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博士论坛

离散时滞网络化系统H_∞控制

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摘要 研究了一类包含网络诱导时滞、数据丢包以及错序等非理想网络模型的H_∞控制问题。针对以往H_∞控制器设计算法的缺点，通过建立新的差分不等式，提出了一个新的改进算法。新算法具有保守性弱、不需事先给定H_∞范数上界以及不需要计算逆矩阵等特点。数值仿真例子表明，新算法是有效的。

关键词 网络控制系统 时滞 线性矩阵不等式 H_∞控制器 指数稳定

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H_∞ control for discrete networked systems with time delays

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Abstract

The H_∞ controller design problem of a class of non-ideal networked control system with time delay，data packet and wrong-sequence is investigated.For overcoming the fault of previous H∞ algorithm，by constructing a new difference inequality，a new improved H_∞ algorithm is proposed.In the new algorithm，the upper bound of H_∞ norm is not necessarily previously given and the computation of inverse matrix is not needed.Compared with previous algorithm，new algorithm is less conservative.Numerical simulation example shows that the method proposed is valid.

Key words networked control systems time delay Linear Matrix Inequality（LMI） H_∞ controller exponential stability

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