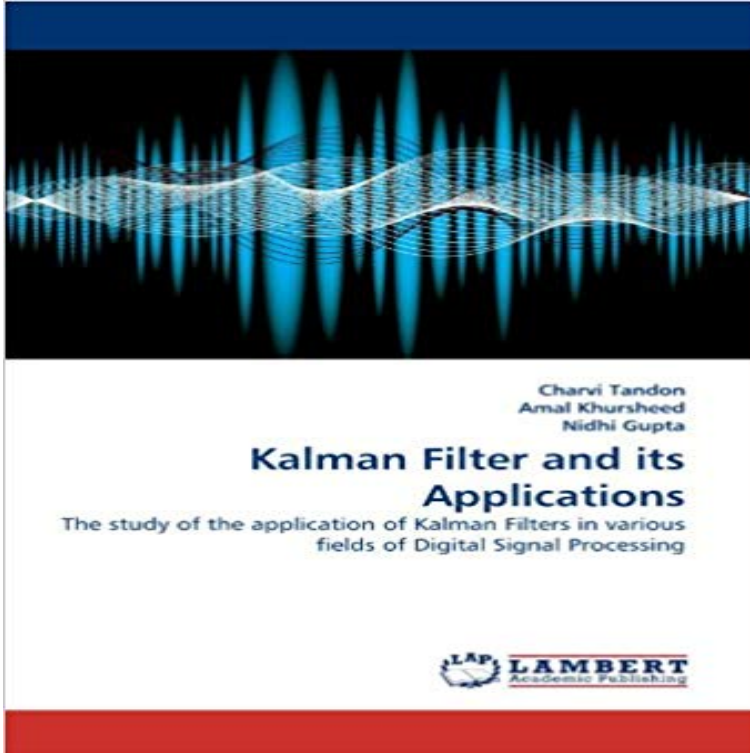


# Kalman Filter and its Applications: The study of the application of Kalman Filters in various fields of Digital Signal Processing



The Kalman filter is a set of mathematical equations that provides an efficient computational means to estimate the state of a process, in a way that minimizes the mean of the squared error. The filter is very powerful in several aspects: it supports estimations of past, present, and even future states, and it can do so even when the precise nature of the modelled system is unknown. It has several applications such as Noise Cancellation, Tracking, System Identification etc. This book illustrates the use of Kalman filter to remove noise from an erroneous signal. It also defines how Kalman Filter can be used to estimate position and velocity of a moving object. Kalman Filter can also predict position of the object in advance. System Identification is one of the most interesting applications of Kalman Filter. Based on the error signal, the filters coefficients are updated and corrected, in order to adapt, so the output signal has the same values as the reference signal. The application enables remarkable developments and research, creating an opportunity for automation and prediction.

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