Journal of Information Science and Engineering, 23(6): 1833-1847

A Dynamic Multiple Sensor for Radar Maneuvering Target Tracking Problems

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Abstract

In view of the lack dynamicity in a traditional fixed sensor system, an algorithm of tracking multiple maneuvering targets in a dynamic sensor system is proposed in this paper. The algorithm combines coordinate conversion logics and a multiple sensor data fusion for it to work in the dynamic sensor system. With the developed algorithm, the sensors can be installed in various tracking systems which will improve the tracking accuracy and reliability of radar surveillance. Moreover, in order to solve the data association and target maneuvering situations, an adaptive approach including data association technique and a maneuvering compensator is applied to solve both data association and target maneuvering problems simultaneously. According to the simulation results, we convince that the proposed approach in this paper, can track multiple targets in a dynamic sensor system.

Key words: Dynamic sensor system; Multiple sensor data fusion;
Gating; 1-step conditional maximum likelihood;
Maneuvering compensator