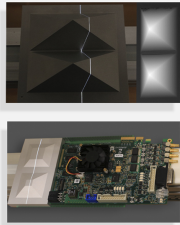




Easy3DLaserLine

3D laser line extraction and calibration library



At a Glance

- Single and Dual Laser Line Extraction into a depth map
- Convenient and powerful 3D calibration for laser triangulation setups
- Compatible with the Coaxlink Quad 3D-LLE frame grabber

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.

Easy3DLaserLine Description

Easy3DLaserLine provides the necessary functions to implement a high-precision calibrated laser line triangulation setup. Easy3D is required when using any Open eVision's 3D library and is provided when purchasing Easy3DLaserLine, Easy3DObject, Easy3DMatch or the 3D Bundle.

3D Laser Line Extraction into a depth map

Easy3D generates a depth map from a series of images that contain a laser line projected on the inspected object. Each pixel of the resulting depth map contains the position of the laser line in the image. Several extraction modes are supported as well as various filters. The software line extractor is fully compatible with the hardware implementation in the Coaxlink Quad 3D-LLE frame grabber.

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

Dual laser line extraction

Supported by software and hardware implementations, the dual laser line extraction process reduces the effect of occlusions. Occlusions occur when some parts of the objects are not lit by any laser. Using two lasers with different angles reduces these undefined areas. The object-based calibration included in Easy3DLaserLine allows combining the acquired data into a single calibrated point cloud.

Calibration

Some processing can be performed directly on a depth map. However, most 3D measurements need distortion-free data and metric representations, therefore calibrating the laser triangulation setup is required. Easy3D computes a calibration model applied to depth maps to transform them into calibrated 3D point clouds.

This calibration model is based on the depth map of a reference object, acquired using the laser triangulation setup that requires calibration.

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.

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

Developed with the support of the DG06 Technology Development Department

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	<ul style="list-style-type: none">• 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:<ul style="list-style-type: none">– 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<ul style="list-style-type: none">– Remote connections are allowed using remote desktop, TeamViewer or any other similar software.• Virtual machines<ul style="list-style-type: none">– 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:<ul style="list-style-type: none">– 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	<ul style="list-style-type: none">• Supported Integrated Development Environments and Programming Languages:<ul style="list-style-type: none">– 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	<ul style="list-style-type: none">• 4186 - Open Easy3DLaserLine for USB dongle• 4236 - Open Easy3DLaserLine for PAR dongle• 4336 - Open eVision Easy3DLaserLine
Optional accessories	<ul style="list-style-type: none">• 6512 - eVision/Open eVision USB Dongle (empty)• 6513 - eVision/Open eVision Parallel Dongle (empty)• 6514 - Neo USB Dongle (empty)

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