WORST CASE ANALYSIS OF DECENTRALIZED KALMAN FILTERS UNDER COMMUNICATION CONSTRAINTS (WedPmOR3)

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✷ Abstract :   Decentralized Kalman filters are often used in multi−sensor target tracking as such a distributed fusion architecture has several advantages compared with centralized ones. On the other hand, distributed fusion is not only conceptually more complex but the required bandwidth is also likely to be a lot higher. However, a trade−off between bandwidth and performance is possible. In this work, the worst case performance degradation due to a reduction in communication rate between the processing nodes of a decentralized Kalman filter is derived analytically and verified by simulations.

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