Decoupling design of H∞ output feedback control for a class of continuous-time T-S fuzzy stochastic systems

Shih-Ju Ho, 李柏坤, Bor Sen Chen
Electrical Engineering
Engineering
bklee@chu.edu.tw

Abstract

In this study, we propose a robust H∞ fuzzy control under generalized dynamic output feedback scheme design method for a class of continuous-time nonlinear stochastic systems with state-dependent noise. Based on Takagi and Sugeno (TS) fuzzy dynamic model, generalized fuzzy controller is developed to achieve the H∞ control system performance by meeting the Hamilton-Jacobi inequality (HJI). However, for reducing the complicated computation, the controller gain matrices can be obtained via solving some related linear matrix inequalities (LMI) instead of the Hamilton-Jacobi inequality (HJI). Simulation study is provided to illustrate my main results.

Keyword：state-dependent noise, nonlinear stochastic system, Output feedback control, H∞ control