

# Master-slave chaos synchronization using adaptive TSK-type CMAC neural control

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## Abstract

In this paper, an adaptive TSK-type CMAC neural control (ATCNC) system via sliding-mode approach is proposed for the chaotic symmetric gyro. The proposed ATCNC system is composed of a neural controller and a supervisory compensator. The neural controller uses a TSK-type CMAC neural network (TCNN) to approximate an ideal controller and the supervisory compensator is designed to guarantee system stable in the Lyapunov stability theorem. The developed TCNN provides more powerful representation than the traditional CMAC neural network. Some simulations are presented to confirm the validity of the proposed ATCNC scheme without occurring chattering phenomena. Further, the proposed PI type adaptation laws can achieve faster convergence of the tracking error than that using integral type adaptation laws in previous published papers.

Keyword : chaotic system