

论文

模型不确定非线性Markov 跳变系统的滤波算法

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摘要:

针对模型不确定非线性Markov 跳变系统, 提出一种新的滤波算法. 相比于传统交互多模型粒子滤波, 该方法通过引入前一时刻的滤波误差来增强原先由于不精确模型而造成权值较小的真实粒子在滤波过程中的作用, 以此来改善算法的估计性能. 仿真结果表明, 该方法在处理含不确定模型参数的非线性Markov 跳变系统状态估计问题时具有较好的性能.

关键词: 模型不确定性; 非线性Markov 跳变系统; 状态估计

Filter algorithm for nonlinear Markov jump systems with uncertain models

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Abstract:

Considering the state estimation problem for the nonlinear Markov jump system with uncertain model, a novel filtering algorithm is proposed. Compared with the traditional interacting multiple particle filter method, in this method, a term of filtering error at previous time instant is introduced to increase the effect of the particles which are true but with small weights due to the inaccuracy model to improve the estimation performance in the filtering process. Simulation results show the effectiveness of this method in handling with the state estimation problem for the nonlinear Markov jump systems with uncertain model parameter.

Keywords: model uncertainties; nonlinear Markov jump system; state estimation

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