Applying High Order Correlation in Multi-Target Detection

李麗英、劉仁俊

E-mail: 8602423@mail.dyu.edu.tw

ABSTRACT

Multi-Target detection plays a very important role in commercial or military aeronautical technology. Target detection, or traces, relies on the data from sensors to accomplish the mission. However, the data is sometimes masked by the surface of the earth. It is difficult to detect a target in the clutter background. The theme of this thesis is to apply high order correlation technique to discriminate against the masking of clutter background data from infrared satellites. The high order correlation is to apply a Spatio-Temporally Cross Correlation calculation to extract the target by gradually expelling the densely mixed message of clutter background. Further improvement in the clutter rejection is achieved by modifying the high order correlation method. A new scoring process is developed by employing velocity and curvature information to achieve Multi-target detection. The method successfully identifies each track over a wide range of conditions. This technology not only could trace one or more of possible moving targets but also significantly improves clutter rejection rate.

Keywords : 高階相關法 ; 多目標偵測

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