Title: Life-time of correlation

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In probability theory and related fields, the life-time of correlation measures the timespan over which there is appreciable autocorrelation or cross-correlation in stochastic processes .

Definition

The correlation coefficient ρ , expressed as an autocorrelation function or cross-correlation function , depends on the lag-time between the times being considered. Typically such functions, ρ (t), decay to zero with increasing lag-time, but they can assume values across all levels of correlations: strong and weak, and positive and negative as in the table.

The life-time of a correlation is defined as the length of time when the correlation coefficient is at the strong level. [1] The durability of correlation is determined by signal (the strong level of correlation is separated from weak and negative levels). The mean life-time of correlation could measure how the durability of correlation depends on the window width size (the window is the length of time series used to calculate correlation).

References

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