

基于数据驱动方法的控制器设计及其参数整定

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收稿日期 2010-5-6 修回日期 网络版发布日期 2010-7-28 接受日期

摘要 以一般离散时间非线性系统为研究对象,提出一类基于数据驱动的控制器设计及其参数整定方法.方法首先依据非参数时变动态线性化定理提出3种控制器结构,再采用迭代反馈整定方法(IFT)优化其控制器参数,从根本上解决了IFT方法给定控制器结构时存在的盲目性.最后将该方法与另外两种数据驱动控制方法---无模型自适应控制(MFAC)和IFT方法进行比较研究,结果表明方法是有效的.

关键词 [数据驱动,非参数时变动态线性化,无模型自适应控制,迭代反馈整定.](#)

分类号 [93C40](#)

Data-Driven Based Controller Design and Its Parameters Tuning Method

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Abstract A class of data-driven based controller design and its parameters tuning method (IFT-MFAC) was proposed for a class of discrete-time nonlinear system in this paper. Three controller structures are deduced according to non-parameters time-varying dynamic linearization theorem, then the controller parameters are tuning by IFT technique. The rationality of the 3 structures of the controller is assured by the theorem, whereas, the controller structure is designed blindly by IFT. Obviously, the new method settles down this problem more properly. Finally, the three data-based methods IFT-MFAC, MFAC and IFT were compared through 3 examples. And the simulation results show the validity of the IFT-MFAC.

Key words [Data-driven](#) [non-parameters time-varying dynamic linearization](#) [model-free adaptive control](#) [iterative feedback tuning.](#)

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