

Overview

EIKONA is a family of general purpose, highly portable digital image processing applications. The full implementations contain more than 500 routines in the following areas (non-exhaustive list):

Basic operations:

- Storage and retrieval of raw/TIFF/JPEG/TGA/GIF/PostScript/BMP images.
- Mixing, overlay, display and printing of binary, greyscale and color images.
- Basic operations, binary operators, geometrical transformations, zooming, color transformations.
- Various noise generators.

Transformations:

- Various FFT algorithms, periodogram, correlation, convolution, DCT.
- Linear filtering, Wiener filters, median and related filters, adaptive filters.
- Histogram computation, display and equalization.
- Halftoning, pseudocoloring, interpolation.

Other Features:

- Image coding algorithms (e.g. run-length, READ, LZW, DCT coding).
- Edge, line and contour detectors/followers.
- Region segmentation, texture analysis.
- Object counting and labeling, feature measurements, contour approximations, pyramids, quadtrees, thinning. Binary and greyscale mathematical morphology.

Features

EIKONA for Windows

EIKONA for Windows is an integrated, powerful and flexible software package for image processing, analysis and visualization. Image processing routines cover the following areas:

- image display and printing
- image thresholding, clipping
- image acquisition from any TWAIN compliant scanner source
- addition, subtraction, multiplication of images /and, or, xor bit-level operations

- various image noise generators
- two dimensional filters including adaptive and nonlinear filters
- histogram and cdf histogram computation and equalization
- image enhancement and sharpening
- region segmentation
- edge detection
- morphological filters
- image transforms
- color coordinate transformations

EIKONA user interface is based completely on pull-down menus and dialog boxes. As a consequence, it is extremely easy to operate even for users not very familiar with image processing. Images are stored on image buffers. All that is needed to apply an image processing function to an image is to specify the source and destination image buffer and the related parameters.

Furthermore, implemented functions are grouped into categories according to the type of operation that they carry out, in order to facilitate the search for a specific task. The user can choose the image region where processing is to be performed. Multiple images can be displayed on the screen at the same time, a valuable feature when comparing the results of different processing functions on the same image. EIKONA supports TARGA, PostScript, JPEG, Microsoft Windows BMP, GIF and Postscript file formats, as well as binary (raw) images. Conversion from one image file format to another is possible.

EIKONA Source

EIKONA source is a general purpose, highly portable digital image processing library written in C language (source code). Part of this library is exposed in the book I. Pitas, "Digital image processing algorithms", Prentice Hall, 1993. Users can easily expand the EIKONA source.

EIKONA Library

EIKONA library is the compiled version of EIKONA source. It contains the same routines that EIKONA source includes, albeit in object code format.

The library can be linked to any program written in Microsoft compatible languages (preferably in Microsoft C) and compiled in medium memory model. It can also be used to create applications that run under Microsoft Windows.

EIKONA DLL

EIKONA DLL is a dynamically linked library (DLL) version of EIKONA library, for use under the Microsoft Windows environment. It provides the same power as the EIKONA library. However it provides a higher degree of versatility, since it allows the linking at run-time. Thus, it utilizes memory only when the parent application accesses a library function. Additionally, only one copy of the library has to be loaded at any given time, regardless of the number of concurrently running programs that utilize it.

EIKONA for Unix

EIKONA for Unix is a Unix implementation of EIKONA for Windows. EIKONA for Unix is a digital processing application that fully harnesses the power of Unix workstations. Designed around the OSF/Motif graphical user interface, it combines versatility with considerable ease of use. Currently, EIKONA for Unix runs under SGI, HP and Sun workstations.

EIKONA for Arts

EIKONA for Arts is a digital image processing software for the digital processing and analysis of paintings and other works of art. It complements the general purpose digital image processing package EIKONA which contains more than 400 general image processing operations. It supports:

- digital image colorimetry
- digital image reflectography
- digital image registration
- digital image mosaicing
- digital image crack restoration
- digital image copyright protection

EIKONA for Arts/Capture

EIKONA for Arts/Capture is a system for high resolution imaging of paintings. It consists of a camera/illumination positioning system, frame grabber and software for motor control of the positioning system, frame grabbing and image mosaicing (assembly). It can be used with infrared cameras for high resolution digital reflectography (infrared imaging) or with visible light CCD or digital cameras for high resolution imaging in the visible wavelength range. Any other type of camera having PAL/NTSC output can be employed as well. The software controls the positioning system in manual, semi-automatic or automatic mode and grabs the images in the various camera positions. After image acquisition, the EIKONA for Arts software can be used for final image mosaicing (assembly), thus producing a high quality and high resolution digital image. Adjustable time frame averaging is supported to reduce acquisition noise in infrared imaging. In the Remote Camera mode, the software performs only positioning control, thus allowing frame grabbing from another computer (e.g. an Apple Macintosh connected to a high resolution digital camera). After image acquisition, the EIKONA for Arts software can be used for final image mosaicing (assembly), thus producing a high quality and high resolution digital image. Digital images can be stored by using the EIKONA for Arts/Database painting archiving software.

EIKONA for Arts/Database

EIKONA for Arts/Database is an advanced LAN database management system, which is oriented towards digital archiving of paintings and other works of art. Some of its key features include:

- Network (multiuser) operation. Both local and wide area networks are supported.
- Extended data storage capabilities. Unlimited bibliography, film and hardcopy information can also be stored in the database.
- Storage of digital images. Besides the large number of alphanumeric (text) information fields that can be stored, there is support for storing unlimited digital images (i.e. visible, infrared, ultraviolet, X-rays), spectroscopy signals and colorimetry measurements on a painting. This information can be stored in mass storage subsystems, such as CD-ROM towers, juke-boxes and RAID subsystems, for subsequent retrieval and display.
- SQL execution capabilities.
- Easy database up-sizing (see below).

EIKONA for Arts/Database is available in three versions, listed below in ascending order of power and versatility. All versions support the above listed features. Some additional key features are given below for each one of these platforms. However, it should be noted that each version can easily be upsized to the next one, without any data loss. The versions are:

1. EIKONA for ARTS/DATABASE

EIKONA for Arts/Database runs on TCP/IP networked Windows 95/NT systems, with at least 8 Mbytes of RAM (16 Mbytes of RAM is the preferable configuration). On the server, a mass storage subsystem, such as a CD tower, is required for image/signal storage and retrieval. Scanners and/or image acquisition systems (e.g. infrared imaging/mosaicing) can also be connected to the client systems.

Numerous text fields convey information on all aspects of a painting. A non-exhaustive field category list follows:

- creation details
- restoration efforts
- bibliography citations
- physical attributes
- associated films and hardcopies

With only a mouse click, stored digital images of an artifact can be displayed on any client, together with all associated spectroscopy signals and colorimetry measurements. The user (client) interface is based on Windows 95, with cleverly designed record navigation controls for maximum efficiency.

The EIKONA for Arts/Database can form an integrated digital artwork archiving solution, when it is combined with the EIKONA for Arts digital image processing package for paintings and works of art.

2. EIKONA for ARTS/CLIENT SERVER

This version of EIKONA for Arts/Database utilizes the best in client/server architecture. The solution is based on a high performance database server, the Oracle Workgroup Server 2000. High volume transactions do not represent a problem, since data integrity and high throughput are central features of the Oracle server environment.

Data migration from the smaller version of EIKONA for Arts/Database can be easily accomplished. As a direct consequence no significant downtime of the system is required, because upsizing can be performed in one day. In fact, no user retraining is required, since the same user (client) interface is employed. The upsizing process involves the database administrator only. Apart from the significant reliability and performance gain, users of the client-server version do not observe any differences in operation between the two versions of EIKONA for Arts/Database.

Hardware requirements of the client systems are the same as in the EIKONA for Arts/Database case. The server requires at least 32 Mbytes of RAM and should have Windows NT 3.51 Server (or higher) installed.

3. EIKONA for ARTS/WWW

This is the most powerful version of EIKONA for Arts/Database. This system elevates the EIKONA for Arts/Client-Server environment to new heights, by combining it with World Wide Web (WWW) access. Any one in the WWW can have controlled access to artwork information, stored in the database server, with the use of his/her favorite Web browser software (i.e. Netscape's Navigator, Microsoft's Internet Explorer). Data entry, queries, artwork image display can be as easy as filling a form and pressing a button in the browser. The client software which is used in the EIKONA for Arts/Database and EIKONA for Arts/Client-Server can also be used in systems which are in the same local area network with the server, as an alternative to Web browser-based operation. Thus, hybrid database access is possible.

Besides the need for the server to be connected to the Internet, requirements are the same as in the EIKONA for Arts/Client-Server case.

Requirements

Minimum

- Intel 486 processor
- Microsoft 95/98/Me/NT/2000/XP
- 32 MB of RAM installed
- 20 MB of available hard-disk space
- 256-color display adapter card







Recommended

- Intel Pentium processor or faster
- 64 MB or more of RAM
- 24-bit color display adapter card
- Large-capacity hard disk

DEMO

You can download a demo from www.alphatecltd.com

Price

	Product	Category	Price / Order form
	Eikona	Image processing	\$499 USD
	Eikona Library	Image processing	\$499 USD
	Eikona for Arts	Image processing / Museums	\$999 USD
	Eikona for Arts/Database	Image processing / Museums	\$1999 USD
	Eikona for Arts/Capture	Image processing / Museums	Request for a price
	Eikona Student	Image processing	free

Shipment and handling by post + \$80 / Free electronic shipment