عنوان مقاله:

An Improvement on the Problem of Fuzzy Control Design forNonlinear Systems with Persistent Bounded Disturbances

محل انتشار:

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خلاصه مقاله:

This paper is concerned with the problem of output feedback fuzzy L -gain control design for nonlinear systems. The nonlinear system isrepresented by using T-S fuzzy modeling scheme. The existingapproach in the literature implements an observer-based outputfeedback controller structure for each local compensator. Theirapproach applies a novel separation method to find the controller gainsand observer gains simultaneously. However, this separation method isconservative. The proposed approach in this paper is based on assuminga general structure for each local controller. It seems that implementinga general class of output feedback control laws is a natural substitute forobserver-based controllers. Moreover, in our approach, there is no needto apply any conservative separation method to find the controllersparameters. In the proposed approach in this paper, the problemformulation and the method of finding the controller parameters areoffered in a single step LMI formulation. Moreover, this fact enables usto find the optimal upper bound for the L -gain via a two-dimensionalsearch over the solutions of a series of LMIs

کلمات کلیدی:

L -gain, T-S fuzzy systems, output feedback, linear matrixinequalities, optimal control

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