$$HXY1 = -\sum_i \sum_j p[i][j] \log\left(p_x(i) p_y(j)\right),$$

$$HXY2 = -\sum_i \sum_j p_x(i) p_y(j) \log\left(p_x(i) p_y(j)\right),$$

$$HX = -\sum_i p_x(i) \log\left(p_x(i)\right), \quad HY = -\sum_i p_y(i) \log\left(p_y(i)\right).$$

There are at least two versions of f7 used in the literature and in software. We know of at least three versions of f14 so ImageGLCM does not compute it.

References

R.M. Haralick, K. Shanmugam and Itshak Dinstein, "Textural Features for Image Classification", IEEE Transactions on Systems, Man, and Cybernetics, 1973.

ImageHistModification

ImageHistModification [***flags***] ***imageMatrix***

The ImageHistModification operation performs a modification of the image histogram and saves the results in the wave M_ImageHistEq. If /W is not specified, the operation is a simple histogram equalization of *imageMatrix*. If /W is specified, the operation attempts to produce an image with a histogram close to *waveName*. If /A is specified, the operation performs an adaptive histogram equalization. *imageMatrix* is a wave of any noncomplex numeric type. Adaptive histogram equalization applies only to 2D waves and the other parts apply to both 2D and 3D waves.

Flags

/A	Performs an adaptive histogram equalization by subdividing the image into a minimum of 4 rectangular domains and using interpolation to account for the boundaries between adjacent domains. When the /C flag is specified with contrast factor greater than 1, this operation amounts to contrast-limited adaptive histogram equalization. By default the operation divides the image into 8 horizontal and 8 vertical regions. See /H and /V.
/B=*bins*	Specifies the number of *bins* used with the /A flag. If not specified, this value defaults to 256.
/C=*cFactor*	Specifies a contrast factor (or clipping value) above which pixels are equally distributed over the whole range. *cFactor* must be greater than 1, in the limit as *cFactor* approaches 1 the operation is a regular adaptive histogram equalization. **Note**: this flag is used only with the /A flag.
/H=*hRegions*	Specifies the number of horizontal subdivisions to be used with the /A feature. Note, the number of image pixels in the horizontal direction must be an integer multiple of *hRegions*.
/I	Extends the standard histogram equalization by using 2^{16} bins instead of 2^8 when calculating histogram equalization. This feature does not apply to the adaptive histogram equalization (/A flag).
/O	Overwrites the source image. If this flag is not specified, the resulting image is saved in the wave M_ImageHistEq.