

VisualApplets Libraries

Segmentation/Classification and Compression

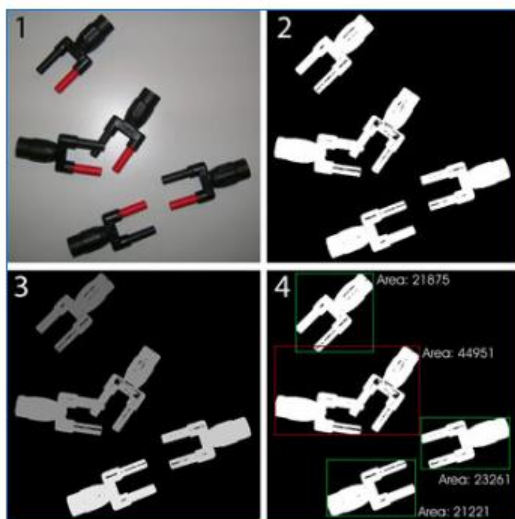
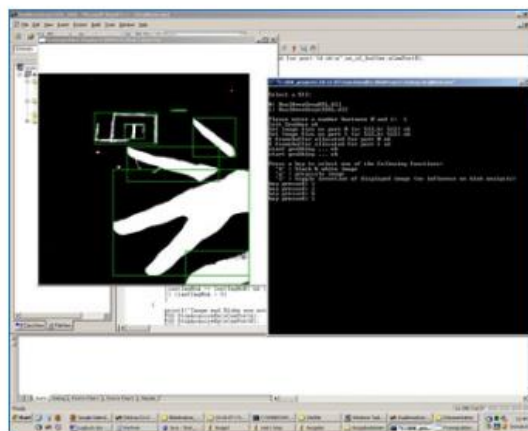
VisualApplets Libraries include several operator libraries, which extend the scope of the operators by important image processing functionality, for example for segmentation and classification along with compression.

The three libraries can be purchased as single license and are therefore independent of the acquired frame grabber hardware.



Segmentation/Classification

After the segmentation and the object determination, these operators are used to determine the position, surface, form, circumference of objects and the surrounding geometry (bounding box). For this purpose, the Blob analysis is used.



The Blob analysis **1D operator** analyses line per line one-dimensional binary images with endless height, in which objects may assume any position. The operator is therefore extended by a reference object as a point of origin.

The Blob analysis **2D operator** analyses bi-dimensional binary images using pixel clusters of an 8 or a 4 connected neighborhood in the foreground.

The classification uses the extraction of properties to assign properties to the objects.

Compression

Objective of the compression is the acceleration and simple scaling of JPEGs. With the two operators necessary for this purpose, it is possible to execute JPEG compressions of greyscale 8 bit images in two steps.

First, the input data of the images are buffered in the RAM using the DSP elements (digital signal processor) of modern FPGAs and sorted in blocks of 8x8 pixels (remapping). The operator allows a dynamic ROI (region of interest) selection.

In the second step occurs the actual JPEG compression (encoding). The compression rate depends beside the input data on the selected quantization table, which is changeable during runtime.

The compression of color images is executed in a similar manner by the calculation of the three color channels.