Multiple Object Tracking in Wireless Sensor Network based on the Mixture of KF and MLE

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Authors:

P. Ganeshwari

S. Diwakaran

Abstract

Wireless Sensor Networks (WSNs) has wide variety of applications and object tracking is one among that applications. In this paper, tracking of multiple objects is considered. The Extended Kalman Filter (EKF) algorithms are mostly used to get a linear form from the nonlinear states and then applying the standard Kalman filter for updating the state estimate. However, a significant drawback of the EKF algorithms is that the resulting estimation of the state diverges from its original state in many applications. In order to solve this problem one measurement conversion method Maximum Likelihood Estimation (MLE) is proposed in this paper. The analysis is based on object tracking in multiple sensor system. The object tracking is difficult
because sensors have to be send data from other sensors to the head with same timestamps. This is the well known data association problem and a method which is combination of Kalman Filter (KF) and Maximum Likelihood Method is proposed to solve this problem.

References

- M. G. Rabbat and R. D. Nowak, "Decentralized Source Localization and
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Index Terms

Computer Science

Wireless Networks

Keywords

Wireless Sensor Networks (wsns)  Object Tracking  Extended Kalman Filter (ekf)
Kalman Filter (kf)