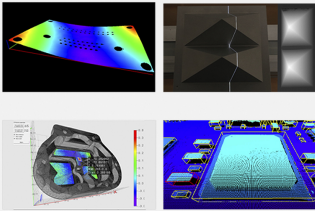![EURESYS - Empowering Computer Vision]

Easy3D

3D image processing library

At a Glance

- Point cloud processing and management
- Flexible ZMap generation
- 3D processing functions for cropping, decimating, fitting and aligning point clouds
- Compatible with many 3D sensors
- Interactive 3D display with the 3D Viewer

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.

Easy3D Description

Easy3D is the foundation library of Open eVision's 3D libraries. It contains a set of functions to manage 3D Depth Maps, Point Clouds and ZMap objects. Easy3D is required when using any Open eVision's 3D library and is provided when purchasing Easy3DLaserLine, Easy3DObject, Easy3DMatch or the 3D Bundle.

Point Cloud processing

After calibration, the 3D point cloud contains distortion-free data using a real-world 3D coordinate system. Process 3D point clouds using Easy3D functions such as coordinates transformation, point cloud cropping and decimation, plane finding and fitting or part alignment.

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

ZMap generation

A ZMap is the projection of a point cloud on a reference plane, where distances are stored as pixel gray scale values. ZMaps are distortion free, with a metric coordinate system. Easy3D provides functions to generate such ZMaps. More importantly, you can apply all Open eVision 2D processing functions to ZMaps: filtering and thresholding with EasyImage, blob analysis with EasyObject, sub-pixel measurement with EasyGauge, pattern matching with EasyFind and EasyMatch…

Compatibility with 3D sensors

The Easy3D library is able to import data from third-party 3D sensors from Automation Technology, Azure Kinect, Benano, IDS Ensenso, Intel Realsense, Lucid Helios, LMI Gocator, Mech-Mind, Photoneo PhoXi, Shenzhen SinceVision (SSZN), Zivid and others. Point Clouds and ZMaps are managed efficiently and allow 3D processing and analysis to be performed.

3D Viewer

Use the 3D Viewer class of Easy3D to create an interactive 3D display. The 3D Viewer can display point clouds and 3D objects. It uses the OpenGL interface and requires a compatible display device.

Photometric Stereo for 3D surface inspection

The Photometric Stereo function estimates the orientation and albedo of each point of a surface by acquiring several images of the same surface taken from a single viewpoint, but under illumination from different directions.

The method is suitable for the inspection of details (defects or information) present on the surface of objects that cannot be seen by a single camera-light pair and reveals small variations in surface curvature or texture.

It can be used as a preprocessing phase to other libraries, such as code reading (EasyMatrixCode, EasyQRCode or EasyBarcode), optical character recognition (EasyOCR), alignment (EasyMatch, EasyFind), measurement (EasyGauge) or defect detection (EasyObject or EasySegment).

Photometric Stereo is available in the Easy3D library.

Open eVision 3D Studio

The Open eVision 3D Studio application drastically simplifies the configuration of single and dual 3D laser line inspection systems using the Coaxlink Quad 3D-LLE frame grabber, as well as the Easy3D and Easy3DLaserLine libraries.

Open eVision 3D Studio is free and does not require any license.

Just click on DOWNLOAD OPEN EVISION 3D STUDIO and install Open eVision. Sample images, manuals and sample programs are included.

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.

Developed with the support of the DG06 Technology Development Department

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 Electronic Manufacturing Industry
- PCB inspection
- LED inspection
- Connector inspection

Machine Vision for the General Manufacturing Industries
- Checking dimensional accuracy
- Assembly inspection
- Object positioning for pick and place machines

Machine Vision for the Food Inspection Industry
- Food inspection and sorting

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	• 4181 - Open Easy3D for USB dongle • 4231 - Open Easy3D for PAR dongle • 4331 - Open eVision Easy3D
Optional accessories	• 6512 - eVision/Open eVision USB Dongle (empty) • 6513 - eVision/Open eVision Parallel Dongle (empty) • 6514 - Neo USB Dongle (empty)

EMEA

Euresys SA

Liège Science Park - Rue du Bois Saint-Jean, 20
4102 Seraing - Belgium

Email:　　sales.europe@euresys.com

EMEA

Sensor to Image GmbH

Lechtorstrasse 20
86956 Schongau - Germany

Email:　　sales.europe@euresys.com

AMERICA

Euresys Inc.

316 Prado Way
Greenville, SC 29607 - United States

Email:　　sales.americas@euresys.com

ASIA

Euresys Pte. Ltd.

750A Chai Chee Road - #07-15 ESR BizPark @ Chai Chee
Singapore 469001 - Singapore

Email:　　sales.asia@euresys.com

CHINA

Euresys Shanghai Liaison Office

Unit 802, Tower B, Greenland The Center - No.500 Yunjin Road, Xuhui District
200232 Shanghai - China
Euresys上海联络处
上海市徐汇区云锦路500号绿地汇中心B座802室
200232

Email:　　sales.china@euresys.com

CHINA

Euresys Shenzhen Liaison Office

Room 1202 - Chinese Overseas Scholars Venture Building
518057 Shenzen - China
Euresys深圳联络处
深圳南山区留学生创业大厦1期1202
518057

Email:　　sales.china@euresys.com

JAPAN

Euresys Japan K.K.

Expert Office Shinyokohama - Nisso Dai 18 Building, Shinyokohama 3-7-18, Kohoku
Yokohama 222-0033 - Japan
〒222−0033
神奈川県横浜市港北区新横浜3−7−18　日総第18ビル　エキスパートオフィス新横浜

Email:　　sales.japan@euresys.com

More at www.euresys.com