optimas dealer. You can contact Media Cybernetics directly via fax or e-mail, or phone.

Optimas[®]
From Images to Answers[™]

MEDIA CYBERNETICS[®]
The Imaging Experts[™]

North and South America
+1.301.495.3305

Europe +31.715.730.639;
Fax: +31.715.730.640

Asia Pacific +65.245.4965;
Fax: +65.245.4967

info@optimas.com
www.optimas.com

CHOOSE OPTIMAS FOR YOUR IMAGING SOLUTIONS PARTNER

Since 1987, scientists and engineers around the world have chosen Optimas because it works. Better for custom solutions. Better support when you need it most. For solutions to your image analysis applications, call Media Cybernetics.



TRAINING

In addition to the industry's best technical support services, Media Cybernetics provides a full range of training courses.

Choose from Image Analysis with Optimas, Application

Development with ALI, or the

Image Analysis Tutorial. Full

course details can be found on

our web site, www.optimas.com.

ibility you need

IMAGE TYPES

- ▶ 8-bit gray
- ▶ 10-bit gray
- ▶ 12-bit gray
- ▶ 16-bit gray
- ▶ 24-bit gray
- ▶ 32-bit gray
- ▶ Floating point
- ▶ 24-bit color
- ▶ 8-bit indexed color

IMAGE CAPTURE & PROCESSING

- ▶ Select a camera to suit your application
- ▶ Utilize any scanner with the industry standard TWAIN interface
- ▶ Open standard and proprietary image files
- ▶ Acquire Photo CD images
- ▶ Save in industry-standard file formats, including JPEG compressed and FTS high-bit depth
- ▶ Capture time or spatial image sequences

- ▶ Adjust image contrast
- ▶ Average and reduce noise
- ▶ Enhance with filtering and morphology
- ▶ Subtract or correct background noise
- ▶ Compare images with pixel operations
- ▶ Rotate and align images
- ▶ Zoom, pan, and scroll images
- ▶ Annotate and print images

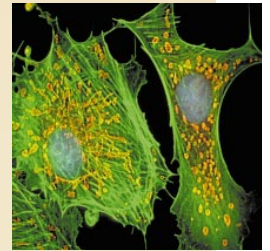
MEASUREMENT & ANALYSIS

- ▶ Percent activity
- ▶ Particle counting
- ▶ Motion analysis
- ▶ Volume fraction
- ▶ Motion detection
- ▶ Luminance surface plotting
- ▶ Line morphometry and profile

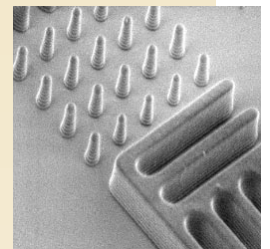
- ▶ Area morphometry and densitometry
- ▶ Point analysis
- ▶ Gauging and critical dimension measurement
- ▶ Color segmentation and analysis

APPLICATION DEVELOPMENT

- ▶ Macro scripting/editing
- ▶ Custom programming with C-like syntax
- ▶ Custom user interface creation using standard resource editor, Visual Basic, and C++
- ▶ Extensive built-in debugging tools
- ▶ OLE and DLL support



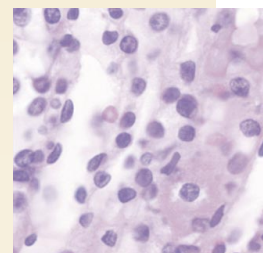
Multi-bank color analysis of biological or industrial images.



Enhancement and measurement of low-light fluorescent images.



X-ray enhancement and non-destructive testing.



Cell counting and sorting, percent activity analysis, and densitometry.

Optimas Facts & Features

USER INTERFACE

- ▶ Open and process multiple images with multiple document interface.
- ▶ Configure floating 3-D toolbars.
- ▶ Access context sensitive on-line help.
- ▶ Right-click on images to access common imaging functions

IMAGE INPUT

- ▶ Use supported cameras for standard video, non-standard analog, and digital inputs in color and black and white. Low light and non-standard cameras are supported through special frame grabbers.
- ▶ Supported frame grabbers include all of the major companies, including Coreco, Imagenation, Imaging Technology, Integral Technologies, and Matrox, among others.
- ▶ Acquire images from any Twain scanner.
- ▶ Read proprietary image formats, as well as open images from Photo CD.
- ▶ Open and save standard industry file formats, including; TIFF, GIF, PCX, BMP/DIB, EPS, WMF, TGA, WPG, and FTS. Image size is up to 16K by 16K.
- ▶ Image types include 8,10,12,16,24, and 32 bit integer grey, 24 and 48-bit color (HSI and RGB) and 64 bit real number pixels types. Images can easily be converted between types.

DISPLAY

- ▶ Defined image type and screen resolution.
- ▶ Work in Single or dual monitor configurations.

IMAGE MANAGEMENT

- ▶ Scale and zoom images
- ▶ Undo any number of imaging operations
- ▶ View and operate on individual color bands (RGB or HSI)
- ▶ Change colors of image overlays and fills
- ▶ Annotate images with color graphics, true type font, and user defined arrows.

ENHANCEMENT

- ▶ Improve image contrast by histogram manipulation, pseudo-coloring, and live adjustment of contrast and gain.
- ▶ Reduce noise and reveal image detail using image averaging, spatial filters, and FFTs.
- ▶ Correct background problems with image background subtraction, and image ratio tools.
- ▶ Correct image presentation problems using rotation and alignment tools

VISUALIZE IMAGE DATA

- ▶ Pseudo-color gray-scale images to distinguish features
- ▶ Visualize image data as a 3-D surface map

- ▶ Adjust contrast and brightness of images
- ▶ Set luminance bands to view on high-bit-depth images

REGIONS OF INTEREST

- ▶ Create single or multiple regions of interest using rectangular, circular, or freehand creation tools.
- ▶ Create complex regions of interest comprising two or more unconnected regions.
- ▶ View histograms of complex and irregular regions of interest.
- ▶ Process/measure only within regions of interest

MASKING

- ▶ Mask inside or outside the region of interest.

EDGE DETECTION

- ▶ Automatically trace and measure variable sized edges.
- ▶ Detect and measure edges based on user defined edge patterns.

FEATURE IDENTIFICATION

- ▶ In color or grayscale, manually or automatically characterize all objects as points, lines, or areas.
- ▶ Threshold manually or automatically for color or grayscale images.
- ▶ Identify objects based on multiple thresholds
- ▶ Automatically segment features using binary and grayscale morphology, and watershed filters.
- ▶ Automatically create up to 20 object classes based on feature characteristics such as size, shape, position, and intensity.
- ▶ Mark features for identification or attention.

CALIBRATION

- ▶ Calibrates to any unit of reference.
- ▶ Correct for mismatched frame grabbers and cameras, or any optical distortion phenomenon.
- ▶ Make true measurements from warped or curved surfaces, or images gathered by cameras at abnormal camera angles.
- ▶ Match intensity calibration to engineering units with linear and non-linear curve fitting routines.
- ▶ Control data measurement and sampling to sub-pixel accuracy.

MEASUREMENT

- ▶ Count and size objects.
- ▶ Select the measurement set you need from hundreds of measurements provided in OPTIMAS, or create your own
- ▶ Visualize your data using OPTIMAS generated histograms, bar charts, graphs and charts

APPLICATION SPECIFIC UTILITIES

- ▶ Count particles, calculate area percentages, measure point, line and area morphology, analyze motion.
- ▶ Take advantage of scores of macros written for specific applications.

REPORTING

- ▶ Export your data to a preconfigured report template, an ASCII file, or directly into Excel for statistical analysis
- ▶ Design custom reports and export results to Microsoft Word, Excel, and other common packages

AUTOMATION

- ▶ Record work sessions, save, and replay
- ▶ Edit and customize your macros by adding prompts and messages
- ▶ Program from scratch using the OPTIMAS programming language, with hundreds of pre-built functions for image processing and measurement, communications, file handling, and controlling external devices, such as automated stages, cameras, and frame grabbers.
- ▶ Debug macros with the integrated ALI debugger
- ▶ Create custom programs with Visual Basic (or any other Automation Client) using Optimas as an Automation Server, including integrated context-sensitive help on Optimas from within VB.
- ▶ Control Automation Servers such as Excel or Word from Optimas.
- ▶ Use DLL's and Client/Server Automation to create true Windows applications.

PRINTING

- ▶ Preview files, and print to any Windows compatible printer.

DOCUMENTATION

- ▶ Product documentation includes reference manuals, extensive on-line help, and sample programming code with complete step by step instructions and application examples.

SYSTEM INTEGRATION

- ▶ Optimas Authorized Dealers are the most knowledgeable and experienced imaging professionals, and will assist in the installation and support of your imaging system.

APPLICATIONS

- ▶ Media Cybernetics and third party developers have written applications for most common imaging problems based on Optimas