and the infinity-norm is defined by

$$\|A\|_\infty = \max_{1 \le i \le m} \sum_{j=1}^{n} |a_{ij}|.$$

The function returns a NaN if there is any error in the input parameters.

References

http://en.wikipedia.org/wiki/Matrix_norm

See Also

MatrixSVD provides a condition number for L2 norm using the ratio of singular values.

The **MatrixOp** operation for more efficient matrix operations.

Matrix Math Operations on page III-138 for more about Igor's matrix routines.

MatrixConvolve

MatrixConvolve [**/R=*roiWave***] ***coefMatrix*, *dataMatrix***

The MatrixConvolve operation convolves a small coefficient matrix *coefMatrix* into the destination *dataMatrix*.

Flags

/R=*roiWave*	Modifies only data contained inside the region of interest. The ROI wave should be 8-bit unsigned with the same dimensions as *dataMatrix*. The interior of the ROI is defined by zeros and the exterior is any nonzero value.

Details

On input *coefMatrix* contains an *N*x*M* matrix of coefficients where *N* and *M* should be odd. Generally *N* and *M* will be equal. If *N* and *M* are greater than 13, it is more efficient to perform the convolution using the Fourier transform (see **FFT**).

The convolution is performed in place on the data matrix and is acausal, i.e., the output data is not shifted.

Edges are handled by replication of edge data.

When *dataMatrix* is an integer type, the results are clipped to limits of the given number type. For example, unsigned byte is clipped to 0 to 255.

MatrixConvolve works also when both *coefMatrix* and *dataMatrix* are 3D waves. In this case the convolution result is placed in the wave M_Convolution in the current data folder, and the optional /R=*roiWave* is required to be an unsigned byte wave that has the same dimensions as *dataMatrix*.

This operation does not support complex waves.

See Also

MatrixFilter and **ImageFilter** for filter convolutions.

Matrix Math Operations on page III-138 for more about Igor’s matrix routines.

The **Loess** operation.

MatrixCorr

MatrixCorr [**/COV**][**/DEGC**] ***waveA*** [**,** ***waveB***]

The MatrixCorr operation computes the correlation or covariance or degree of correlation matrix for the input 1D wave(s).

If we denote elements of *waveA* by $\{x_i\}$ and elements of *waveB* by $\{y_i\}$ then the correlation matrix for these waves is the vector product of the form: