

短文

基于神经网络补偿的非线性时滞系统时滞正反馈控制

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摘要

A new adaptive time-delay positive feedback controller (ATPFC) is presented for a class of nonlinear time-delay systems. The proposed control scheme consists of a neural networks-based identification and a time-delay positive feedback controller. Two high-order neural networks (HONN) incorporated with a special dynamic identification model are employed to identify the nonlinear system. Based on the identified model, local linearization compensation is used to deal with the unknown nonlinearity of the system. A time-delay-free inverse model of the linearized system and a desired reference model are utilized to constitute the feedback controller, which can lead the system output to track the trajectory of a reference model. Rigorous stability analysis for both the identification and the tracking error of the closed-loop control system is provided by means of Lyapunov stability criterion. Simulation results are included to demonstrate the effectiveness of the proposed scheme.

关键词 [Time-delay system](#) [neural networks](#) [system identification](#) [adaptive control](#) [linearization compensation](#)

分类号

Time-delay Positive Feedback Control for

扩展功能

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