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Applying Kalman filter-based fusion algorithm to estimation problems

Lu, Chung-Lain; Chung, Yi-Nung; Lin, Chih-Min;
Yu, Chin-Chung; Chen, Tsair-Rong

Abstract

An algorithm denoted as Kalman filter-based fusion algorithm for estimation problems is developed in this paper. In this approach, a multiple-sensors data-fusion algorithm is applied. In order to solve the data association and target maneuvering situations, a computational logic, including 1-step conditional maximum likelihood and an adaptive estimator is applied to solve both data association and target maneuvering problems simultaneously. The advantage of this approach is that the multiple sensors can improve the tracking accuracy and the reliability of the radar surveillance. Computer simulation results indicate that this approach can successfully track multiple targets with satisfactory performance.

Key words: 1-Step conditional maximum likelihood; Adaptive estimator;
Kalman filter fusion algorithm