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Abstract

Time Domain Approach in Time Series Analysis

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The time domain approach was the main goal of this research work concerning the MSC course thesis.

The development of time series from its origins until an advanced, modern and more general approach was considered. The stationarity, stationary processes, autocovariance and autocorrelation functions, autoregressive, moving average and the mixed model **ARMA** were studied with mathematical detail. The estimation of the autocovariance and autocorrelation functions were studied and as well as the estimation of the parameters in standard models was considered.

The last part of the work was concerned with applications of time series to different problems such as **AR(1), AR(2), MA(2) and ARMA(2,2)** stationary models in order to improve its estimation. The data considered in our study are simulated data generated from the above models.