Allied Vision

Precision. Delivered.







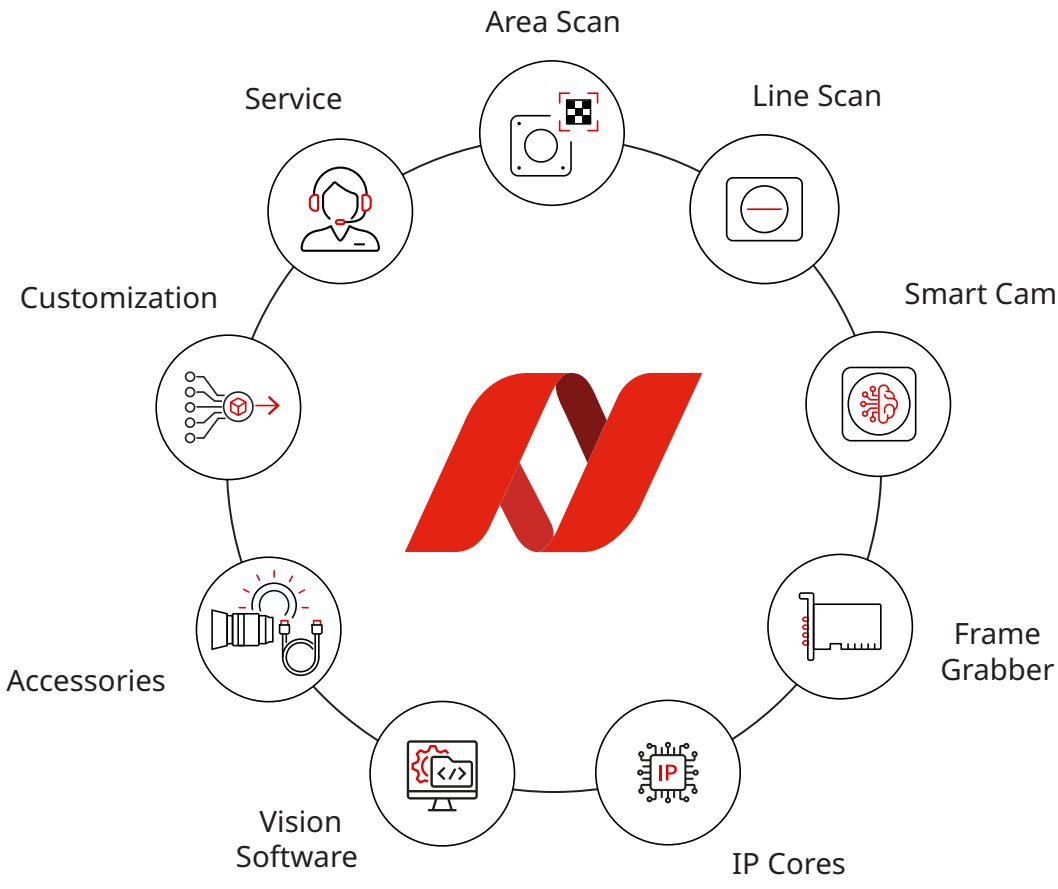


// ALLIED VISION PORTFOLIO

Machine Vision Software

// MORE THAN JUST CAMERAS

One Partner. One Ecosystem



At Allied Vision, we bring together a broad range of machine vision technologies in one integrated ecosystem – cameras, frame grabbers, IP cores, software, lenses, lighting, accessories, and customization. Our technologies are designed to work together, helping you simplify sourcing, reduce integration effort, and build reliable vision systems faster. With expertise and support across the application, you benefit from compatible technologies and one trusted partner.

With Allied Vision, you get the technologies you need for your machine vision system – from one source and designed to work together.
One Partner. One Ecosystem. Designed to work together.

Bundled for your Application

Combine compatible Allied Vision technologies to meet your application requirements. From cameras and frame grabbers to lenses, lighting, and software – all from one trusted partner.

Our Machine Vision Ecosystem

Area Scan & Line Scan Cameras

Our broad portfolio of area scan and line scan cameras covers a wide range of demanding machine vision applications. From continuous inspection of moving materials to specialized UV, SWIR and polarization imaging, our cameras reveal critical details across and beyond the visible spectrum. Designed for high image quality, industrial reliability and easy integration, they provide the right imaging technology for a wide range of applications.

Smart Cameras

Our open smart cameras combine high-quality image acquisition with powerful onboard processing in one industrial device. Designed for maximum flexibility, they enable you to develop your own algorithms, integrate third-party software, and adapt the system to your application.

IP Cores

Our IP cores help reduce development effort when building your own vision components. Supporting GigE Vision, USB3 Vision and CoaXPress transport layers as well as SubLVDS and MIPI-CSI2 sensor interfaces, our IP cores combine high performance with a compact design. Designed to reduce development time and increase design quality, they provide proven technology even for complex applications.

Frame Grabbers

Our high-performance CoaXPress and Camera Link frame grabbers enable high-speed image acquisition and reliable data transfer for data-intensive imaging tasks. With CoaXPress-over-Fiber, high-speed data transmission can be extended over fiber-optic cables and longer distances.

Software

Our eVision software provides powerful image processing and analysis capabilities for inspection and identification applications. Our eVision portfolio includes tools for testing, evaluation, prototyping, and development, with functional libraries available individually or in combined bundles. Designed for flexible integration, eVision helps reduce development effort and efficiently turn image data into actionable results.

Lenses, Lighting & Accessories

A carefully selected portfolio of lenses, lighting and accessories complements our cameras and helps ensure reliable imaging performance. Our components are chosen and tested for compatibility, image quality and industrial performance. Designed to work with our camera portfolio, they help simplify integration, ensure consistent imaging results and reduce engineering effort.

Customization

Our customization capabilities help adapt machine vision technology to your specific application and integration requirements. From development and volume production to support, repair and redesign, we support you throughout the entire product lifecycle. Our engineering expertise helps ensure seamless integration into new or existing production systems while reducing development effort and complexity.

// MACHINE VISION SOFTWARE

eVision

eVision is a set of hardware-independent image processing and analysis libraries for machine vision inspection applications. Our Machine Vision Software is compatible with any image source, including frame grabbers, GigE Vision, and USB3 Vision cameras.

The general-purpose libraries cover applications such as image filtering and enhancement. The matching and measurement tools contain blob analysis, pattern matching, alignment and sub-pixel measurement functions. The text and code reading libraries include functions for optical character recognition and 1D / 2D barcode reading and grading. The 3D libraries include laser line extraction and calibration functions, point cloud processing and management functions, and 3D object extraction, alignment and inspection functions. The Deep Learning libraries are Convolutional Neural Network-based inspection libraries for image classification and segmentation.

eVision contains a set of 64-bit libraries for C++, Python and .NET (C#, VB.NET, C++/CLI). They are designed to be easy to learn and use, facilitating quick integration into your projects.

Licensing

eVision libraries can be purchased individually or as bundles, so you can match the license to your application and optimize cost.

Bundle	Description	Content
ID bundle	All you need for text and code reading	EasyImage EasyOCR EasyOCR2 EasyBarCode EasyMatrixCode EasyQRCode
Inspection bundle	A set of powerful classical vision components for matching, segmentation and measurement	EasyImage EasyGauge EasyMatch EasyObject EasyColor
3D bundle	A package of eVision's 3D libraries, providing powerful tools for advanced 3D vision applications	Easy3D Easy3DLaserLine Easy3DObject Easy3DMatch
Deep learning bundle	The bundle for image classification, segmentation and object localization using convolutional neural network.	EasyClassify EasySegment EasyLocate
Essential bundle	All the primary vision processing libraries (excluding 3D and Deep Learning)	EasyImage EasyGauge EasyFind EasyMatch EasyObject EasyColor EasyOCR EasyOCR2 EasyDeepOCR EasyBarCode EasyMatrixCode EasyQRCode
Complete bundle	All eVision libraries in one bundle	EasyImage EasyGauge EasyFind EasyMatch EasyObject EasyColor EasyOCR EasyOCR2 EasyDeepOCR EasyBarCode EasyMatrixCode EasyQRCode Easy3D Easy3DLaserLine Easy3DObject Easy3DMatch EasyClassify EasySegment EasyLocate



eVision
Machine Vision Software

// Hardware-independent image processing and analysis libraries for machine vision inspection applications
// Compatible with any image source, including frame grabbers, GigE Vision and USB3 Vision cameras
// Support for the latest technologies such as Deep Learning and 3D
// Accurate sub-pixel measurement and calibration
// Supporting C++, Python and .NET framework (C#, VB.NET, C++/CLI)
// Easy to learn and use
// Robust, flexible and powerful

Requirements

eVision runs on:

// Windows 10 and 11 operating systems (x86_64 CPU), including IoT Enterprise versions
// Linux operating systems are supported for both x86_64 and aarch64 (ARM) architectures.

Deep learning processing can leverage NVIDIA and Intel GPUs for acceleration. eVision can also run on virtual machines.

2 GB of RAM is required to run an eVision application.

Licensing

The eVision deployment is supported by a convenient and feature-rich licensing system:

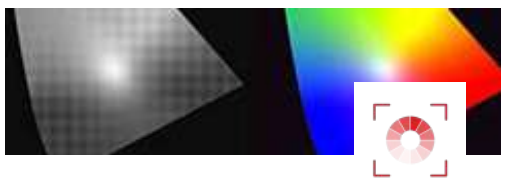
// Flexible: buy only what your application needs
// Lifetime license: no expiration date, no annual subscription
// Unlimited updates: license remains compatible with future releases
// No specific development license: no separate development license required



Licenses can be activated on:

USB dongle (portable usage),
or node-locked to a specific device

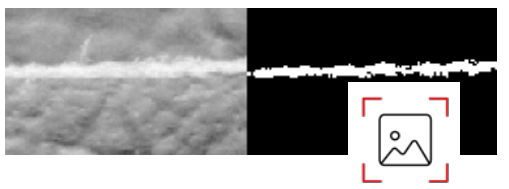
General-purpose libraries



EasyColor

Color image analysis library

// Fast conversion of images between 11 color spaces
// Color segmentation: to identify objects based on their color
// Color verification: to verify the color of objects

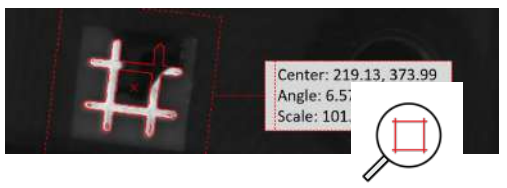


EasyImage

Image processing library

// 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
// Image stitching

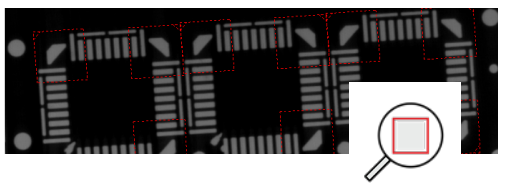
Matching and measurement libraries



EasyFind

Geometric pattern matching library

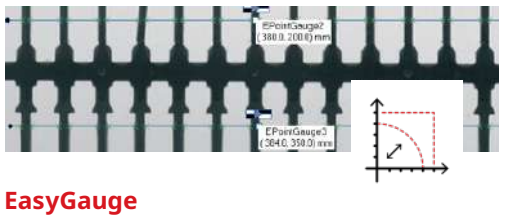
// Pattern matching using a feature point technology
// Learn from image or DXF vector model
// Fully automatic, fast and robust
// Invariant to rotation and scaling
// High tolerance to pattern degradation
// Support for “don’t care” areas



EasyMatch

Pattern matching library

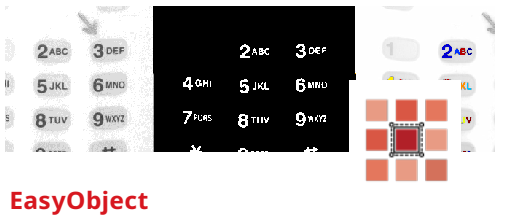
// Pattern matching using normalized correlation
// Sub-pixel accuracy
// Rotation and scaling support
// Detection of multiple pattern occurrences
// Support for grayscale and color images
// Support for “don’t care” areas



EasyGauge

Sub-pixel measurement & dimension control library

// Sub-pixel point location and edge fitting
// Highly accurate and robust
// Advanced and automatic calibration
// Multiple gauge models
// Measurement of position, orientation, size, curvature, distance
// Interaction through graphical interface



EasyObject

Blob analysis library

// Image segmentation based on the grayscale of connected objects
// Object labeling
// Geometric feature extraction
// Flexible Masks
// High performance, especially for large images and images with numerous objects

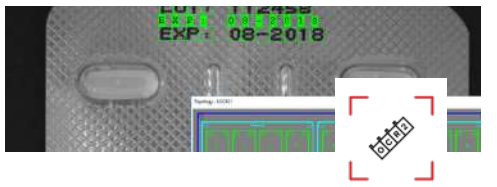
Text and code reading libraries



EasyDeepOCR

Deep learning based optical character recognition library

// Tool designed for industrial markings, like serial numbers, expiry dates, part numbers...
// Very easy to use, simple API and no training required
// Optional topology definition to filter out non-relevant texts
// Focus on text reading capability without compromising speed
// Improve the detection and recognition of the text with dedicated trainings
// Runs on CPU and GPU, Intel and ARM platforms



EasyOCR2

Industrial optical character recognition library

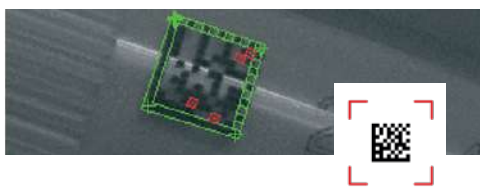
// Optimized for reading short texts such as part numbers, serial numbers, expiry dates, manufacturing dates, lot codes, ...
// Innovative segmentation algorithm to automatically locate texts in the image based on expected character size and text topology
// Full support for text rotation (360 degrees)
// Able to read severely degraded characters: support for character fragmentation and uneven lighting
// Learning of character database from one or multiple TrueType fonts or by your own sample images
// Assisted learning of character database from sample images
// Character database management: adding characters; saving, loading database
// Pre-trained classifier powered by deep learning technologies suitable for industrial text marking fonts



EasyOCR

Optical character recognition library

// Teachable character recognition for the most reliable and fastest recognition
// Invariant to character size
// Tolerant to poorly printed, broken characters
// “Connected” characters separation
// Pre-defined fonts included



EasyMatrixCode

2D Data Matrix code reading library

// Automatic detection of the code in the image
// Decodes ECC200, ECC000, ECC050, ECC080, ECC100 and ECC140 codes
// Computes quality indicators as per ANSI/AIM, ISO/IEC 15415, ISO/IEC TR 29158 and SEMI T10-0701 standards
// Very fast operation
// Impressive robustness to noise, blur and distortion
// Support for GS1 Data Matrix codes
// Efficient reading of codes in grid layout
// Multiple codes reading



EasyQRCode

QR code reading library

// Automatic detection of the code in the image
// Decodes model 1 and model 2 QR codes, all versions, all levels
// Decodes Micro QR codes
// Very fast operation
// Impressive robustness to noise, blur and distortion
// Error detection and correction
// Rotation and flipping invariant
// Print quality verification with grading standards
// Multiple codes reading

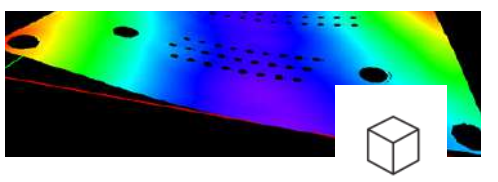


EasyBarCode

Bar code reading library

// Automatic detection of the barcode in the image
// Automatic detection of the symbology
// Very fast and robust
// Full support for numerous symbologies
// Mail Barcode Reader
// Multiple codes reading
// Grading according to ISO/IEC 15416

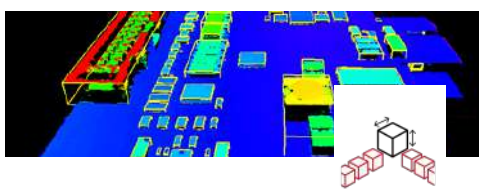
3D Processing libraries



Easy3D

3D image processing library

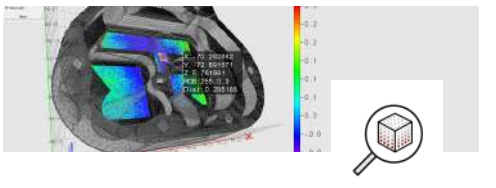
// Point cloud processing and management
// Flexible ZMap generation
// 3D processing functions for cropping, decimating, fitting and aligning point clouds
// Compatible with many 3D sensors
// Interactive 3D display with the 3D Viewer



Easy3DObject

3D object extraction and measurement library

// Detection of 3D objects in point clouds or ZMaps
// Metric detection criteria
// Compatible with arbitrary regions
// Computation of precise 3D measurements, like size, orientation, area, volume...
// Automatic extraction of object local support plane
// 2D and 3D graphical display of the results
// Full-featured interactive demo application



Easy3DMatch

3D alignment and inspection library

// Align a scanned 3D object with another scan or with a reference mesh
// Compute the local distances between 3D scans and a golden sample or reference mesh
// Detect anomalies such as misplaced features, geometric distortions, gaps, bumps, ...
// Compatible with all 3D sensors that produce point clouds, depth maps or height maps

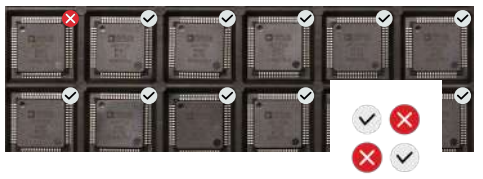


Easy3DLaserLine

3D laser line extraction and calibration library

// 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 and Coaxlink Quad CXP-12 3D-LLE frame grabbers

Inspection with deep learning libraries



EasyClassify

Deep Learning classification library

// Includes functions for classifier training and image classification
// Detects defective products
// Sorts products into various classes
// Supports data augmentation
// Compatible with CPU and GPU processing
// Deep Learning Studio for dataset creation, training and evaluation
// Available as part of the Deep Learning Bundle
// Also as cost-effective inference-only license



EasySegment

Deep Learning segmentation library

// Unsupervised mode: train only with “good” images to detect and segment anomalies and defects in new images
// Supervised mode: learn a model of the defects for better segmentation and detection precision
// Works with any image resolution
// Supports data augmentation and masks
// Compatible with CPU and GPU processing
// Includes the free Deep Learning Studio application for dataset creation, training and evaluation
// Available as part of the Deep Learning Bundle
// Also as cost-effective inference-only license



EasyLocate

Deep Learning localization and classification library

// Localization and identification of objects/ products/defects
// Counting of objects
// Axis-aligned bounding boxes
// Interest Point
// Supports data augmentation and masks
// Compatible with CPU and GPU processing
// Deep Learning Studio included for dataset creation, training and evaluation
// Available as part of the Deep Learning Bundle
// Also as cost-effective inference-only license

Deep Learning Studio

Deep Learning training and evaluation application

Deep Learning Studio is an application that assists the user during the creation of the dataset as well as the training and testing of the Deep Learning tools of eVision.

Deep Learning Studio is free and does not require any license. It allows you to test the Deep Learning libraries using your own images. No programming is required.



Features

// Deep Learning training and evaluation application
// Ease the evaluation of eVision’s Deep Learning tools
// Dataset creation and image annotation
// Create and configure dataset splits to decide how your images are used
// Manage the data augmentation transformations
// Train your tools in succession thanks to the training queue
// Validation and analysis of the results of the trained tools
// Available on Windows and Linux
// Free of charge

Deep Learning projects

A Deep Learning Studio project manages your dataset and the Deep Learning tools you created. A project is associated with one of the Deep Learning tools (EasyClassify, EasySegment Unsupervised, EasySegment Supervised or EasyLocate) and supports all their features.

Within a project, you can create as many tools as you want. It allows you to easily experiment with the parameters of the tools, different splits of the dataset, or data augmentation settings.

Control how your images are used

Deep Learning Studio allows you to split your dataset into training, validation, and test sets. You can create multiple dataset splits to experiment and check the performance of tools trained with different set of images.

You can create dataset splits at random or manually select the set of each image.

Data Augmentation

Deep Learning works by training a neural network, teaching it how to classify a set of reference images. The performance of the process highly depends on how representative and extensive the set of reference images is. Deep Learning Bundle implements “data augmentation”, which creates additional reference images by modifying (for example by shifting, rotating, scaling) existing reference images within programmable limits. This allows Deep Learning Bundle to work with as few as one hundred training images per class.

Configure and train your tools

The Tools tab allows you to configure and train your tools. Operating on CPU or GPU, the training can be stopped and restarted at any time. You can launch as many training sessions as you want thanks to the processing queue. The training and inference operations will be queued and processed one after the other.

Validation and result analysis

The validation process is customized for each library to allow you to get the most out of your data. A comprehensive set of metrics, tables, and/or graphs is available to analyze and explore the results of the training process.
Tables and confusion matrices allow you to filter your results to understand the strengths and weaknesses of the trained models. Score histograms and ROI curves are useful to select a threshold and adapt the trained models to your needs.

Annotate your dataset

Deep Learning Studio integrates annotation tools adapted to each library. For classification and unsupervised segmentation, you can quickly assign a label to each image. For supervised segmentation, the segmentation editor allows you to draw the ground truth segmentation. For , the object editor allows you to quickly draw the bounding box around each of your objects.
The image editor also allows you to select a region of interest and mask parts of your image.

Assisted Segmentation Tool

Assisted segmentation tool to ease and speed up annotation.

eVision Studio

Evaluation and prototyping application

Complex image processing sequences can be designed using a graphical interface. The collection of tools represents the diversity and the capabilities of the eVision libraries.

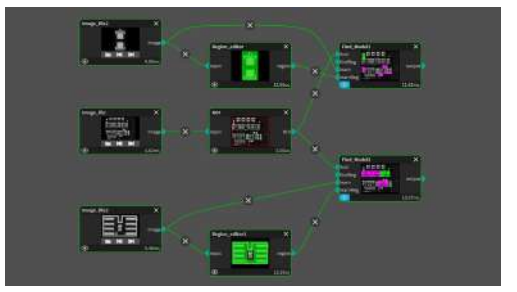
The C++, Python and C# source code, corresponding to the processing pipeline, is automatically generated and provides an interactive documentation of the eVision API.

eVision Studio can process live image sources such as a GigE Vision camera, a Coaxlink frame grabber or eGrabber recorder sequences.



Features

// Create complex processing sequences
// Full support for regions of interest and flexible regions
// Comprehensive configuration panels for Open eVision tools
// C++, C# and Python code generation
// Tool and sample catalog
// Connection to live image sources using eGrabber Studio
// Compatible with Windows (10 min), Linux, Intel and ARM architectures
// Free of charge



Graphical design of image processing pipelines

Complex image processing sequences can be designed using a graphical interface. Users can draw graphical links between the inputs and the outputs of the tools. Many eVision data types are supported: images, 3D point clouds, arbitrary regions, ... The graph displays the processing time of each tool and the cumulative time of the entire graph.



A tool catalog exposing the eVision capabilities

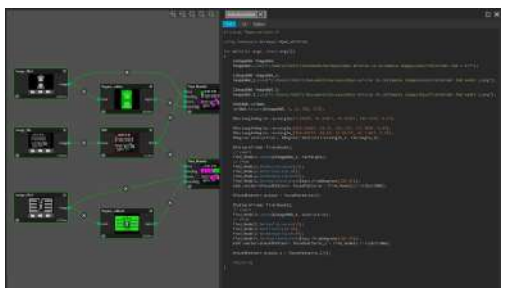
All libraries, including Deep Learning and 3D processing, will appear as tools in eVision Studio. The tool catalog is searchable, and a description is provided for each tool.

3D acquisition and processing

Acquisition of Coaxlink Quad 3D-LLE depth maps. eVision Studio can be connected to a Coaxlink Quad 3D-LLE frame grabber through eGrabber Studio. This frame grabber delivers live depth maps that can be processed by a large set of 3D and 2D tools: conversion to other 3D formats, calibration, filtering, alignment, decimation...

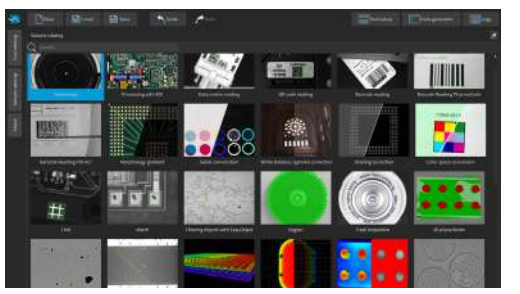
Comprehensive configuration panels for eVision tools

Dedicated configuration panels have been designed for each tool. These panels expose the various parameters of the tool and a graphical view is proposed when suitable. Results are also displayed in a comprehensive format.



Interactive code generation for C++, C# and Python

The code corresponding to the current processing pipeline and the actual configuration of the tool is automatically and dynamically generated. Three programming languages are supported: C++, C# and Python. These sample programs can be directly used to reproduce the current processing pipeline designed in eVision Studio.



Comes with sample projects for every tool

A catalog of sample projects is available in eVision Studio. These projects illustrate simple or more complex usages of eVision tools. They are provided with sample images and can be edited by the user to match their specific use cases.

Live image acquisition through eGrabber Studio

Any source such as Coaxlink frame grabbers, GigE Vision cameras or recorded containers can be used in the New eVision Studio. Parameters can be edited dynamically, and the changes are immediately visible in the eVision tools. No license is needed to use GigE Vision cameras or eGrabber recorder containers.



Alecs
Open Smart Camera

Key facts

// Powerful Alvium Camera inside with large feature set and wide choice of sensors
// Power Modes up to 25W usable due to heat dissipation design
// NVIDIA® JetsonTM Orin NX 16GB/Nano 8GB
// Industrial housing: IP67 ingress protection, vibration and shock robustness (IEC 60068-2)
// Wide operating temperature range: from -20°C to +65°C (housing)

Alecs

Alecs combines the feature-rich Alvium camera platform with the powerful NVIDIA® Jetson Orin™ NX 16GB or Nano 8GB System on Module (SoM) in a robust IP67 housing. With Alvium camera at its core, Alecs offers a wide range of integrated sensors and a comprehensive feature set for image processing. Compatible with the eVision Image analysis libraries it has everything to process your image data on Alecs directly. The system is designed to provide enough computational power to develop and deploy sophisticated software and AI algorithms with ease.

Alecs includes a 30-day trial license for all eVision Libraries, including deep learning functionality, offering a hardware-independent development environment for rapid application creation.

Allied Vision

Precision. Delivered.

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