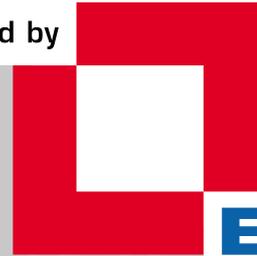
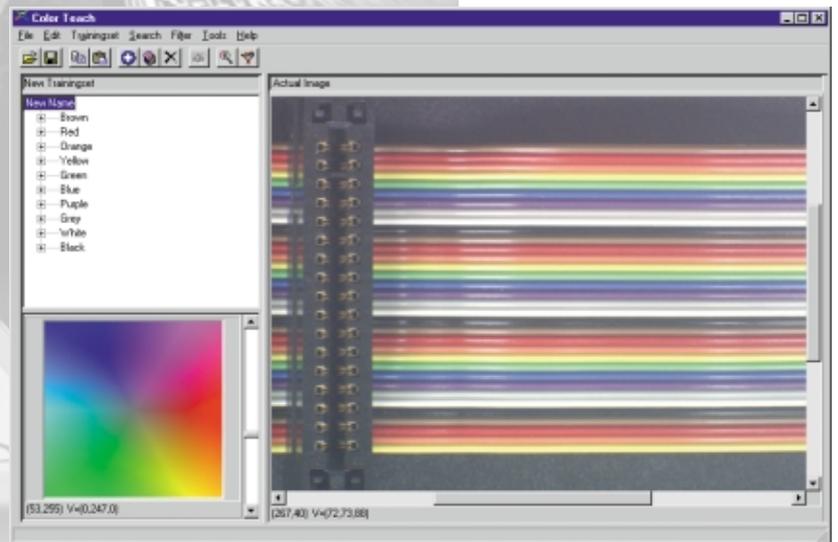


► Color

powered by



COMMON VISION
BLOX



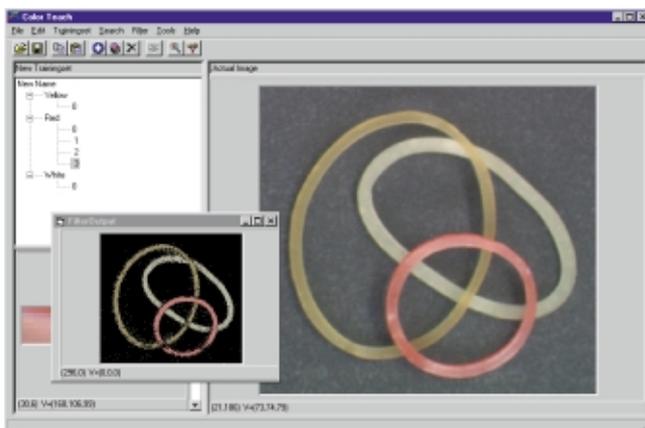
Software tool
for color processing

► Color

Color is a color recognition tool consisting basically of two program modules named »Teach« and »Search«. To begin with, various user-defined colors are taught to the system with Teach. The teaching process can take place online or offline. The information that has been learnt is stored in a color classifier. In the second stage, the Search program can be used to search for the color in question and areas of an image can be assigned to a specific color. The details of these processes are as follows:

► Teach

The Color Teach program is a convenient way of teaching colors and testing the color classifier that is generated. In the teaching process, the user has to tell the system about the individual colors by means of areas of interest (AOIs). The selected areas are combined in models (different colors such as red and green) and their instances (areas which together define a model). By teaching various instances, the system can be prepared for different color effects or image acquisition fluctuations such as changes in illumination. Instances and models can be added or removed at any time.



► Search

There are two approaches to searching for colors. First, an AOI can be assigned to a color that has been learnt (Search). Second, the image can be filtered to form a result image using a filter which is calculated from the learnt colors. This result image then contains quality details for every pixel. The image that is generated from color analysis can be processed further with other Common Vision Blox tools such as Minos and Blob.

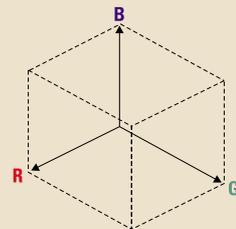
Potential applications for the Color tool:

- Electronics industry:
 - Testing connector assignments
- Printing industry:
 - Finding and distinguishing individual color register marks
 - Checking the color content of imprints
- Food industry:
 - Examining the color of food (e.g. to detect mold)
 - Assuring production quality (e.g. evenness of chocolate coating of cookies)

Color spaces

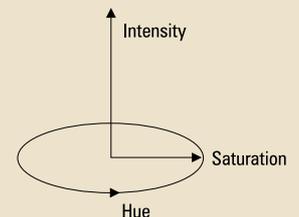
RGB model

The RGB model (red/green/blue) is widespread in imaging but it is unsuitable for color recognition because adjacent colors in the RGB space are not necessarily perceived as similar by the human eye.



HSI model

The HSI color space is often used to classify colors but this model fails when an image contains colors with weak saturation.



CIELAB model

Color operates with the CIELAB color model which is frequently used in the printing industry. The LAB color space has been optimized in such a way that colors which are close together as far as the human eye is concerned are also as close together as possible in the LAB space.

