雷達適應性掃描速率追蹤系統之研究

余俊慶、鍾翼能

E-mail: 9019002@mail.dyu.edu.tw

摘 要

本論文希望發展一個改良式的追蹤演算法，去追蹤變速度目標。傳統的追蹤系統使用固定式的掃描速率，在估算及預測目標軌跡時，假若掃描速率過快，會造成系統運算負荷過重，假若使用過慢的掃描速率，容易造成系統的誤差增大，因此，希望推導一套可以降低系統運算量的演算方法，同時亦能維持系統效能，這個架構主要包含適應性掃描速率追蹤演算法(ADAPTIVE SAMPLING RATE TRACKING ALGORITHM)，配合一個適應性擴展型卡門濾波器的技術，並利用1-STEP CONDITIONAL MAXIMUM LIKELIHOOD作為資料結合的技術。經由這個方式，將可以降低因目標變速度運動所產生的鉅大誤差，且減少系統計算量，並使系統可以獲得較佳的追蹤效能。 為了驗證本論文所提出的追蹤模式能真正地改善追蹤系統的效能，使用三種不同的追蹤演算法則及假設多個不同的飛行軌跡去對目標追蹤做詳細的模擬分析與比較。我們可以確信本論文所提出的方法，將可提昇追蹤效能，並且獲得較佳的追蹤結果。

關鍵詞 : 適應性掃描速率追蹤演算法、擴展型卡門濾波器、變速度運動

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