سیویلیکا - ناشر تخصصی مقالات کنفرانس ها و ژورنال ها
گواهی ثبت مقاله در سیویلیکا
CIVILICA.com

عنوان مقاله:

A Linear Controller for Synchronization of the Unified Chaotic System Using T-S Model: Design and Analog Circuit Implementation

محل انتشار:

هفتمین کنفرانس ملی مهندسی برق و الکترونیک ایران (سال: 1394)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Mohammad Hasan Asemani - *Power & Control Engineering Department School of Electrical & Computer EngineeringShiraz University, Shiraz, Iran*

Mehdi Miri - *Communication & Electronic Engineering Department School of Electrical & Computer EngineeringShiraz University, Shiraz, Iran*

خلاصه مقاله:

A new controller design method for synchronization of unified chaotic systems is proposed in this paper. First, we derive the Takagi-Sugeno (T-S) fuzzy model representation of the unified chaotic system. Then, by defining a special performance index for minimizing the synchronization error, we convert controller design conditions in the form of Linear Matrix Inequalities. In order to obtain a simple controller for practical implementation purposes, we suppose that the synchronization controller is linear one. To show the validity and simplicity of the proposed method, the linear controller has been implemented with analog devices on a real application. In fact, two electronic circuits have been constructed to realize the master and slave chaotic systems and then the proposed controller has been implemented on the slave system to synchronize the master and slave systems. Finally, we provide experimental results to show that the proposed controller successfully synchronizes the master and slave systems.

کلمات کلیدی:

(Unified chaotic system; T-S fuzzy model; Analog circuit implementation; Linear Matrix Inequalities (LMIs

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/459564