TRACKING VARIABLE NUMBER OF TARGETS USING SEQUENTIAL MONTE METHODS (ThuAmOR5)

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Abstract :

In this paper, we present a new approach for online joint detection and tracking for multiple targets, using sequential Monte Carlo methods. We first use an observation clustering algorithm to find some regions of interest (ROIs), and then propose to initiate a new target or remove an existing track, based on the persistence information of these ROIs over time. In addition, we also integrate a very efficient 2−D data assignment algorithm into the sampling method for the data association problem. Computer simulations demonstrate that the proposed approach is robust in performing joint detection and tracking for multiple targets even though the environment is hostile in terms of a high clutter rate and a low target detection probability.

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