Target Tracking with Efficient Sensors Scheduling Scheme over Fading Channel for WSNs

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ABSTRACT

An efficient sensor scheduling is proposed which is an interesting issue by applying wireless sensor network (WSN) for addressing to track a mobile target under fading channel is proposed in this report. The proposed efficient and simple algorithm is mainly for assisting mobile sensors management that is deployed in tracking a considerable moving target. The presented novel method leads to minimize comparison number of sensor sequences and to reduce executive time for unconstrained optimization. Moreover, the simulation results show that it is in reduction of memory utilization, energy consumption and computational cost as well. The famous Kalman Filter technique was applied to estimate posteriori state of the target in order to minimize mean square error (MSE) value in prediction step. In addition, the propagation channel is assumed as additive white Gaussian noise (AWGN) and Nakagami-m models for significant the contribution. Numerical example reveals that the developed algorithm can obtain a much better performance after consider the scheduling for tracking a target, and it worth to note that by an designed implementation the way of target tracking in WSN can be approached easily.

Keywords: mobile target tracking, MSE, WSN, Kalman Filter, AWGN.

REFERENCES

Parisa Jalalkamali and Reza Olfati-Saber, "Information-Driven Self-Deployment and Dynamic Sensor Coverage for Mobile Sensor Networks," American Control Conference...