Image Representation

The Wolfram Language's symbolic architecture allows a unique representation and treatment of images in both programs and documents. The Wolfram Language supports images with arbitrary numbers of channels and arbitrary color depths, and with a full range of internal data types either specified explicitly or chosen automatically.

Image, **Image3D** — represent a general multichannel image

Image Q — test whether an expression is an image

Image Properties

Image Measurements — returns specified properties of an image

Image Type — the type of data in the image (**"Bit"**, **"Byte"**, **"Bit16"**, **"Real32"**, **"Real"**)

Image Data — the array of raster data for an image

ImageColorSpace ▪ **ImageChannels** ▪ **ImageDimensions** ▪ **ImageAspectRatio**

Image Value, **Pixel Value** — the value of a pixel at the specified position

Image Value Positions, **Pixel Value Positions** — positions of the specified pixel value

Image Accumulate — gives the integral image

Image3DSlices — gives the 2D image slices for a 3D image

Conform Images — gives a list of images with conforming properties

Image Options

Options — find the options of an image

Color Space — in what color space to interpret channel values (**"RGB"**, **"CMYK"**, etc.)

Interleaving — whether to interleave channels into the data array

MetaInformation — arbitrary metadata imported and exported with an image

Image Size ▪ **Magnification** ▪ **Image Resolution**

Colors & Levels »

Image Histogram — histogram of levels by channel

Find Threshold — global threshold that partitions the intensity levels

Dominant Colors — find a list of dominant colors

Image Cooccurrence — co-occurrence matrix of image pixel intensities

Binary ImageQ ▪ **Binarize** ▪ **Image Levels** ▪ **...**

Color Convert — convert between color spaces

Alpha Channel ▪ **Color Separate** ▪ **Color Combine**

Dynamic Viewer

Dynamic Image — display a dynamic view of an image, a file or a URL

Zoom Center ▪ **ZoomFactor**

Image Decompositions

Karhunen LoeveDecomposition ▪ **PrincipalComponents**