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Applying Multiple Observation Algorithm to Flight Control Systems

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Abstract

An algorithm of tracking multiple maneuvering targets using a multiple observation system is proposed in this paper. With the developed algorithm, the sensors can be installed in fixed or moving systems which will improve the tracking accuracy and reliability of radar surveillance. Moreover, in order to solve the data association and target maneuvering situations, a computation logic including gating 1-step conditional maximum likelihood and a variable structure model as an adaptive maneuvering compensator is applied to solve both data association and target maneuvering problems simultaneously. In order to verify this approach, simulations of multi-target tracking problems are conducted. Computer simulation results indicate that this approach successfully tracks multiple targets in a dynamic sensor system and has good performance.

Key words: Multiple observation system; Multiple sensor data fusion;
Adaptive maneuvering compensator