عنوان مقاله:

Switching H2/H∞ Controller Design for Linear Singular Perturbation Systems

محل انتشار:

دوفصلنامه مجله کامپیوتر و رباتیک, دوره 3, شماره 2 (سال: 1388)

تعداد صفحات اصل مقاله: 6

نویسنده:

Ahmad Fakharian - *Department of Electrical and Computer Engineering, Islamic Azad University, Qazvin Branch, Qazvin, Iran*

خلاصه مقاله:

This paper undertakes the synthesis of a logic-based switching H2/H∞ state-feedback controller for continuous-time LTI singular perturbation systems. Our solution achieves a minimum bound on the H2 performance level, while also satisfying the H∞ performance requirements. The proposed hybrid control scheme is based on a fuzzy supervisor managing the combination of two controllers. A convex LMI-Based formulation of two fast and slow subsystem controllers leads to a structure which ensures a good performance in both transient and steady-state phases. The stability analysis leverages on the Lyapunov technique, inspired from the switching system theory, to prove that a (controller system with the proposed controller remains globally stable in the face of changes in configuration).

کلمات کلیدی:

Continuous-time LTI singular perturbation system, Fuzzy supervisor, Switching H2/H∞ state-feedback control, Linear (Matrix Inequality (LMI