

Track Initiation Method Based on Multi-Algorithm Fusion Learning of 1DCNN And Bi-LSTM

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Abstract : Aiming at the problem of high-density clutter and interference affecting radar detection target track initiation in ECM and complex radar mission, the traditional radar target track initiation method has been difficult to adapt. To this end, we propose a multi-algorithm fusion learning track initiation algorithm, which transforms the track initiation problem into a true-false track discrimination problem, and designs an algorithm based on 1DCNN(One-Dimensional CNN)combined with Bi-LSTM (Bi-Directional Long Short-Term Memory)for fusion classification. The experimental dataset consists of real trajectories obtained from a certain type of three-coordinate radar measurements, and the experiments are compared with traditional trajectory initiation methods such as rule-based method, logical-based method and Hough-transform-based method. The simulation results show that the overall performance of the multi-algorithm fusion learning track initiation algorithm is significantly better than that of the traditional method, and the real track initiation rate can be effectively improved under high clutter density with the average initiation time similar to the logical method.

Keywords : track initiation, multi-algorithm fusion, 1DCNN, Bi-LSTM

Conference Title : ICSLP 2024 : International Conference on Speech and Language Processing

Conference Location : New York, United States

Conference Dates : May 23-24, 2024