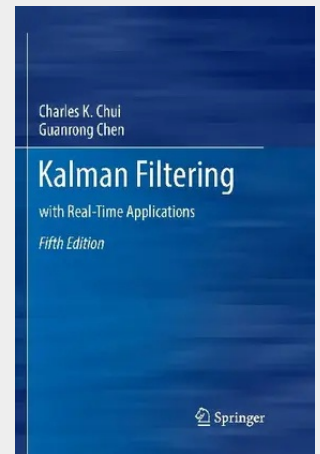


Kalman Filtering

with Real-Time Applications

This new edition presents a thorough discussion of the mathematical theory and computational schemes of Kalman filtering. The filtering algorithms are derived via different approaches, including a direct method consisting of a series of elementary steps, and an indirect method based on innovation projection. Other topics include Kalman filtering for systems with correlated noise or colored noise, limiting Kalman filtering for time-invariant systems, extended Kalman filtering for nonlinear systems, interval Kalman filtering for uncertain systems, and wavelet Kalman filtering for multiresolution analysis of random signals. Most filtering algorithms are illustrated by using simplified radar tracking examples. The style of the book is informal, and the mathematics is elementary but rigorous. The text is self-contained, suitable for self-study, and accessible to all readers with a minimum knowledge of linear algebra, probability theory, and system engineering. Over 100 exercises and problems with solutions help deepen the knowledge. This new edition has a new chapter on filtering communication networks and data processing, together with new exercises and new real-time applications.

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