

# Modeling Belt-Drive System with Nonlinear Dynamic Characteristics

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## Abstract

In this study, the modeling of belt-drive system based on Chebyshev Recurrent Wavelet Neuro-Fuzzy Network (CRWNF) [1] is proposed. CRWNF is composed of Recurrent Wavelet Neural networks and Fuzzy theory. Using Recurrent Wavelet Neural networks with dynamical mapping mechanism as inferring mechanisms can identify nonlinear dynamical system effectively. To verify the performance of the proposed CRWNF for modeling belt-drive system, that of the adaptive neural fuzzy inference system is also presented. According to the simulation results CRWNF can identify nonlinear dynamical system more effectively.

Keywords: recurrent wavelet neural network、fuzzy theory