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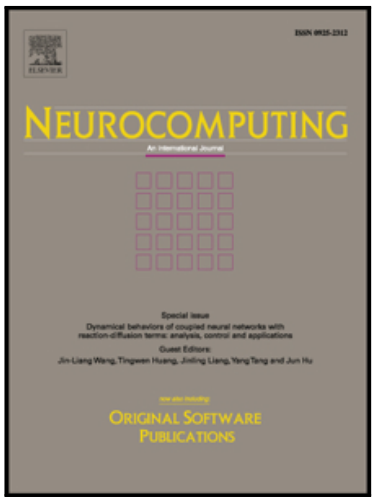

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Matrix measure based exponential stabilization for complex-valued inertial neural networks with time-varying delays using impulsive control

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Abstract

In this paper, the problem on the exponential stabilization of complex-valued inertial neural networks with time-varying delays via impulsive control is studied. By virtue of an appropriate variable transformation, the original inertial neural network is transformed into the first order complex-valued differential system. Based on matrix measure and applying impulsive differential inequality, some easily verifiable algebraic criteria on delay-dependent conditions are derived to ensure the global exponential stabilization for the addressed neural networks using impulsive control. Moreover, the different unstable equilibrium point can also be exponentially stabilized by using the different impulsive controllers and the exponential convergence rate index is also estimated. Finally, two numerical examples with simulations are presented to show the effectiveness of the obtained results.

Keywords: Complex-valued inertial neural network; Global exponential stabilization; Matrix measure; Impulsive differential inequality; Impulsive controller.

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1 Introduction

During the past decades, neural networks have wide applications in signal processing, associative memory, optimization and automatic control. Therefore, the study of neural networks has

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