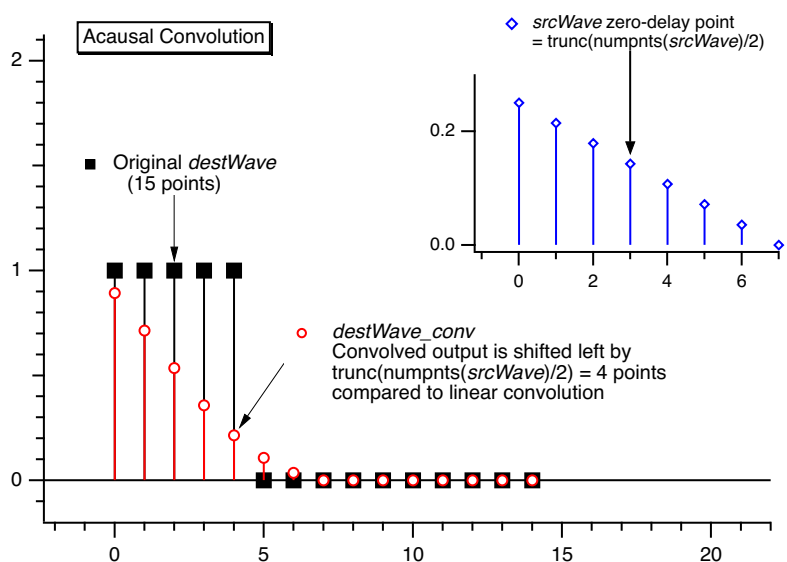


Use acausal convolution when the source wave contains an impulse response where the middle point of the source wave corresponds to no delay ($t = 0$).



Correlation

You can use correlation to compare the similarity of two sets of data. Correlation computes a measure of similarity of two input signals as they are shifted by one another. The correlation result reaches a maximum at the time when the two signals match best. If the two signals are identical, this maximum is reached at $t = 0$ (no delay). If the two signals have similar shapes but one is delayed in time and possibly has noise added to it then correlation is a good method to measure that delay.