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Control of Unknown Chaotic Systems Based on Neural Predictive Control

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Abstract: We introduce the predictive control into the control of chaotic system and propose a neural network control algorithm based on predictive control. The proposed control system stabilizes the chaotic motion in an unknown chaotic system onto the desired target trajectory. The proposed algorithm is simple and its convergence speed is much higher than existing similar algorithms. The control system can control hyperchaos. We analyze the stability of the control system and prove the convergence property of the neural controller. The theoretic derivation and simulations demonstrate the effectiveness of the algorithm.

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Key words: chaos control, neural networks, predictive control

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