Linear scaling

The technique of linear scaling can be used to convert real numbers in the range $[a, b]$ to real numbers in the range $[A, B]$ whenever $b > a$. The transformation is:

$$x \to \frac{(x - a)(B - A)}{b - a} + A$$

This is the unique linear transformation that maps a to A and b to B.

When linear scaling is applied to gray-level images the value of A is taken as 0 and the value of B is taken as 255. The values of a and b are computed from the image as the minimum and the maximum gray level of the given image.