Smearing of the 2-D image array with Gaussian

Smearing of the 2-D array can be done by averaging for each array element ower neighbour elements with weights

$$\tilde{A}_{i,j} = \frac{\sum_{m=-N,n=-N}^{N,N} A_{i+m,j+n} w_{m,n}}{\sum_{m=-N,n=-N}^{N,N} w_{m,n}};$$

with weights defined by the Gaussian function

$$w_{|m|,|n|}(\sigma) = \exp\left(-\frac{m^2+n^2}{2\sigma^2}\right),$$

where i, j, m, and n are the pixel indexes, and the Gaussian widths, ?, is also expressed in terms of number of pixels.