

工程与应用

变采样网络控制系统的鲁棒控制

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摘要 对于线性时不变控制对象, 在控制器和控制对象都采用时间-事件驱动时系统就变成变采样网络控制系统, 当网络时延不确定时, 在小于或者等于一个变采样周期时, 基于动态输出反馈对变采样网络控制系统进行建模, 使用李雅普诺夫方法和线性矩阵不等式研究了系统的鲁棒稳定性, 并设计了鲁棒控制器, 最后给出实例证明在鲁棒控制器的控制下系统稳定。

关键词 [网络控制系统](#) [变采样](#) [时间-事件驱动](#) [鲁棒控制](#)

分类号

Robust control of variable-sampling networked control system

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Abstract

For linear time-invariant normal controlled plant, under the assumption that controller and actuator adopt the method of event-time driven the system is a variable-sampling networked control system, and network-induced delay time is uncertain, it is less than or equals to a variable-sampling period. Basing on the dynamic output feedback the variable-sampling networked control system is modeled. Making used of the Lyapunov technique and linear matrix inequality description, the robust stability of the system is studied, and the condition of robust stability and the design method of robust control law of the system are presented respectively. Finally, an example is given to illustrate the analysis results.

Key words [networked control system](#) [variable-sampling](#) [event-time driven](#) [robust control](#)

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