

# Robust intelligent tracking control with PID-type learning algorithm

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## Abstract

This paper proposes a robust intelligent tracking controller (RITC) for a class of unknown nonlinear systems. The proposed RITC system is comprised of a neural controller and a robust controller. The neural controller is designed to approximate an ideal controller using a PID-type learning algorithm in the sense of Lyapunov function, and the robust controller is designed to achieve tracking performance with desired attenuation level. Finally, to investigate the effectiveness of the RITC system, the proposed design methodology is applied to control two chaotic dynamical systems. The simulation results verify that the proposed RITC system using PID-type learning algorithm can achieve faster convergence of the tracking error and controller parameters than that using I-type learning algorithm.

Keyword : adaptive control, neural network control, robust control, Lyapunov function, chaotic dynamic system