URN etd-0407109-183715-1230
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Statistics This thesis had been viewed 58 times. Download 24 times.
Department
Year 2006
Semester 1
Degree Master
Type of Document Master's Thesis
Language English
Title Analysis and Synthesis of Switched Nonlinear Systems via Fuzzy Control Approach
Date of Defense 0000-00-00
Page Count 98
Keyword
switched system
T-S fuzzy model
Lyapunov function

Abstract
In this thesis, the methods based on Lyapunov stability theorem to study the stabilization and switching law design for the T-S fuzzy switched continuous-time and discrete-time systems with state-driven switching method are presented. Furthermore, these methods can be applied to cases when all individual subsystems are unstable. The PDC is employed to design fuzzy controllers from the T-S fuzzy models. The stabilization analysis is reduced to a problem of finding a common Lyapunov function for a set of linear matrix inequalities. Therefore, convex optimization techniques involving LMIs are utilized to find a common Lyapunov function and stable feedback gains satisfying T-S fuzzy switched continuous/discrete system.
Finally, some numerical examples and an application to a chemical process example will be given to show the merits of the proposed approach, respectively.
Advisory Committee Juing-Shian Chioua - advisor

Files etd-0407109-183715-1230-001.pdf

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Date of Submission 2007-08-02