Nonlinear H∞ Output Feedback Control of Stochastic Time-Delay T-S Fuzzy Model with State-Dependent Noise

李柏坤,王志湖,吳建鋒,劉建男,蘇朝琴,陳博現
Electrical Engineering
Engineering
bklee@chu.edu.tw

Abstract

In this paper, we study the robust H∞ output feedback control problem for the nonlinear stochastic continuous-time time-delay systems with state-dependent noise represented by the Takagi and Sugeno fuzzy model. Based on the fuzzy approach, the fuzzy controller and the fuzzy estimator which guarantee H∞ robustness performance for the considered nonlinear stochastic systems can be obtained by solving bilinear matrix inequalities. Then, to solve the bilinear matrix inequalities, a two-stage method is adopted to separately obtain the controller gain matrices and the estimator gain matrices by solving two sets of linear matrix inequalities.

Keyword：time-delay, nonlinear stochastic system, state-dependent noise