



# Adaptive Non-myopic Quantizer Design for Target Tracking in Wireless Sensor Networks

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In this paper, we investigate the problem of nonmyopic (multi-step ahead) quantizer design for target tracking using a wireless sensor network. Adopting the alternative conditional posterior Cramer-Rao lower bound (A-CPCRLB) as the optimization metric, we theoretically show that this problem can be temporally decomposed over a certain time window. Based on sequential Monte-Carlo methods for tracking, i.e., particle filters, we design the local quantizer adaptively by solving a particlebased non-linear optimization problem which is well suited for the use of interior-point algorithm and easily embedded in the filtering process. Simulation results are provided to illustrate the effectiveness of our proposed approach.

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