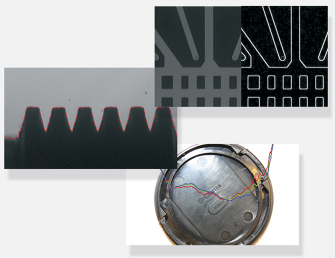
euresys
Empowering Computer Vision

EasyImage

Image processing library



At a Glance

- Set of optimized fundamental image processing and analysis functions
- Convolution and morphology
- Geometric transformations
- Histogram computation and analysis
- Noise estimation and reduction
- HDR (High Dynamic Range) image fusion

Benefits

New in Open eVision 24.02

EasyFind : Significant speed increase, without any loss of accuracy.

EasyImage

- New Gabor filtering function to help with texture analysis and edge detection.
- New inverse circle warp function, providing conversion between polar and cartesian coordinates.

Easy: Improved off-screen rendering on all platforms.

Admin: Simplified version upgrade procedure with version numbers removed from filenames.

Open eVision Studio: Evaluation, prototyping and development tool

Open eVision Studio is the evaluation, prototyping and development tool of Open eVision. Its intuitive graphical user interface allows you to call and immediately see the result of any of eVision's2D image processing functions. A scripting functionality generates the corresponding code, which can then be copied and pasted into your application.

Open eVision Studio is free (when using Open eVision 2.0 and above) and does not require any license.

Just click on DOWNLOAD OPEN EVISION STUDIO and install Open eVision. Sample images, manuals and sample programs are included.

EasyImage Description

- EasyImage includes operations usually performed as pre-processing steps to improve the image quality and obtain a good contrast between the background and the objects to be inspected.
- EasyImage supports gray-level and color images. Selected morphology functions are also optimized for binary (1-bit per pixel) and bi-level images.
- EasyImage includes numerous image processing functions, such as enhancement and restoration by linear or non-linear filtering, arithmetic and logic operations, geometric transformations for image registration, histogram analysis for thresholding, projection, ...

New in Open eVision 23.12

Import of standard datasets into Deep Learning Studio

- Import of COCO Json dataset for EasyLocate or EasySegment Supervised
- Import of YOLO TXT annotations for EasyLocate
- Import of Pascal VOC XML annotations for EasyLocate

EasySpotDetector (Beta release, contact us for more information)

- A single API and license for the alignment of region of interest, surface defect detection (particles, scratches,…) and classification with a custom trained Deep Learning classifier.
- Realtime processing for inline surface inspection

Flexible Masks

- Flexible Masks provide a powerful way of restricting the processing to freely selected parts of the image.
- They are supported by selected image analysis functions.

EasyImage includes the following functions:

- Gain / Offset change: Normalization, Uniformization, Lookup table mapping
- Thresholding: Automatic thresholding, Min residue, max entropy, isodata, Manual thresholding; Single threshold (absolute and relative), Double threshold, Histogram-based threshold
- Arithmetic operations: Addition, Subtraction, Multiplication, Division, Copy, Invert, Module, Shift
- HDR (High Dynamic Range) image fusion
- Logical and bitwise operations: AND, OR, XOR, NOT
- Pixel comparison, Minimum, maximum
- Histogram equalization
- Linear filtering: Edge detection (Laplacian, Gradient, Prewitt, Sobel, Roberts filters), Sharpening, Smoothing (Gaussian and uniform filters). Custom kernel filtering: Kernel creation and management functions.
- Non-linear filtering: Morphological operators (Erosion, Dilation, Opening, Closing, Thinning, Thickening, Top-hat filter, Hit-and-miss transform, Morphological distance), Median filter
- Geometric transformations: Image registration (alignment), Horizontal and vertical mirroring, Translation, scaling and rotation with optional interpolation, LUT-based (un)warping
- Vector operations, Projection, Profile sampling (line segment, path, contour) and analysis
- Statistics: Measurement of Area, Binary moments, Weighted moments, Gravity center, Pixel count and pixel statistics, Minimum and maximum gray-level value, Average, variance and standard deviation
- Histogram computation and analysis
- Image focusing
- Noise estimation and reduction: Spatial noise reduction (Convolution, Median filters), Temporal noise reduction (Recursive average, Moving average, Average), Noise estimation (Root-mean-square noise, Signal-to-noise ratio)
- Elimination of the interlaced images artifacts by rebuilding or re-aligning fields
- Feature point detectors: Harris corner detector, Canny edge detector
- Other operations: Overlay, Scalar gradient

Neo Licensing System

- Neo is the new Licensing System of Euresys. It is reliable, state-of-the-art, and is now available to store Open eVision and eGrabber licenses.
- Neo allows you to choose where to activate your licenses, either on a Neo Dongle or in a Neo Software Container. You buy a license, you decide later.
- Neo Dongles offer a sturdy hardware and provide the flexibility to be transferred from a computer to another.
- Neo Software Containers do not need any dedicated hardware, and instead are linked to the computer on which they have been activated.
- Neo ships with its own, dedicated, Neo License Manager, which comes in two flavours: an intuitive, easy to use, Graphical User Interface and a Command Line Interface that allows for easy automation of Neo licensing procedures.

All Open eVision libraries are available for Windows and Linux

- Microsoft Windows 11, 10, 8.1, 7 for x86-64 (64-bit) processor architecture
- Linux for x86-64 (64-bit) and ARMv8-A (64-bit) processor architectures with a glibc version greater or equal to 2.18

Applications

Machine Vision for the General Manufacturing Industries

- Image enhancement
- Presence / Absence check
- Surface analysis

Life Sciences & Medical

- Noise reduction for Xray imaging

Specifications

Software

Host PC Operating System	• Open eVision is a set of 64-bit libraries that require an Intel compatible processor with the SSE4 instruction set or an ARMv8-A compatible processor. • Open eVision can be used on the following operating systems: – Microsoft Windows 11, 10, 8.1, 7 for x86-64 (64-bit) processor architecture – Linux for x86-64 (64-bit) and ARMv8-A (64-bit) processor architectures with a glibc version greater or equal to 2.18 • Remote connections – Remote connections are allowed using remote desktop, TeamViewer or any other similar software. • Virtual machines – Virtual machines are supported. Microsoft Hyper-V, Oracle VirtualBox and libvirt hypervisors have been successfully tested. – Only the Neo Licensing System is compatible with virtualization. • Minimum requirements: – 2 GB RAM to run an Open eVision application – 8 GB RAM to compile an Open eVision application – Between 100 MB and 2 GB free hard disk space for libraries, depending on selected options.
APIs	• Supported Integrated Development Environments and Programming Languages: – Microsoft Visual Studio 2017 (C++, C#, VB .NET, C++/CLI) – Microsoft Visual Studio 2019 (C++, C#, VB .NET, C++/CLI) – Microsoft Visual Studio 2022 (C++, C#, VB .NET, C++/CLI) – QtCreator 4.15 with Qt 5.12

Ordering Information

Product code - Description	• 4001 - EasyImage for USB dongle • 4051 - EasyImage for PAR dongle • 4101 - EasyImage for board licensing • 4151 - Open EasyImage for USB dongle • 4201 - Open EasyImage for PAR dongle • 4301 - Open eVision EasyImage
Optional accessories	• 6512 - eVision/Open eVision USB Dongle (empty) • 6513 - eVision/Open eVision Parallel Dongle (empty) • 6514 - Neo USB Dongle (empty)

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