

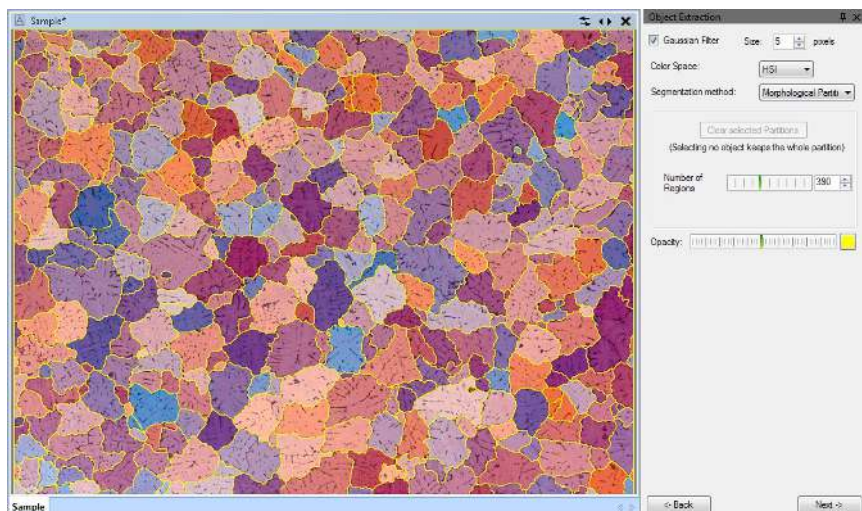
# Color Segmentation

PROCESS COMPLEX COLOR IMAGES  
USING ADVANCED SEGMENTATION TOOLS  
AVAILABLE IN DIFFERENT COLOR SPACES

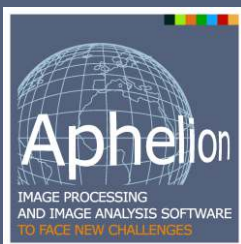
The Aphelion™ Color Segmentation Extension lets the user manage color images from the Aphelion Dev environment by providing advanced tools to segment images and extract objects of interest based on their color intensity. It includes four semi-automatic segmentation techniques: Interval, Distance, Region Growing, and Morphological Partition. The user first identifies some points or regions of interest in an image, and then the selected algorithm automatically extracts the regions based on the defined color. Fine-tuning tools are available to increase the regions of interest to provide an optimal match of the objects to be detected.

## Color Tools included:

- Color Conversion – Support for RGB, HSI, YIQ, YUV, XYZ, Lab, and LCH color spaces.
- Interval – This method is based on the processing of the three color bands independently. The color value is defined by clicking on a reference point inside an object to be detected. A threshold is then performed using the color band values of the reference point, plus and minus the respective band tolerance values that are user defined.



- Distance – This method defines an object as being a set of pixels such that the distance of the pixel color value and the color reference is less or equal to a specified distance. The user specifies the distance value by adjusting a slider and the color reference by clicking points in the image.
- Region Growing – This method of segmentation is based on manually specifying initial object seeds inside objects of interest. Such seeded or initial regions are grown larger through the user's changing the color Distance parameter or placing additional object and non-object seeds on the image.
- Morphological Partition – This segmentation method is based on a morphological watershed operation that partitions an image into N regions such that each regional boundary line corresponds to an image edge (i.e., a gradient sign change in a three by three neighborhood).



## Main benefits of the Color Segmentation Extension:

- Fully integrated in the Aphelion Dev Object Extraction Task
- Detect color objects by just clicking on a few pixels inside the objects of interest
- Segment results more accurately by fine-tuning operator parameters
- Integrate Aphelion™ color operators into your stand-alone application



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