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论文

基于信号量化处理的随机时滞网络化系统的分析与设计

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摘要： 研究一类时滞分布依赖的网络化系统的量化控制问题. 首先, 在考虑信号量化处理的影响下, 建立包含时延区间概率分布信息和信号量化信息的新的网络化系统模型; 然后, 运用Lyapunov 稳定性理论、矩阵函数的凸性、自
由权技术和Jessen 不等式等分析方法给出系统渐近稳定和镇定的条件; 最后, 运用线性矩阵不等式(LMI) 技术求解量化控制器. 仿真结果和横向比较结果验证了所述方法的有效性.

关键词： 网络控制系统 量化 凸性

Analysis and design for networked systems with random delay based on signal quantization

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Abstract: This paper considers the problem of quantized control for a class of networked control system (NCS). The new
model of NCS are derived considering the delay, packet dropout, quantization and delay probability distribution. Then by
using of the analysis method of Lyapunov stability theory, convexity of matix function, free-weighting technology and Jessen
inequalities etc, the stability and stabilization criteria are given. Quantized controller is designed by using of LMI technology.
Finally, the results of the simulation and the comparation with related paper show the effectiveness of the proposed method.

Keywords: networked control systems quantization convexity

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