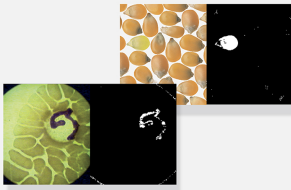


EasyColor

Color image analysis library

At a Glance



- 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

Benefits

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's functions. A scripting function 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 can be downloaded to evaluate the performance of Open eVision.

EasyColor Description

EasyColor includes a set of optimized color systems transformation functions and color analysis functions.

The color systems supported are RGB, XYZ, L*a*b*, L*u*v*, YUV, YIQ, ISH, LSH, VSH, LCH and YSH.

EasyColor provides efficient means to convert images between these systems and to transform color images into gray level images and vice versa.

Operation Principles

- Although the RGB (red, green, blue) representation of color images is well suited for color reproduction (it is used by monitors and cameras), many other representations have been designed for various purposes. More particularly, the "Intensity/Saturation/Hue" color systems are well suited for machine vision applications. EasyColor supports several of them. They separate the achromatic (black and white) component (Intensity) from the chromatic components (Saturation and Hue) which are used to describe colors. This allows a more intuitive interpretation of colors and is very useful to segment colors while eliminating lighting effects. It is thus required, when doing color image processing, to convert the RGB images coming from the camera to another color space, such as LSH, ISH or YSH. EasyColor provides a set of optimized color space conversion functions.
- Also included in EasyColor are traditional color image processing functions (such as Bayer pattern conversion and color balance correction), as well as powerful color analysis functions, which allow the user to detect and classify color objects and defects. For example, color image segmentation allows you to decompose a color image in different regions by assigning a class to every pixel. Color image segmentation can be used in conjunction with EasyObject to perform blob analysis on the segmented regions. It is also possible to filter pixels by selecting ranges of values for each component, for example, selecting "olive green" pixels based on their hue only, with a loose discrimination on the intensity and saturation to eliminate surface and lighting effects.

EasyColor functions

- Color transformations: Lookup Tables (LUTs) for colorimetric systems conversion, gain / offset (color), color calibration or color balance (gamma pre-compensation, white balance)

- Merging and extraction of the color image components
- Pseudo-coloring
- Color classification for segmentation
- Handling of special color formats: YUV 422 decompression and Bayer pattern to RGB

Choose the most suitable Licensing System

- Open eVision Dongle-based Licenses: Dongle-based Licenses offer the flexibility to be transferred from a PC to another. To purchase a Dongle-based License, select one of the Euresys dongles (USB or Parallel) plus the license(s) to be stored on this dongle. Licenses are delivered as activation codes, which are stored on the dongles.
- Open eVision Software-based Licenses: Software-based licenses do not require any dongle, they are linked to the PC on which they have been activated. Licenses are delivered as activation codes and can be managed online.

Applications

Machine Vision for the Electronic Manufacturing Industry

- PCB inspection

Machine Vision for the General Manufacturing Industries

- Color inspection
- False color rendering
- Color inspection in the pharmaceutical industry

Machine Vision for the Printing Industry

- Label and packaging inspection: Verification of the printing color

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 32-bit and 64-bit libraries that require a processor compatible with the SSE2 instruction set. • The EasyDeepLearning library is only available in the 64-bit Open eVision library. • Open eVision can be used on the following operating systems: <ul style="list-style-type: none"> – Windows 10 (32- and 64-bits) – Windows 8 (32- and 64-bits) – Windows 7 (32- and 64-bits) • Since Open eVision 2.6, discontinued support of: <ul style="list-style-type: none"> – Windows Vista 32-bits Service Pack 1 – Windows XP 32-bits Service Pack 3 – Windows Embedded Standard 2009 32-bits • The Open eVision installer does not allow installation on virtual machines. • Minimum requirements: <ul style="list-style-type: none"> – RAM: 8 GB – Display size: 800 x 600. 1280 x 1024 recommended. – Color depth: 16 bits. 32 bits recommended. – Between 100 MB and 2 GB free hard disk space for libraries, depending on selected options.
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APIs

- Supported Integrated Development Environments and Programming Languages:
 - Microsoft Visual Studio .NET 2003 SP1 (C++)
 - Microsoft Visual Studio 2005 SP1 (C++, C#, VB .NET, C++/CLI)
 - Microsoft Visual Studio 2008 SP1 (C++, C#, VB .NET, C++/CLI)
 - Microsoft Visual Studio 2010 (C++, C#, VB .NET, C++/CLI)
 - Microsoft Visual Studio 2012 (C++, C#, VB .NET, C++/CLI)
 - Microsoft Visual Studio 2013 (C++, C#, VB .NET, C++/CLI)
 - Microsoft Visual Studio 2015 (C++, C#, VB .NET, C++/CLI)
 - Microsoft Visual Studio 2017 (C++, C#, VB .NET, C++/CLI)
- Since Open eVision 2.6, discontinued support of:
 - Microsoft Visual Studio 6.0 SP6 (C++, Basic)
 - Borland C++ Builder 6.0 update 4 (C++)
 - CodeGear C++ Builder 2009 (C++)
 - CodeGear Delphi 2009 (Object Pascal)
 - Embarcadero RAD Studio XE4 (C++, Object Pascal)
 - Embarcadero RAD Studio XE5 (C++, Object Pascal)

Ordering Information

Product code - Description

- 4004 - EasyColor for USB dongle
- 4054 - EasyColor for PAR dongle
- 4104 - EasyColor for board licensing
- 4154 - Open EasyColor for USB dongle
- 4204 - Open EasyColor for PAR dongle
- 4254 - Open EasyColor for soft-based licensing

Optional accessories

- 6512 - eVision/Open eVision USB Dongle (empty)
 - 6513 - eVision/Open eVision Parallel Dongle (empty)
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AMERICA

Euresys Inc.

27126-B Paseo Espada - Suite 704
San Juan Capistrano, CA 92675 - United States

Phone: +1 949 743 0612

Email: sales.americas@euresys.com

EMEA

Euresys SA

Liège Science Park - Avenue du Pré Aily, 14
4031 Angleur - Belgium

Phone: +32 4 367 72 88

Email: sales.europe@euresys.com

EMEA

Sensor to Image GmbH

Lechtorstrasse 20 -
86956 Schongau - Germany

Phone: +49 8861 2369 0

Email: sales.europe@euresys.com

ASIA

Euresys Pte. Ltd.

750A Chai Chee Road - #07-15 Viva Business Park
Singapore 469001 - Singapore

Phone: +65 6445 4800

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

Phone: +86 21 33686220

Email: sales.china@euresys.com

JAPAN

Euresys Japan K.K.

Expert Office Shinyokohama - Nisso Dai 18 Building, Shinyokohama 3-7-18
Kouhoku-Ku, Yokohama-Shi 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

Phone: +81 45 594 7259

Email: sales.japan@euresys.com

More at www.euresys.com

