# Applying Neural Network Computing Algorithm to Radar Multiple Target Tracking Systems


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**ABSTRACT**

As the developing of technology, multiple-target tracking system is an important subject in both national defense and civil application. In order to manage the complicated radar system, enhancing the performance of system is necessary indeed. The main part of the system is data association. While tracking multiple moving targets, data association can find the connection between radar measurement and trajectory. In usual, the wrong data association will lead to the error of target trajectory and cause the loss. Therefore, in this thesis, a new tracking algorithm Competitive Hopfield Neural Network which is based on the radar target tracking system will efficiently determent the connection of radar measurement and object trajectory and further more to estimate the object position or other related information. By adapting Kalman filter estimation system, CHNN will obtain the great estimate; moreover, with the adaptive procedure tracking technique, the problem of maneuvering will be solved successfully. As the results of this simulation, this thesis conducts that CHNN can not only apply to the multiple target tracking system but also solves the problem of data association and tracking subjects.



Keywords : Data Association ; Competitive Hopfield Neural Network ; Adaptive Procedure


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