ABSTRACT

An improved algorithm for tracking multiple maneuvering targets using a new approach has been developed in this thesis. This algorithm is implemented with an adaptive filter consisting of a data association technique denoted Competitive Hopfield Neural Networks together with a bank of Kalman filters as an adaptive maneuvering compensator. Via this approach, both data association and target maneuvering problems can be solved simultaneously. Moreover, in order to verify such a tracking system is really improved, detailed simulations of the multi-target tracking using several tracking algorithms for many situations are developed. Computer simulation results indicate that this approach successfully tracks multiple targets and has better performance also.

Key Words: Data association, Competitive Hopfield Neural Network

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