
MAYACHITRA
Bringing state-of-the-art image
informatics solutions to your desktop

Mission

Mayachitra, Inc. provides state-of-art image processing, video management and computer vision technologies for content-centric applications in commercial, scientific, and defense markets. Automating the information extraction, access and management from image and video archives relieves the painstaking manual effort commonly required for extracting information of value from multimedia data archives.

Vision

Mayachitra thrives to research and develop state-of-the-art image informatics technologies related to image/video processing, computer vision, and large scale data management.

Capabilities

The company has core competencies in the areas of image processing, computer vision, cyber security, malware analysis, image forensics, image registration and bioimage analysis. Our team has extensive experience in image processing, machine learning, scientific computing, and multimedia databases. Our key technology area include:

- Large scale visual & activity content-based search
- High dimensional descriptor indexing
- Malware Detection
- Image Forensics
- Automated image labeling and classification
- Advanced image and video registration
- Quantitative analysis of biological images
- Compressive sensing
- Search relevance feedback
- Video saliency detection
- Tracking and video activity recognition

Fact sheet and Highlight

- Cofounded in 2001 as a consulting firm by B. S. Manjunath, Ph.D. and Shivkumar Chandrasekaran, Ph.D.; Expanded to a research and development company in 2005
- Located in Santa Barbara, California, USA
- Privately held
- Zero debt
- Primarily funded by federal grants (SBIRs and STTRs) and developed product sales
- **31** winning grants in last 9 years
- 1 project in transitioning Phase II to Phase III

Competitive advantages at Mayachitra

- Pool of highly qualified and experienced engineers
- Strong ties to UCSB, constant source of new technologies
- History of brining sophisticated technology with an intuitive interface, responsive to changing needs
- Deliver new products to market in cost effective ways with low overhead

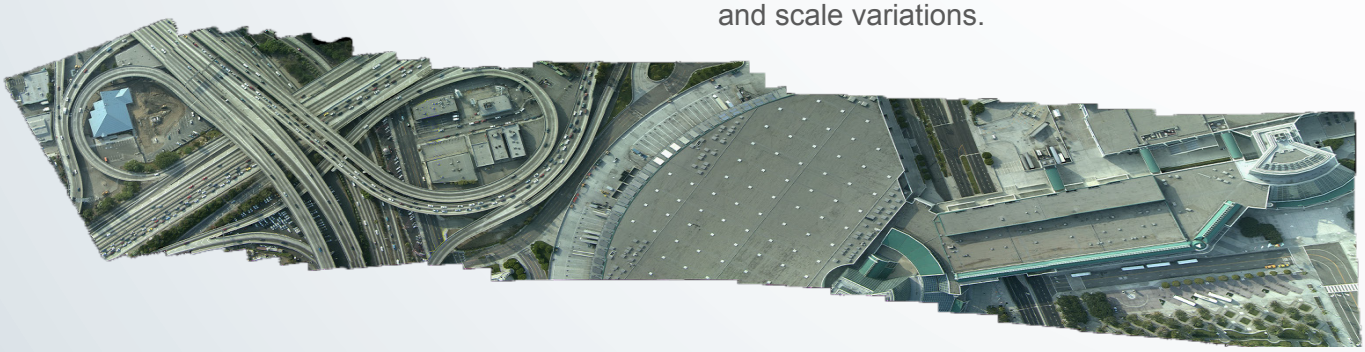
Products

AIPR™ (Advanced Image Pair Registration)

AIPR™ is a software tool designed to register unordered sets of images and video streams in a completely automatic manner. AIPR™ employs state-of-the-art, proprietary algorithms that are designed, integrated, and tuned specifically for unmanned aerial vehicles (UAVs) and satellite imagery offering unprecedented robustness and accuracy in presence of large distortions, scale variations, and even across different sensor modalities. AIPR™ runs on off-the-shelf hardware taking full advantage of multi-core technology.

AIPR™ for geospatial applications offers

- **Advanced error analysis** support to inspect the quality of the registration results and to quantitatively evaluate the accuracy of the registration process.
- **GeoReferencing tools:** The newly registered images will inherit the latitude and longitude information from the reference images.
- **Video stabilization:** Unprecedented robustness and accuracy in presence of significant jitter and vibrations, missing or noisy frame, large distortion, and scale variations.

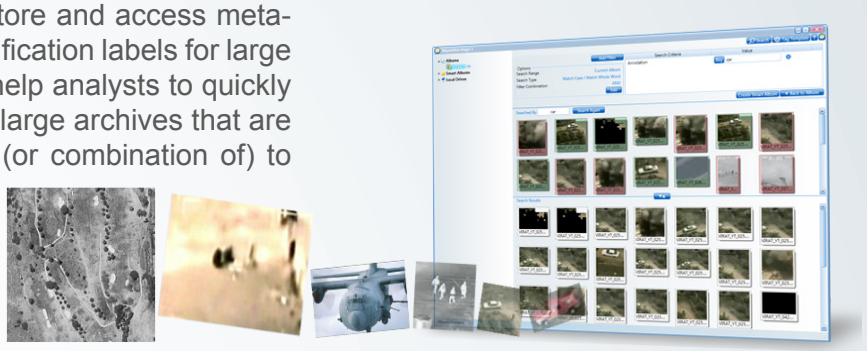


VIS™ : Visual & Activity Content-based Index and Search

Analyze. Interpret. Search.

Massive image/video databases.

VIS™ has a unique capability to derive, store and access meta-data, content descriptors, and scene classification labels for large archives of images and video. VIS™ can help analysts to quickly retrieve image regions or video clips from large archives that are similar in activity, appearance, metadata (or combination of) to the query video clips or image examples.

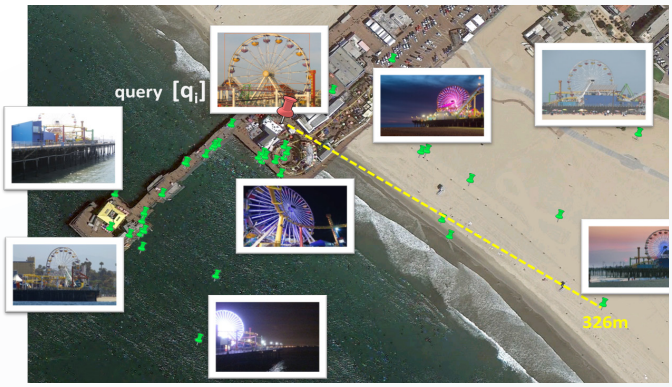


VIS™ offers:

- Automated image and video labeling to generate annotation and context information
- Interactive query refinement for video and image content-based search
- Video activities search and retrieval
- Image matching based geolocalization
- Object segmentation and classification
- Open architecture and customization

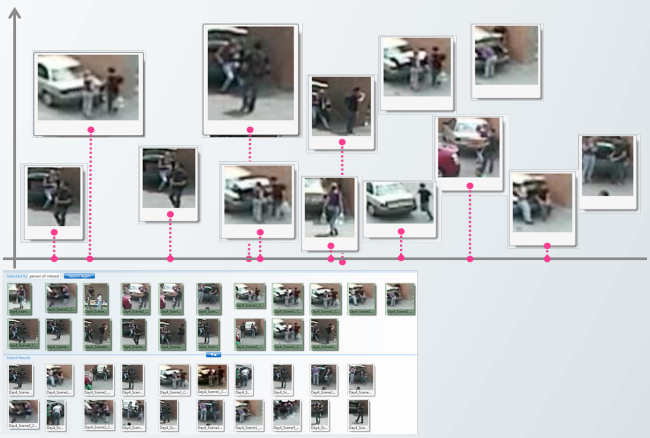
Image matching based geolocalization

VIS™ determines the location of query images by comparison to a large database of geolocated imagery. Image matching can narrow down the search area dramatically and can be further narrowed down with analyst feedback.



Video activity search and retrieval

VIS™ provides analysts with an intuitive user interface including visualization of activities/ motions detected from videos, summarization of activities, and query interface. Analysts can quickly annotate activity by a couple of clicks, and search similar activity .

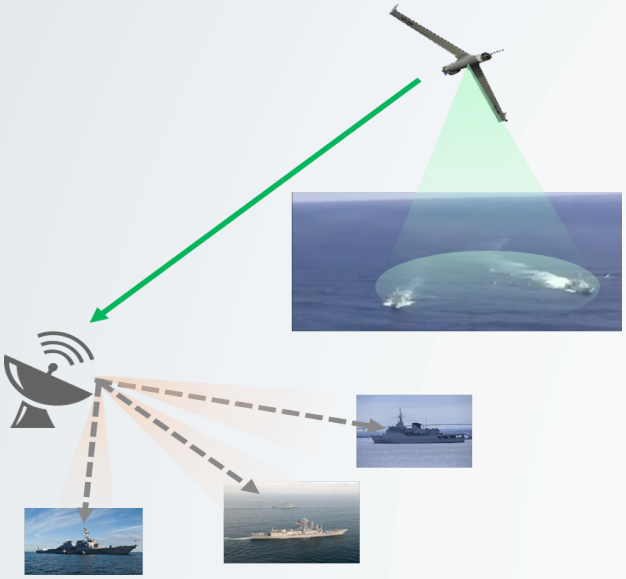


Object segmentation and classification

VIS™ integrates multiple object segmentation and classification methods ranging from straightforward supervoxel segmentation to class-generic object detection to joint object recognition and segmentation.

MIECS: Motion Imagery Exploitation with Compressive Sensing

Smart compression.
Affordable bandwidth.



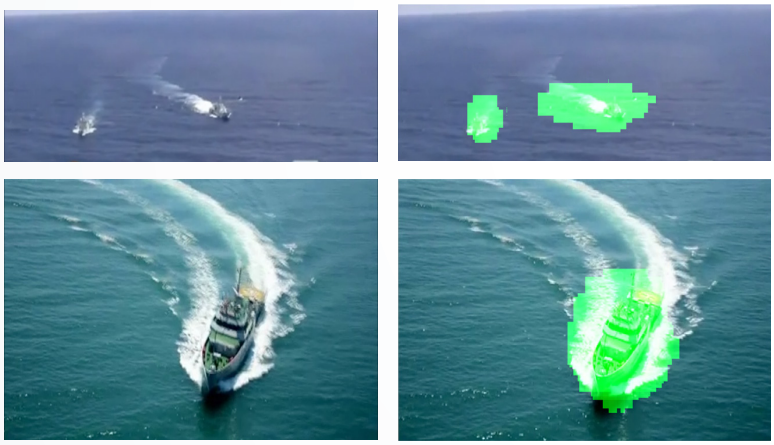
MIECS is a software system for reconnaissance video that combines advanced automated saliency detection with modern compression techniques to reduce video data rates for transmission and storage and to focus attention on important video segments.

MIECS offers:

- State-of-the-art automated video saliency detection. Interesting regions and clips are determined automatically.
- Compression that adjusts bandwidth to capture video most likely to be interest with higher fidelity than background.
- Novel techniques in data compression significantly reducing encoding complexity.

Saliency-based compression

MIECS automatically detects *interesting* object and regions from video sequences and compresses these regions with much higher quality than the background regions.

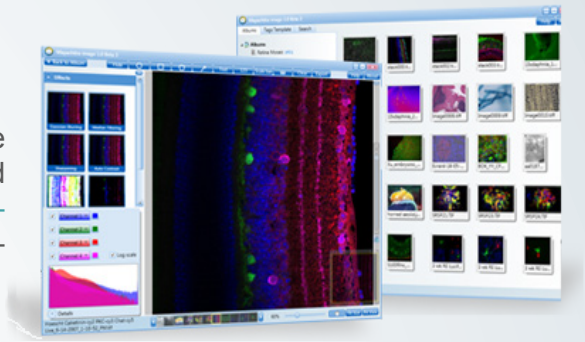


Saliency-based compression reduces the rate to 1/4 that of standard compression, while preserving fidelity in the region of interest.

Mayachitra imago™: Bioimage Management and Analysis Software

Sophisticated technology.

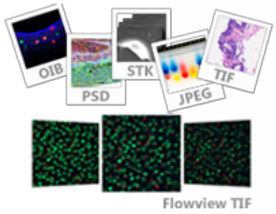
Intuitive interface.



imago™ is an advanced desktop image management package that enables scientists to easily store, manage, search, and analyze 5D biological images and their analysis results. imago™ also integrates flexible annotation and metadata management with **advanced image analysis tools**.

Unique features of imago™

Flexible image data management



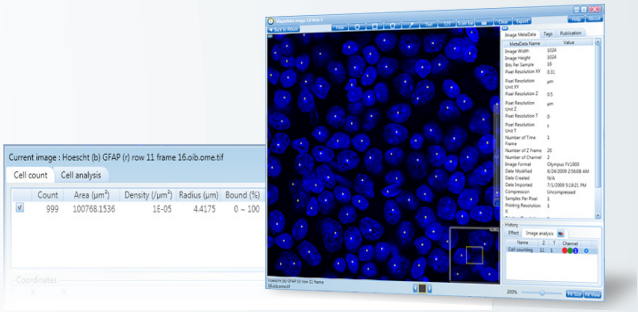
imago™ works independently from any imaging device and provides one single place to manage all images in different formats. Content-rich images can be easily organized, stored, annotated, and analyzed in one, easy to use interface.

Rich graphical annotation

Easily measure length, perimeter, area, and count cells from an image. You can create a figure for publication easily with imago™. Add a scale bar, text box, and arrowheads by a single click.

Automatic cell counting

It automatically identifies cell centers via intuitive cell counting wizard. imago™'s nuclei detector is incredibly simple to use yet powerful and robust method to analyze large sets of digital micrograph.

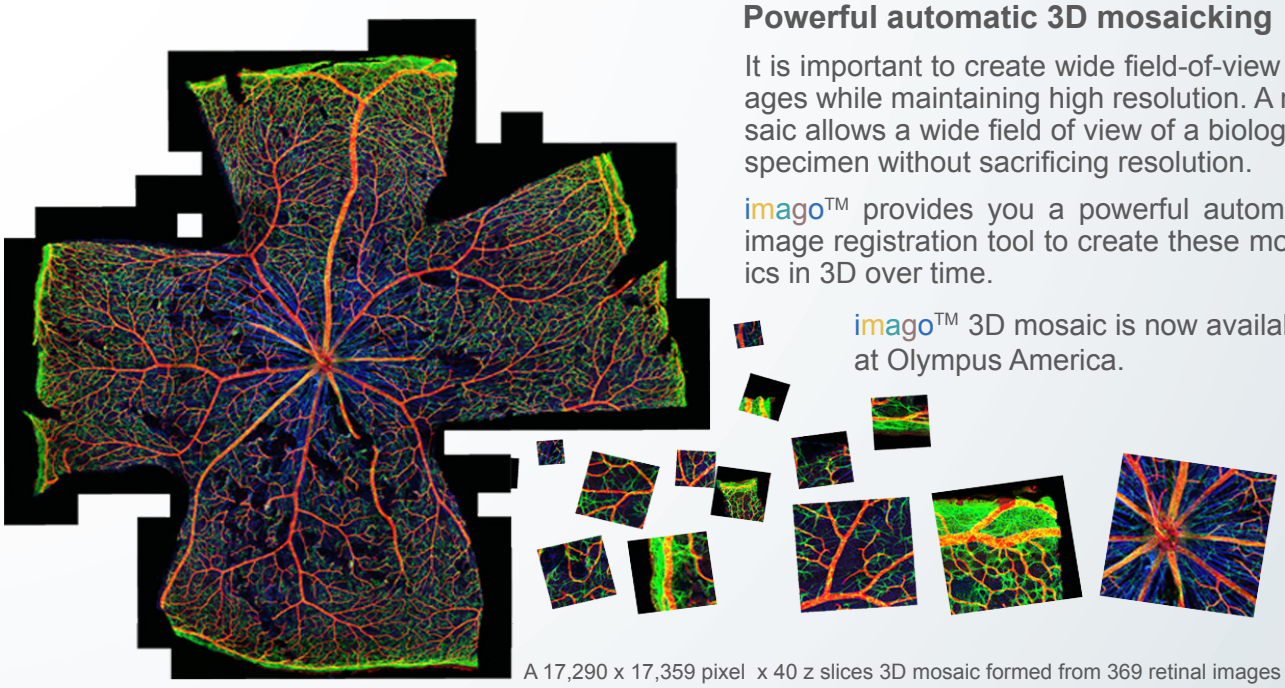


Powerful automatic 3D mosaicking

It is important to create wide field-of-view images while maintaining high resolution. A mosaic allows a wide field of view of a biological specimen without sacrificing resolution.

imago™ provides you a powerful automatic image registration tool to create these mosaics in 3D over time.

imago™ 3D mosaic is now available at Olympus America.



A 17,290 x 17,359 pixel x 40 z slices 3D mosaic formed from 369 retinal images collected from FV 1000. Images courtesy of Steven Fisher's Retina Cell Biology Lab, NRI, UCSB.

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