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Sommario/riassunto

"This book fills the gap between the literature on nonlinear filters and nonlinear observers by presenting a new state estimation strategy, the smooth variable structure filter (SVSF). The book is a valuable resource to researchers outside of the control society, where literature on nonlinear observers is less well-known. SVSF is a predictor-corrector estimator that is formulated based on a stability theorem, to confine the estimated states within a neighborhood of their true values. It has the potential to improve performance in the presence of severe and changing modeling uncertainties and noise. An important advantage of the SVSF is the availability of a set of secondary performance indicators that pertain to each estimate. This allows for dynamic refinement of the filter model. The combination of SVSF's robust stability and its secondary indicators of performance make it a powerful estimation tool, capable of compensating for uncertainties that are abruptly introduced in the system"--