Cross correlation

In Signal Processing :

Cross correlation is a measurement of similarity of two series as a function of the displacement of one relative to the other one .

The cross-correlation is similar in nature to the convolution of two functions

Auto-correlation : is the cross correlation of a signal with itself.

Convolution :

Is a mathematical operation between two function, say f(t) and g(t), when convoluted result in another function (f\*g)(t)

The convolution of f and g is written f∗g, denoting the operator with the symbol ∗.[B] It is defined as the integral of the product of the two functions after one is reversed and shifted. As such, it is a particular kind of integral transform:

The convolution of these functions represent of how the shape of one is modified by the other.